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Report No: 87051-ZR

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF SDR59.8 MILLION
(US$92.1 MILLION EQUIVALENT)

TO THE

DEMOCRATIC REPUBLIC OF CONGO

IN SUPPORT OF THE FIFTH PHASE OF
THE CENTRAL AFRICAN BACKBONE PROGRAM (CAB SOP5)

June 19, 2014

Information and Communication Technology Sector Unit
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective May 31, 2014)

Currency Unit	=	Congolese Franc
CDF 924	=	US$1
US$	=	SDR 0.64915253

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ARPTC	Autorité de Régulation de la Poste et des Télécommunications du Congo
CAB	Central African Backbone
CAS	Country Assistance Strategy
CGPMP	Cellule de Gestion des Projets et Marchés Publics
CITCC	China International Telecommunication Construction Corporation
COPIREP	Comité de Pilotage de la Réforme des Entreprises du portefeuille de l'Etat
CSR	Corporate Social Responsibility
DSO	Digital Switchover
EASSy	Eastern Africa Submarine Cable System
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GNI	Gross National Income
GPN	General Procurement Notice
ICB	International Competitive Bidding
ICT	Information and communications technologies
IPP	Indigenous Peoples Plan
IPPF	Indigenous People Planning Framework
IRU	Indefeasible Right of Use
MINPORTFOLIO	Ministry of Portfolio
MINPTNTIC	Ministère des Postes, Télécommunications et Nouvelles Technologies de l'Information et de la Communication
OCPT	Office Congolais des Postes et Télécommunication
OPGW	Optical Ground Wire
PFP	Project Focal Point
PPA	Project Preparation Advance
PPP	Public Private Partnerships
RCIP	Regional Communications Infrastructure Program
RPF	Resettlement Policy Framework
SAPMP	South African Power Market Pool

SBD	Standard Bidding Document
SCPT	Société Congolaise des Postes et Télécommunication
SNCC	Société Nationale des Chemins de Fer du Congo
SNEL	Société Nationale d'Electricité
SOP	Series of Projects
SPN	Société de Patrimoine Nationale
SPV	Special Purpose Vehicle
TCMO	Total Cost of Mobile Ownership
WACS	West Africa Cable System
WARCIP	West Africa Regional Communications Infrastructure Program
WiLL	Wireless Local Loops

Regional Vice President:	Makhtar Diop
Regional Integration Director:	Colin Bruce
Country Director for DRC:	Eustache Ouayoro
Sector Director:	Jose Luis Irigoyen
Sector Manager:	Randeep Sudan
Task Team Leader:	Jerome Bezzina

DEMOCRATIC REPUBLIC OF CONGO
THE CENTRAL AFRICAN BACKBONE PROGRAM (CAB SOP5)

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Africa

Central African Backbone SOP5 (P132821)

PROJECT APPRAISAL DOCUMENT

AFRICA

TWICT

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Basic Information			
Project ID P132821	EA Category B - Partial Assessment		Team Leader Jerome Bezzina
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [X]		
Project Implementation Start Date 15-Jul-2014	Project Implementation End Date 30-Jun-2019		
Expected Effectiveness Date 15-Dec-2014	Expected Closing Date 31-Dec-2019		
Joint IFC No			
Sector Manager Randeep Sudan	Sector Director Jose Luis Irigoyen	Country Director Colin Bruce	Regional Vice President Makhtar Diop

Borrower: Democratic Republic of Congo			
Responsible Agency: COPIREP			
Contact:	Alex N'KUSU DONGALA SIYA	Title:	Secretaire Executif a.i.
Telephone No.:	2430815007277	Email:	ankusu@copirep.org

Project Financing Data(in USD Million)					
[ ]	Loan	[X]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[ ]	Grant	[ ]	Other

Total Project Cost:	92.10	Total Bank Financing:	92.10
Financing Gap:	0.00		

Financing Source	Amount
BORROWER/RECIPIENT	0.00
International Development Association (IDA)	92.10
Total	92.10

Expected Disbursements (in USD Million)

Fiscal Year	2015	2016	2017	2018	2019
Annual	6.00	20.00	30.00	20.00	16.10
Cumulative	6.00	26.00	56.00	76.00	92.10

Proposed Development Objective(s)

The development objective of the proposed project is to contribute to increase the geographical reach and usage of regional broadband infrastructure and to reduce the price of services to enable more people in the DRC to access information and communication technology services.

Components

Component Name	Cost (USD Millions)
Component A - Emergence of an Inclusive Digital Economy	13.20
Component B - Construction, Management and Commercialization of the CAB5 Infrastructure through a PPP Scheme	71.60
Component C - Enabling Environment and Regulatory Effectiveness	7.30

Institutional Data

Sector Board

Global Information/Communications Technology

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Information and communications	General information and communications sector	20		
Information and communications	Information technology	30		
Information and communications	Telecommunications	50		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)		
Major theme	Theme	%
Financial and private sector development	Infrastructure services for private sector development	40
Financial and private sector development	Regulation and competition policy	40
Financial and private sector development	State-owned enterprise restructuring and privatization	20
Total		100

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [ ]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04	**X**	
Forests OP/BP 4.36		**X**
Pest Management OP 4.09		**X**
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10	**X**	
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**
Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60		**X**

Legal Covenants

Name	Recurrent	Due Date	Frequency
Establishment of the SPN		15-Mar-2015	

Description of Covenant

The Government will establish the board of the *Société de Patrimoine Nationale* (SPN), which will play the role of Steering Committee to provide overall coordination and supervision for the Project, fiduciary and governance oversight and approval of the Annual Work Programs, with terms of reference, composition and powers as further described in the Project Implementation Manual.

Name	Recurrent	Due Date	Frequency
Establishment of the SPN Fiduciary Unit		15-Mar-2015	

Description of Covenant

The Government will create the Project Fiduciary Unit, established within SPN to run the day-to-day fiduciary management and planning of the Project, with staffing, terms of reference, composition and powers as further described in the Project Implementation.

Name	Recurrent	Due Date	Frequency
Recruitment of three Project Focal Points		15-Jan-2015	

Description of Covenant

The Government will recruit three Project Focal Points (MINPTNTIC, MINPORTFOLIO and ARPTC), to provide oversight of all technical, social, and environmental matters relating to Project implementation; planning of Project activities and preparation of Annual Work Programs; monitoring and evaluation of Project activities including quality assurance.

Name	Recurrent	Due Date	Frequency
Cooperation Agreement			

Description of Covenant

The Government will execute a cooperation agreement with SPN (once created) under grant terms and conditions approved by the Bank.

Name	Recurrent	Due Date	Frequency
External Audit		15-Mar-2015	

Description of Covenant

The Government will recruit independent auditors to carry out the audit on the financial statements related to the project.

Conditions

Source Of Fund	Name	Type
IDA	Condition to subcomponent A(4) implementation	Disbursement

Description of Condition

The Government will transmit to the Bank the detailed terms of reference for the technical rehabilitation and support for the Kinshasa-Muanda optic fiber link and the Restructuring Schedule for the SCPT.

Source Of Fund	Name	Type
IDA	Condition to subcomponent B(2) implementation	Disbursement

Description of Condition

The Government has transmitted to the Bank the Cooperation Agreement and the new ICT legal and regulatory framework has been adopted.

Team Composition

Bank Staff

Name	Title	Specialization	Unit

Joulan Abdul Khalek	Junior Professional Associate	Junior Professional Associate	TWICT
Jerome Bezzina	Senior Regulatory Economist	Team Lead	TWICT
Aissatou Diallo	Senior Finance Officer	Senior Finance Officer	CTRLA
Faly Diallo	Financial Officer	Financial Officer	CTRLA
Angelo Donou	Financial Management Specialist	Financial Management Specialist	AFTMW
Arthur Denis Pascal Foch	Jr Professional Officer	Jr Professional Officer	TWICT
Naomi J. Halewood	ICT Policy Specialist	ICT Policy Specialist	TWICT
Mireille Mudipanu Kabasubabo	Team Assistant	Team Assistant	AFCC2
Marc Jean Yves Lixi	Senior Operations Officer	Bank operations	TWICT
Isabella Micali Drossos	Senior Counsel	Senior Counsel	LEGAM
Tasneem Rais	Program Assistant	Program Assistant	TWICT
Lanssina Traore	Procurement Specialist	Procurement Specialist	AFTPW

I. STRATEGIC CONTEXT

A. Country Context

1. **Due to its vast geography, large population and abundance of natural resources, the Democratic Republic of Congo (DRC) has the potential to become one of Africa's economic powerhouses.** The DRC is the largest country in Sub-Saharan Africa (SSA) with a land surface area of 2.3 million square kilometers and a population close to 75 million. Surrounded by nine countries, it is mostly landlocked with only about 37 km of coastline along the Atlantic Ocean. Natural resources can be found throughout the country and include petroleum, natural gas, coal, cobalt, diamonds, gold, and copper. Located in the Great Lakes region, DRC also holds the potential of becoming a significant producer of hydroelectric power – today, about 90 percent of domestic consumption of power is hydroelectric.

2. **Decades of wars and mismanagement have deeply impoverished its population and destroyed its infrastructure.** The country continues to recover from a series of conflicts that took place during the 1990s and early 2000s and that lead to the death of more than 3.5 million people and displacement of more than 2 million. Economic growth has resumed in recent years, but per capita income continues to decline and is much lower than in the late 1980s. With a per capita Gross National Income (GNI) of US$220 (2012), DRC is among the poorest countries in the world. More than 71 percent [1]of the population lives under the US$1.25 a day poverty line (2013).

3. **Human development indicators are strikingly low for the DRC**. In 2012, the United Nation's Human Development Index ranked DRC last among 187 countries. Gender inequality is high, with gender-based violence a bleak day-to-day reality for a large number of women. Life expectancy at birth is 48 years (2009), under-5 child mortality is at almost 170 per 1,000 live births (2010), and maternal mortality is estimated at about 670 per 100,000 live births compared to the regional average of 500 (2010). Despite some progress in recent years, education outcomes remain low, with gross enrollment ratios estimated at 91 percent for primary, 36.5 percent for secondary, and about 6 percent for tertiary education. The population remains vulnerable to food price shocks due to the continued low performance of the agricultural sector, poor infrastructure and logistics, and their subsequent impact on trade and commerce. Currently, with 47 percent of the country's population under the age of 15, youth unemployment remains to be a major problem. The unemployment rate among the youth is nearly 90 percent half of whom are 30 years of age or under. Moreover, only 1 in 20 working-age adults under 25 years of age has a job.

4. **The economic situation in the past few years has been improving and the country has remained largely unaffected by the global financial crisis.** Economic growth recovered from 2.8 percent in 2009 to 7.2 percent in 2010, which was sustained at 6.9 percent in 2011. It is projected to remain over 7 percent which can be attributed to the recovery of the agricultural and trade sectors, and growth in the capital-intensive mining sector. Export receipts (goods and services) jumped by 80 percent in 2010, as a result of favorable prices for exported minerals, and increased further, by 18 percent, in 2011, before stabilizing in 2012.

[1] Country Assistance Strategy FY13 – FY16, Report 66158-ZR, World Bank, April 12, 2013

5. **Information and communications technologies (ICT) could potentially play an important role in the road to recovery and in the pursuit of sustainable development in the DRC.** ICT provides leap-frogging opportunities, by enabling new ways of communicating, sharing and storing information, delivering services and conducting business. Increased access to information would benefit various segments of society, for example, it would empower entrepreneurs and traders to expand their business within the DRC and to facilitate trade regionally and globally. The total economic impact of the ICT sector represents more than 3 percent on the Central African Region and the effect of a 10 percent increase in mobile penetration on GDP per capita growth is 4.6 percent[2]. While it is increasingly acknowledged that ICT is an enabling input to various sectors, the ICT sector itself can be a source of job creation industry contribution to employment in Central African region is estimated to reach 600,000 Full Time Equivalents (FTEs)[3].

B. Sectoral and Institutional Context

6. **DRC lacks any comprehensive national fiber optic backbone infrastructure that is needed for the provision of broadband services**. The telecommunications sector in the DRC is severely fragmented with disparate wireless, copper and fiber optic cable networks operating in different parts of the vast country. Existing networks are concentrated in the three largest economic clusters of Kinshasa, Goma and Lubumbashi. No operator has the financial resources nor the commercial incentives to extend its networks on a national scale, including the state-owned fixed-line telecommunications company, *Société Congolaise des Postes et Télécommunication* (SCPT)[4]. This means that a call originating from Goma headed for Lubumbashi either goes through a satellite service, or is routed internationally subsequently resulting in higher prices for the consumer. Furthermore, the quality of the call is jeopardized particularly when routed through multiple countries.

7. **Despite this reality, several investments into optical fiber networks in the DRC have been made implying a latent demand for telecommunications services.** Liquid Telecom, a private company that has extensive fiber network across Southern Africa extended its 17,000km network across Uganda, Kenya, Rwanda, Zambia, Zimbabwe, Botswana, Lesotho and South Africa to Lubumbashi in 2012 which provides the country with international connectivity through Zambia. The SCPT, with the China International Telecommunication Construction Corporation (CITCC), has started to build-out the Government's national fiber backbone, with the first 1,500km phase of the project completed and linking Kinshasa to Muanda. Phase two of this project started in April 2013 will build out of 3,500km new fiber from Kinshasa to Katanga, through the provinces of Bandundu and Kasai. The World Bank Southern African Power Market Project (SAPMP) is supporting the deployment and commercialization of fiber optic bandwidth capacity that has been laid on the *Société Nationale d'Electricité* (SNEL) energy grid[5]. SAPMP is supporting the tender process that will award a concession contract to a telecommunications service provider. Despite these investments, and due to the large size of the country and lack of coordination by the Government and private operators, these networks remain unconnected.

[2] Deloitte analysis – Sub-Saharan Africa Mobile Observatory GSMA 2012
[3] Deloitte analysis – Sub-Saharan Africa Mobile Observatory GSMA 2012
[4] SCPT was previously known as l'*Office Congolais des Postes et Télécommunication*s (OCPT).
[5] Also called smart grid, modern electrical grids carry fiber optic cable in order to gather information about the behaviors of suppliers and consumers. Since the communication needs of an electricity company are minimal, there is usually ample bandwidth capacity left over that can be leased.

8. **DRC's fixed-line telecommunications network is extremely limited.** In 2012, the number of lines in service stood at 58,000, and household penetration was 0.4 percent, compared to the regional average of 6.7 percent[6]. Some operators started using wireless local loops (WiLL) which has led to a minimal number of new fixed-line services mainly in the capital city, Kinshasa, and in Lubumbashi, the second largest city in the country. Because of erratic power supply and the outdated status of the network owned and operated by SCPT, only 50 percent of its fixed lines are estimated to be in working order[7].

9. **Wireless communications is currently the most accessible and reliable form of telecommunication services in the DRC.** At the end of December 2001 there were just 150,000 mobile phone subscribers across the country, which increased to 22.7 million by the end of March 2013. Still in a country of 75 million, this translates to a penetration rate of only 30% which is significantly lower than other countries in the region (Angola, 50%; Congo, 101%; Zambia, 76%) as well as other low-income countries (Afghanistan, 54%; Cambodia, 132%; Haiti, 60%). The mobile segment of the market has six operators – Vodacom, Airtel DRC, Tigo DRC, Orange DRC, Africell and SuperCell, with Airtel and Vodacom currently holding 37.5% and 34% market shares respectively[8].

10. **Provision of Internet services in the country is also dismal.** SCPT is unable to offer fixed-internet access, and as a result private Internet Service Providers (ISP) has been offering predominantly wireless-based Internet services. Prices are prohibitive for most people, limiting Internet access to large businesses, government institutions and the expatriate community. Only 1.7% of DRC's population is thought to use the Internet and 1.3% of households have access to the Internet and personal computer[9].

11. **DRC is one of the few African countries that remain highly dependent on costly satellite connectivity to access international bandwidth capacity.** In 2011, the DRC became connected to international fiber networks through fiber through the West Africa Cable System (WACS). However, the operation of the WACS landing station went live only on June 14, 2013. Further difficulties transpired when the quality of civil works for the connection between WACS and terrestrial backbone infrastructure did not meet international standards and is currently unusable. The current price of bandwidth is still prohibitive at about US$4,000-5,000 per Mbps per month. By comparison, the price of similar services in East Africa is approximately US$500 and continuing to decrease as a result of intense competition between submarine cables.

12. **Furthermore, the legal, policy, and regulatory environment is weak and is inadequate for the oversight of a fast-evolving sector.** Key issues include the following:

a. *Restructuring of the state-owned fixed-line operator.* SCPT, with less than 2,000 properly functioning telephone lines, is not a financially viable company. The COPIREP (*Comité de Pilotage de la Réforme des Entreprises du portefeuille de l'Etat* – Steering Committee in charge of the Reform of Public Companies) recognizing this has prepared a government proposal for the restructuring of the SCPT. The proposal includes the following options: (i) SCPT is spun-off into two separate legal entities, one for postal services and the other for telecommunications services; (ii) sharing of assets and

[6] International Telecommunication Union
[7] GlobalComms Database, Telegeography.
[8] GlobalComms Database, Telegeography
[9] International Telecommunication Union

liabilities between both postal and telecommunications services. It is important that a social plan is laid down for the retrenchment of public sector staff in either scenario. This has been discussed in studies supervised by COPIREP and funded under World Bank project[10].

b. *Weak legislation, regulation and sector policy*. The current 2002 Telecommunications Law has not been adapted to the existing market realities and does not take into consideration new converging technologies that have emerged in the past several years such as mobile broadband (e.g. 3G/4G/LTE). Therefore a new legal and regulatory framework has been drafted and is being examined by the *Commission des Lois*. The Government (Council of Ministers) plans to submit the new law for adoption through a habilitation process before end July 2014, before being formally adopted during the next parliamentary session. The draft Law addresses the main gaps and weaknesses of the 2002 Law.[11] It improves and develops information technology law, "cyber", legal and institutional frameworks, and deals with subject areas such as cyber security, cybercrimes, privacy, promotion of the ICT sector innovation and support to the national entities in charge of ICT.

c. *Weak regulatory oversight of the telecommunications sector*. While the establishment of *Autorité de Régulation de la Poste et des Télécommunications du Congo* (ARPTC) in 2002 (Law n°014/2002) was a commendable achievement, the overall accomplishments of the regulator have not met expectations. One reason is insufficient funding and lack of authority to implement decisions.

d. *Excessive taxation of operators*. With tax revenues from the telecommunications sector accounting for one-third of the Government's revenues, the sector is seen as a "cash cow". These burdensome and discriminatory taxes deter the adoption and use of both fixed and mobile broadband and other advanced ICT sector applications that are considered major drivers for development and growth in the context of information-based economy. A recent GSMA report shows that taxation for mobile operators in the DRC was one of the highest worldwide in 2011[12].

13. **The World Bank has provided extensive support to the telecommunications sector of the DRC since 2004**. Support has been provided through a series of technical assistance activities including: (i) assisting in the creation and operation of the regulator, ARPTC (Private Sector Development Competitiveness Project 2004-2008), (ii) policy dialogue to support the adoption of the Letter of Sector Policy in FY09, FY10 and FY11; (iii) supporting the *Ministère des Postes, Télécoms, et Nouvelles Technologies de l'Information et de la Communication* (MINPTNTIC) to develop an Information and Communication Technologies (ICT) Strategy,

[10] E.g. 2008 Study funded under Private Sector Development project and proposed by Euro Phoenix « *Diagnostic de la problématique et stratégies possibles de désengagement de l'Etat de L'office Congolais des Postes et Télécommunications* »

[11] Under the 2002 Law, the state owned telecom operator SCPT holds temporary exclusive rights to "national backbone" raising the possibility that any "national backbone" should be commercially exploited by SCPT. However, the telecommunications law (No. 013 of 2002) at Art 12 allows the State via the telecommunications regulator to authorize (exceptionally) another operator (not SCPT) to install and exploit part of the "national backbone".

[12] Mobile taxation measured as a proportion of TCMO (Total Cost of Mobile Ownership) was more than 29 percent in DRC as compared to a regional average of 19 percent in Sub Saharan countries and a global average of 18 percent. See http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/SSA_FullReport_v6.1_clean.pdf

ICT Policy and Broadband Strategy; and (iv) supporting the revision of the legal and regulatory framework identified as key actions in the ICT Strategy and Policy documents.

C. Higher Level Objectives to which the Project Contributes

14. **The development of DRC's telecommunications sector would contribute to the Bank's twin goals of eliminating extreme poverty and boosting shared prosperity.** The Country Assistance Strategy (CAS) for the DRC was discussed by the Board of the World Bank on May 7th, 2013. The improvement of access to quality broadband network and services at reduced cost has been clearly identified under CAS Outcome 2.3. Key outcome indicators expected to be impacted by Bank-supported activities are: (i) increased total broadband penetration (household penetration); and (ii) increased international Internet bandwidth.

15. **The proposed project builds on the overall CAB SOP regional program**, and would have potential benefits within the DRC and across the borders it shares with nine other countries. The World Bank report "*Reviving the Great Lakes: A World Bank Group Regional Initiative for Peace, Stability and Economic Development*" was submitted to the Board of Directors in June 2013 and lays out a strategy for regional development looking at linkages between peace, security and long term development in the great lakes region. The report mentions the CAB SOP Program including the proposed CAB5 project as examples of the World Bank Group's regional approach to development. The report indicates that "The CAB5 project brings the prospect of linking the east of the DRC to Kinshasa and to east African countries and the world. All countries in the region have an interest in exploiting ICT for development and for pursuing regional connectivity and regional ICT solutions." This strategy was developed in support of the February 24, 2013 Peace, Security and Cooperation framework for the DRC and the region.

16. **The second pillar of the Great Lakes' Regional Development Initiative**, which is centered on Economic Cooperation and Regional Integration, stresses that all countries in the Great Lakes region have a common interest in developing infrastructure to increase regional connectivity. It also mentions that the proposed CAB5 project would not only establish communications links connecting the east of the DRC to Kinshasa, but also increase DRC's connectivity to the region and globally, allowing for opportunities in trade and improve coordination of security efforts. The second pillar further promotes the "important opportunities for close coordination of the CAB5 project and the RCIP project which is being implemented in Burundi, Rwanda and Uganda and other countries in east Africa".

17. **The CAB5 project directly contributes** to (i) the 2012-2016 Government's Action Program[13] based on the 2009 Letter of Sector Policy[14], and (ii) the National Backbone Development Plan of MINPTNTIC[15]. This plan comprises five construction phases. So far, only the first phase Matadi – Kinshasa (650 km) has been built which is still not fully operational. The South African Power Market Pool (SAPMP) project[16] contributes to the 2nd phase of the national

[13] Programme d'action du Gouvernement 2012 – 2016 – Mai 2012
[14] Déclaration de politique Sectorielle – Décembre 2009
[15] Développement des infrastructures en fibre optique haut débit en RDC, Banque mondiale – Ministère des Postes, Téléphones et Télécommunications, Mai 2010
[16] The SAPMP project includes a Telecom component to provide an Optical Ground Wire (OPGW) of fiber optic cable to be owned by SNEL along the 2,000 KM transmission line between Inga and Zambia frontier. The Project provides technical assistance to the Government to further study and evaluates the options and alternatives for

plan, and the proposed project is planned to contribute to the 3rd phase: the proposed project would finance around 2,800 km of fiber optic backbone, out of the 7,500 km planned in this phase. The construction cost of this infrastructure (including passive and active equipment) is estimated to be US$84.540 million. The rationale behind the proposed network design is to provide the DRC with access to international connectivity through the submarine cables running down the coasts of Africa (i.e. WACS, ACE, Seacom, Eassy, LIONS, Teams) and to connect the three key economic clusters, Kinshasa (Western Cluster), Lubumbashi (Southern Cluster), Goma (Eastern Cluster), including appropriate cross-border connections through Angola, Burundi, Rwanda, Uganda and Zambia.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

18. **The development objective** of the proposed project is to contribute to increase the geographical reach and usage of regional broadband infrastructure and to reduce the price of services to enable more people in the DRC to access information and communication technology services.

Project Beneficiaries

19. **The primary beneficiaries** of the Project would be the users of 2G and 3G (or faster) services as well as businesses and local governments in the Lubumbashi and Goma regions and Central Government in Kinshasa through increased access to lower cost and higher quality communications and reduced transactions costs. According to available information, the total population of the three clusters is estimated at 13.1 million people (Kinshasa: 10 million; Lubumbashi 2 million; Goma 1.1 million). In 2012, the population of DRC was estimated at 65.71 million (WB, 2012). According to the IMF the urban population of DRC in 2012 is 24 million inhabitants (i.e. 35% of total population). The cities of Kinshasa, Lubumbashi and Goma therefore concentrate about 54% (13.1/24) of the total urban population of DRC in 2012. By 2025, the IMF estimates that the urban population of DRC will reach 40 million inhabitants. The project M&E arrangements will include mechanisms to measure the percentage of women among the primary beneficiaries.

20. **Benefits for the Great Lakes Region.** Due to its large geographical size and location on the African continent, the new network in the DRC would further provide the missing links to the broader Great Lakes Region. Benefits of this new infrastructure are therefore expected to spill over into neighboring countries as it would further improve cross-border connectivity allowing them access to – in particular the landlocked countries of Rwanda, Burundi and Zambia – international connectivity through the submarine cables landing in Muanda on the western coast of the DRC.

PDO Level Results Indicators

- Reduction in wholesale price of internet services in DRC

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commercializing the excess capacity and, to eventually appoint a Private Operator (or a consortium of Private operators) for the commercialization and management of the excess capacity of the telecommunication system.

- Increased number of broadband subscribers in the three target regions: Kinshasa, Lubumbashi, and Goma

Project Development Objective (PDO)	Outcome Indicators for CAB SOP5	Value by closing date
To contribute to increase geographical reach and usage of regional broadband infrastructure and to reduce the price of services to enable more people in the DRC to access ICT services	▪ Impact on telecommunications sector of World Bank Technical Assistance (composite score: 1- low impact to 5-high impact)	4
	▪ Internet subscribers per 100 inhabitants (number)	> 20
	▪ Retail price of Internet services (Mbit/s per month, in US$)	< 200
	▪ Geographic reach of broadband mobile services: Coverage of broadband mobile network (as a percentage of population covered)	50
	▪ Number of direct project beneficiaries (o/w % female)	5,000,000 (49)

III. PROJECT DESCRIPTION

21. **Overall project description.** The proposed project will support the deployment of missing links in the national fiber optic network in order to connect the country's most populated disparate economic clusters of Kinshasa (West), Goma (East) and Lubumbashi (South). By linking the three economic clusters, this new network will provide telecommunications operators the opportunity to offer seamless services nationwide. The project will also support the commercialization of the new capacity through a PPP. By extending the network nationwide and establishing the PPP, the project will facilitate competition between the operators at the national level. Increase in competition and economies of scale is expected to lead to reduction in the price of service, increase in the quality of service (i.e. Internet bandwidth capacity) and the availability of value-added ICT services (e.g. mobile banking). Furthermore, the new network would connect to the submarine cable landing in Muanda providing the DRC with international connectivity to and from Europe and South Africa. The project would also provide Technical Assistance to strengthening the MPTNTIC and ARPTC that would subsequently improve the governance of the sector.

22. **Project Preparation Advance**. A Project Preparation Advance (PPA) of US$4 million was approved on December 9, 2013 to support (i) the establishment of the *Société de Patrimoine Nationale* (SPN) for the recruitment of the Investment Bank to finalize the PPP arrangements ; (ii) the identification of network investments to be funded by the proposed project; (iii) the Ministry of Portfolio as the Implementation Agency through its existing project management unit, the *Comité de Pilotage de la Réforme des Entreprises Publiques* (Steering Committee in charge the Reform of the Public Companies, COPIREP); and (iv) the preparation of appropriate safeguards instruments: Environmental and Social Management Framework (ESMF), Indigenous

People Planning Framework (IPPF) and Resettlement Policy Framework (RPF). As requested by the Government, the PPA[17] will also fund the study developing the Government's roadmap pertaining to the SCPT restructuring.

23. **Infrastructure cost and financing.** The construction cost of the proposed network is estimated at US$84.54 million[18] (Project funds and Private sector contribution). Project funds will be used to finance the construction of the passive infrastructure (civil works and dark fiber equipment). It is expected that the private operators will provide investment to the cost of the network to cover active equipment. Earlier discussions with private operators showed strong interest from these operators to partly fund this project. Their contribution will be comprised between $22.5 million and $50 million. For clarity throughout the document, all amounts and project construction costs are based on a private contribution of US$ 22.5 million (see table below).

GRANT TOTAL (KUSD)	Total Total number of Km	IDA funding	Private Sector Funding	Total Construction
Western Cluster	727	15,994	5,816	21,810
Southern Cluster	571	12,562	4,568	17,130
Eastern Cluster	1,520	33,440	12,160	45,600
Total Construction (KUSD)	**2,818**	**61,996**	**22,544**	**84,540**

24. **The project will be implemented through Public Private Partnerships (PPP).** There are two main reasons why the project should rely on PPPs. First, neither the Government of DRC nor private operators have the financial capacity on their own to support the high upfront investment required to build a nationwide network. Second, (i) in the case of an aggregation of market players to operate the network, it would reduce transaction costs for both the Government and the private operators and increase coordination capabilities for maintaining the network and determining wholesale prices in a transparent manner (ii) in the case of an open tender for each fiber (i.e. an auction type process) it will maximize the revenues for the owner of the passive infrastructure (see para. 25 below).

25. **A two-step approach for PPPs.** As a prerequisite, a SPN, a wholly public shareholding company, will be established that will own the infrastructure. It is proposed to separate the tender process for (i) the passive infrastructure (i.e. fiber cables and ducts) and partial active infrastructure (buildings, transmission technology neutral equipment that can be shared among operators) from (ii) the rest of the active infrastructure and network intelligence that usually needs to be operator-specific[19]. In the **first step** the SPN will select a construction company under an ICB to build the infrastructure and conduct civil work and lay down dark fiber on the ground. Once built the infrastructure will be incorporated as equity into the capital of the SPN. In the **second step** the SPN will contract an aggregation of operators or several operators separately (the "Concessionaire") to "light" the dark fiber (i.e. to invest in access network and active equipment) and a concession contract would be prepared and concluded between the SPN and these operators for the maintenance, management and commercialization of the infrastructure.

[17] As of June 7, the PPA implementation status is the following: the legal, safeguards, and the technical experts have all submitted their respective reports and the selection process of the Investment bank in underway.

[18] It is a conservative estimate by regional standards, reflecting the potentially difficult terrain through which the network will pass and the relatively high cost of doing business in the DRC (i.e. security)

[19] *Inter Alia*: terminal equipment, optic fiber electronics, routers, switches...

26. **Advantages of the two-step approach**. There are several advantages to this two-step approach. First, by having one provider build out the passive infrastructure, network integrity can be ensured, and regulatory supervision costs would be reduced. Further, by focusing the first tender on the deployment of mainly the passive infrastructure, procurement under the project is simplified (under ICB) and would ensure fast disbursement. The second important advantage is that technology neutrality is ensured by allowing Concessionaire(s) to bring in their own equipment into the active infrastructure layer through the second tender. This approach to network expansion through the separation of passive and active infrastructure has been adopted in other countries such as the U.K. and Singapore, and is currently being undertaken under the SAPMP Project in DRC, the CAB APL3 in the Republic of Congo and the second phase of the West Africa Regional Communications Infrastructure Program (WARCIP 2) in Mauritania. Finally, the revenues collected by the SPN through the concession contract(s) will be re-invested in the deployment of additional routes.

27. **Defining the PPP arrangements**. A legal and regulatory expert (Individual Consultant) and a transaction advisor (Firm) have been recruited under the Project Preparation Advance (PPA). The individual consultant supports the Government to prepare the establishment of the SPN (governance structure, organizational chart, budget…) and identify the best suited PPP structures for the second step. The transaction advisor will assist the Government (i) in finalizing the technical bidding documentation and the process to recruit the equipment provider to build the passive infrastructure and (ii) in implementing the transaction between the SPN and the selected operator(s) for the operation of the infrastructure.

28. **Participatory approach: working with civil society**. The project will pay great attention to social considerations in preparation of the civil works, ensuring a balance between investor-friendliness and mitigation of the social impact of the construction and modernization amidst a setting of extreme poverty. To achieve this, the project intends to work with NGOs to ensure participative Monitoring & Evaluation and to involve stakeholders in ongoing dialogue and consultation in order to remain close to the communities and to understand grievances that could interfere with the success of the operation. This operation will support a number of sustained public-private consultative dialogue processes, starting at the national, and then at the subnational level to elicit discussion and build understanding and support for the operation.

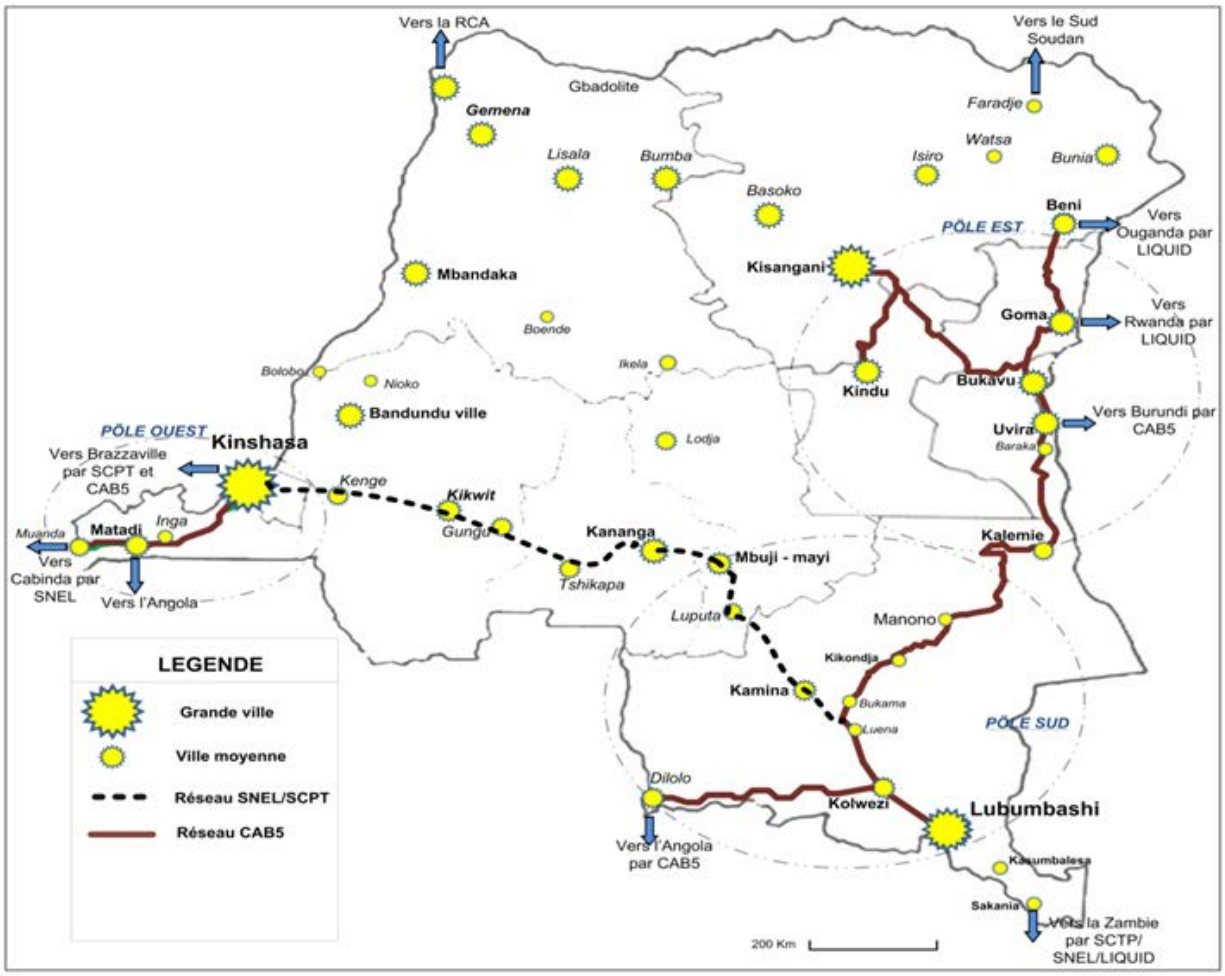
A. Project Components

Component A – Emergence of an Inclusive Digital Economy (US$13.20m)

29. **This component will support MINPTNTIC to enable and accelerate the emergence of an information society and the growth of digital economy** by supporting ICT skills, create new business opportunity for local ICT firms and promote ICT sector and digitalization of the Recipient's economy through: (1) capacity building for MINPTNTIC in particular in management of the .cd domain name; (2) an e-waste initiative to process the recycling electronic equipment with preparatory studies, capacity building activities and investment plan (including the construction of the e-waste center); (3) a Government intranet with definition and preparatory studies, installation of the network and purchase of equipment; and (4) technical assistance, works and equipment for the Kinshasa-Muanda link and leasing of SPN infrastructure by SCPT through a Concession Contract.

Component B – Construction, Management and Commercialization of the CAB5 Infrastructure through a PPP Scheme (US$71.60m)

30. **This component will support MINPORTFOLIO to deploy interconnected networks to form a regional network with a mix of interventions covering investment focused on improving connectivity through:** (1) the establishment of neutral carrier hotels and national / regional IXPs; (2) the establishment of interregional links (in the Kinshasa, Goma, and Lubumbashi regions) to guarantee an open access network open to all operators leveraged through PPP mechanisms with: (i) broadband equipment and network (i.e. fiber-optic cables and passive equipment); (ii) the concession or lease of built infrastructure (i.e. capacity bought on existing infrastructure or dark fibers to complete the regional network); (iii) additional technical assistance to support effective management and monitoring of CAB networks and bandwidth which will be commercialized, on a wholesale basis in the Kinshasa, Lubumbashi, and Goma regions; and (iv) maintenance and improvement of connections to cross border links via the most efficient routes; and (3) the financing of SPN operating cost for the first two years including the monitoring and the quality control of the construction.



Component C – Enabling Environment and Regulatory Effectiveness ($7.30 million)

31. **This component will support ARPTC to reinforce and strengthen its regulatory tools and capacity to promote further sector reform by:** (1) supporting the functioning of ARPTC

through: i) technical assistance to promote and strengthen cross-border coordination, to purchase frequency spectrum management regulatory tools at the borders and to prepare bidding documents for the purchase of spectrum management equipment (ii) technical assistance to promote and strengthen network integrity and cyber-security and to prepare bidding documents for the purchase of network integrity and cyber-security equipment (iii) technical assistance to promote an open access and wholesale pricing regime and to design regulatory toolkit, and develop regulatory tools for broadband market; and (iv) the purchase of information systems and computers.

B. Project Financing

Lending Instrument

32. The financing instrument is an Investment Project Financing (IPF) as part of a Regional Series of Operations (SOP) (see paragraph 36 in Section C below).

Project Cost and Financing

33. Total estimated project cost (IDA) is US$92.10 million. This amount will be eventually complemented by the private sector through the PPP. The Private Partner(s) will be either selected through an open competitive tender, or pre-identified at the earliest stage (e.g. a consortium of major mobile operators and Internet Service Providers (ISPs) present in DRC). The Private Partner will then be requested to provide any additional financing that is needed on top of the Government's contribution (IDA financing) to fund the operation of the network. Based on extensive discussions with local and international operators, the private sector is willing to contribute at least US$22.5 million (active network equipment). If, during the advertising phase (Expression of Interest), the private sector appetite appears less strong than expected, the investment bank will advise the Government on the opportunity to reduce the length of the funded network and include the purchase of active equipment. This way, the PDO can be achieved whatever the private contribution amounts to. In the event of a change in the length of fiber constructed, a recalculation of number of beneficiaries would be undertaken. In addition, the *Agence Française de Développement* (AFD) expressed its interest to lend money to the SPN for additional infrastructure investments.

34. **IDA financing would be an important catalyst for continued and efficient infrastructure development in the DRC and surrounding countries.** The role of IDA financing would therefore be two-fold: (i) the proposed project would support the establishment of a nationwide —as opposed to fragmented— connectivity network that would lead to a more affordable and comprehensive provision of broadband Internet services; and (ii) IDA financing would not only fill the funding gap that is required to fully leverage the various connectivity investments within the country, across borders, and to the submarine cables, but also would provide assurance to private companies to overcome their reluctance to invest in the sector because of the unstable security and political situation in the region.

35. **Disbursement conditions**. The project will have two disbursement conditions. Fulfilling these conditions will ensure the right institutional environment necessary to achieve the PDO namely: The two conditions are as follows: (i) activities under subcomponent A.(4) (support to the SCPT operations on the Kinshasa-Muanda link and fund the SCPT participation in the PPP contract with the SPN) of the Financing Agreement can be financed by the project after the Government of DRC provides the Bank with (a) a detailed roadmap for the SCPT restructuring

and (b) technical specifications and terms of reference for the rehabilitation of the fiber optic link between Muanda and Kinshasa; (ii) activities under subcomponent B.(2) (construction of the backbone passive infrastructure) can be financed by the project provided that (a) the Government has signed the Cooperation Agreement with the SPN (public shareholding company) and (b) the new ICT legal framework has been adopted. With these two disbursement conditions, the project will ensure the investments will be transferred to a robust company that has the required capacity to operate and commercialize.

C. Series of Project Objective and Phases

36. The Bank has been actively supporting the connectivity agenda in Africa under regional projects such as the Regional Communications Infrastructure Program (RCIP) in Eastern and Southern Africa (started in 2007), the West Africa Regional Communications Infrastructure Program (WARCIP) (started in 2010), and the CAB program (started in 2009). This operation is the fifth phase of the CAB Program. CAB1A is a technical assistance project covering Cameroon, Chad and CAR and will be completed in March 2016. The CAB1A operation has been restructured in May 2014 (restructuring level 1: change in PDO indicators and rationalization of the project activities for simplification). The project is aimed at enabling the legal and regulatory environment in the three countries. CAB1A Progress towards achievement of PDO is rated Moderately Satisfactory as of June 19, 2014. The CAB2 brought the ACE cable to STP and will be closed in December 2014. CAB2 Progress towards achievement of PDO is rated Highly Satisfactory as of June 19, 2014. The CAB3 Project covers the Republic of Congo and will be completed in December 2016 and will build the inter-regional links between Congo and neighboring countries. The CAB3 Mid Term Review (MTR) is planned for October 2014. CAB3 Progress towards achievement of PDO is rated Satisfactory as of June 19, 2014. CAB4 is in Gabon and will be closed on December 2016 bringing ACE capacity to the country and connecting Gabon to the Republic of Congo. CAB4 Progress towards achievement of PDO is rated Moderately Satisfactory as of June 19, 2014

D. Lessons Learned and Reflected in the Project Design

37. **Leveraging private investments through Public Private Partnerships (PPP).** Global experience in the telecommunications sector shows that investment in and operation of telecommunications assets are best led by the private sector. Where networks will have a positive net economic impact but are not necessarily commercially viable in the short-run, there is a role for public financial support. In order to maximize the total amount of investment and to ensure that the network is operated efficiently, this public support can be channeled through a PPP. The proposed project has been designed to build on this experience by placing the PPP structure at the center of the project.

38. **Public investment in backbone infrastructure is necessary, and constitutes an efficient use of IDA resources.** No operator has the capacity or the incentives to invest into disparate links at the national level. Moreover for the sake of security and network integrity the project will partly fund links that run alongside existing networks (this is justified for redundant strategic routes like Muanda – Kinshasa link). Furthermore, SCPT's network linking Kinshasa to the WACS landing station in Muanda is of poor quality and is currently not in use. There again, besides redundancy, the project will support the rehabilitation of the current link (see support to SCPT in Component A). On the revenue side, the SPN would be able to collect fees from the

private investors (e.g. through the Indefeasible Right of Use (IRU) of the fiber optic pairs) and re-invest these funds in additional infrastructure in order to expand coverage.

39. **Open-access is essential if the project is to have a positive impact on the sector.** One of the central lessons of reform in the telecommunications sector in Africa and around the world is that access to services on reasonable and non-discriminatory basis, is essential if investments in infrastructure are to have the maximum economic impact. Direct infrastructure competition, where feasible, is the best way to deliver this. Where direct competition is not feasible for economic reasons, regulatory controls to ensure open-access are required. The design of the proposed project has these controls built in through the PPP contractual structure and the associated regulatory framework. This is based on the lessons learned from other SOP telecommunications project such as the RCIP program and the Eastern Africa Submarine Cable System (EASSy) project[20] in which open access has been built into the contractual structure of the PPP.

40. **Government commitment to the project objectives and design is essential.** A lesson from other telecommunications infrastructure projects, particularly with PPP structures, is that Government commitment to the objectives of the project and the underlying design principles are essential. In this respect, The GoDRC is fully committed to the two key founding principles of the CAB Program which include: (i) the endorsement of an Open Access Policy for existing and new network infrastructure; and (ii) the promotion of Public Private Partnerships (PPP). This commitment has been officially confirmed by a letter dated February 2011, a letter dated April 2012, but also in the December 2012 Ministerial Decree No 012 which includes a provision on the establishment of fiber optic networks. The Government reiterated its commitment in its Project Preparation Advance (PPA) request letter dated August 2013. Finally Minister of Telecom and Minister of Portfolio, officially committed to key features of the CAB SOP5 by signing, with the approval of the Prime Minister, a Memorandum on the creation of the SPN and the restructuring of SCPT, on May 26, 2014.

41. **The project incorporates lessons learned from current projects in the DRC and also in other countries where PPPs have been established to implement telecommunications infrastructure projects.** There is currently a discussion between some of the private stakeholders to set up a consortium that would participate in the SAPMP Project public tender for the recruitment of the internationally experienced private operator to commercialize the excess capacity of the SNEL telecommunications system (Optical Ground Wire – OPGW[21]) under Open Access regime. The tendering process for the commercialization of the excess capacity will be launched by July 15, 2014.

[20] The Eastern Africa Submarine Cable System (EASSy) is a 10,000 km undersea fiber optic cable system connecting countries of eastern Africa to the rest of the world. The Project partially funded by the World Bank, was initiated on January 2003. The World Bank also provided Technical Assistance and intensive policy dialogue from 2005 to 2008 to structure the development partners' participation and secure mechanisms for the necessary enforcement of policy objectives such as open access to the cable.

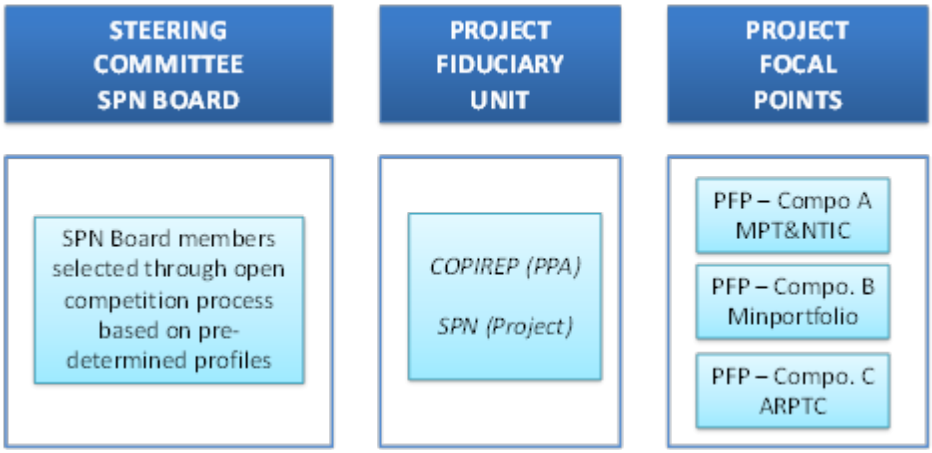
[21] The SAPMP Project financed the supply and installation of a modern OPGW fiber cable over a distance of about 2,300 km and associated electronic communication equipment to be installed over the high voltage transmission line from Kinshasa through Inga and Kolwezi to Kasumbalesa at the border with Zambia to link with telecommunication system of Zambia and the Southern African Power Pool.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

42. The implementation arrangements have been designed with the objective of taking into account the multi-agency nature of the project and the weak capacity and coordination failures within the public sector. The Project Implementation Manual[22] (PIM) reflects these arrangements. The implementation arrangements involve three organizational levels outlined below.

Figure 1: CAB5's Institutional Arrangements



43. The **Project Steering Committee** (i) (*Comité de Pilotage*) will be responsible for the overall coordination and supervision of the project, would have the fiduciary and governance oversight and would provide advice regarding cross-sectoral issues; (ii) the Project Fiduciary Unit (PFU) will be responsible for fiduciary management; and (iii) the Project Focal Points (PFPs) will implement the activities. The Board of the SPN will play the role of the project Steering Committee.

44. The **Project Fiduciary Unit** will handle the fiduciary aspects of the Project (Procurement and Financial Management) and will be situated within the SPN. It will ensure the proper fiduciary planning of Project activities and preparation of Project annual work programs; financial management, procurement, and audits under the Project.

45. The **Project Focal Points (PFPs)**, in close collaboration with the technical teams from MINPTNTIC, Minportfolio (COPIREP) and ARPTC will be responsible for oversight of all technical, social, and environmental matters relating to Project implementation in their respective component; planning of Project activities and preparation of Project annual work programs; monitoring and evaluation of Project activities including quality assurance.

46. Project coordination including fiduciary aspects will be carried by COPIREP during PPA and early implementation until the SPN takes over. Once the SPN is established, properly staffed

[22] A satisfactory version of the Project Implementation Manual was received on June 4, 2014. It will be revised once the structure of the SPN is finalized.

and able to carry out fiduciary activities of the project, the project will then fall under the oversight of the SPN Board.

(a) **Project Steering committee**. The Board members of the SPN will be officially appointed by a Decree signed by Presidency. The Board of the SPN / Project Steering Committee will be composed of members selected through an open competition. The Government will draft the profiles which will be representative of all the expertise necessary to carry out the SPN's mission. The Board of the SPN / Project Steering Committee will meet twice a year to review and validate (i) the proposed budget and annual work plan, (ii) the quarterly consolidated M&E reports for all components, (iii) procurement plan and finally to identify the routes to be funded by the revenues from the concession contract(s).

(b) **Project Fiduciary Unit**. The PFU will ensure the day-to-day project fiduciary aspects (procurement and financial management). It will be anchored within SPN and will be responsible for procurement and financial management oversight of any matters relating to Project implementation; financial management, procurement, and audits under the Project. The PFU shall be staffed with experts recruited through a competitive basis under Bank's procedure The PFU will be comprised of a Procurement Specialist, a Financial Management Specialist, and Accountant and an Internal Auditor.

(c) **Project Focal Points (Components A, B and C)**. The project components will be executed by technical services of MINPTNTIC, Ministry of Portfolio/COPIREP and ARTPC. These entities are the main recipients/beneficiaries of the project and will coordinate the activities included in their respective components. Three Focal Points will be recruited through a competitive process (according to Bank's procedure), and will be anchored at MINPTNTIC, Ministry of Portfolio/ (COPIREP) and ARTPC. The three focal points will be responsible for successful implementation of the activities falling under their ministry. More specifically the PFPs will be responsible for (i) the drafting of all terms of reference, (ii) the monitoring of the selection process while participating in the selection/evaluation committee, and (iii) the monitoring of the proper implementation of the tasks.

B. Results Monitoring and Evaluation

47. Monitoring and Evaluation will be coordinated by COPIREP, with inputs from three implementing agencies: MINPTNTIC, ARPTC, and MINPORTFOLIO. As described in the Results Framework (see Annex 1), each component has a series of PDO level indicators and intermediate outcome indicators to measure. Some indicators are linked to more than one component. The M&E Manual and quarterly Report will determine the person responsible for each indicator. Evaluation of beneficiary satisfaction will be carried out by independent firms, through surveys, on a yearly basis. In addition to the indicators listed in the Results Framework, the PCU will add ad-hoc lower level indicators to monitor the successful implementation of the project.

C. Sustainability

48. **Investment Sustainability.** Private sector involvement would help ensure sustainability of the project outputs, particularly the dark fiber infrastructure. The key to sustainability is to

involve the private sector from the onset of the project and to ensure that private investors have a direct financial stake in the continued operation of the infrastructure. The sustainability of the infrastructure will be achieved through two mechanisms: (1) the steady maintenance of the infrastructure initially funded by the Project will be eventually supported by the private investors; (2) the PPP contract will generate constant flows of revenues to the SPN to be invested in further deployment of the fiber optic network.

49. **Institutional sustainability.** The SPN will be created according to international best practices. Sound governance structure, detailed business planning and highly qualified staffing will ensure the financial viability of this newly created enterprise and efficient re-investment of its revenues into new network routes that will in turn increase the reach out of the network and SPN revenues.

50. **Outcome sustainability.** Project development outcome and impact will continue beyond the close of the proposed project thanks to the institutional arrangement pertaining to the SPN (see para. above) that will ultimately generate a virtuous circle in which the re-investment of SPN revenues from the PPP, will increase coverage of broadband services, improve of quality of service and decrease retail prices. Thanks to the combined effect of the new legal and regulatory framework supported by the Project, and the support provided to the regulator under Component C.

V. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

Risk Category	Rating
Stakeholder Risk	High
Implementing Agency Risk	
- Capacity	Substantial
- Governance	Substantial
Project Risk	
- Design	Substantial
- Social and Environmental	Substantial
- Program and Donor	Low
- Delivery Monitoring and Sustainability	Substantial
Overall Implementation Risk	High

B. Overall Risk Rating Explanation

51. **Overall risk rating.** The CAB5 SOP Project is ambitious and includes significant risks and benefits at both the country and regional level. Taking into account the risks described below and the overall fiduciary risk, the overall risk rating for this project is **High**.

52. **Undefined PPP scheme.** PPPs by nature are complex structures, particularly when they involve large operations, and when they are designed to address a connectivity issue in a large

country such as the DRC, which is to be connected to many others (i.e. Rwanda, Burundi, Angola, Uganda, Zambia). For this reason there is a risk that the future PPP structure does not take into account all the interests of the participating stakeholders, or that its design results in negative consequences for the project. For instance, private operators could fail to meet their agreed obligations such as their share of the investment. Such risks could lead to delays in project implementation. This risk is mitigated by the recruitment of a firm of international advisors with global expertise in the design and implementation of PPP models. This firm is recruited under the PPA and will be contracted before September 1, 2014.

53. **Delays in the implementation of the new legal framework.** The implementation of the new telecommunications Law (to replace the existing Law of 2002) will facilitate the achievement of some project objectives. Once the new Telecommunications Law is enacted, there still is a risk that the secondary legislation is not developed in a timely manner, which could potentially impact some activities under the Project. Furthermore, there is a need to strengthen the new legal and regulatory framework through the design and adoption of such secondary legislation to ensure that the legal framework is conducive to competition and improved sector performance. The Bank is closely monitoring the process under the ongoing Bank policy dialogue.

54. **Difficult political economy of restructuring the state-owned SCPT.** Experiences in other countries show that restructuring of state-owned companies are extremely challenging with political and social implications, largely due to the economic retrenchment and reliance on revenues from the sector. Experience shows that political pressures to stall such restructuring can be significant, and such pressures have prevented some countries from completing the reforms which they had embarked upon. One of the main lessons learned from other phases of the CAB Program, is not to underestimate the critical social and political issues when restructuring a state-owned entity. As observed in other countries in which the Bank is engaged (e.g. Chad, CAR, Cameroon, Republic of Congo, Guinea, The Gambia), it is important for the GoDRC to also commit to this difficult reform and select an option proposed by COPIREP. As a mitigation measure, the CAB5 project includes technical assistance to transform the SCPT into a modern operator, and help the SCPT participate in the PPP scheme put in place by the project. This support will be subject to a disbursement condition that will ensure effective Government commitment to the SCPT restructuring.

55. **Corruption in the sector.** The project would be designed to mitigate the risk of corruption in the sector wherever possible. The identification of the PPP structure will allow the Bank and the project team to put in place the risk mitigation measures against corruption and poor governance. All vendors and consultants will be required to follow World Bank anti-corruption policies and procedures ("Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006 and revised in January 2011).

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

56. **An Economic Analysis is detailed in Annex 6a.** While mobile communications is the only medium for accessing the internet in DRC, the CAB5 project will help solve two main obstacles to the expansion of mobile broadband penetration in DRC: i) the prohibitive prices for

the population at large[23]; and ii) the lack of a fiber optic backbone covering major urban centers and connecting to submarine cable landing stations[24].

57. Through the construction of an open access fiber optic network linking the three major economic clusters in DRC and connecting international submarine cables, the CAB5 project will allow operators to offer better quality of services (i.e. better internet speed) and to reduce their operational costs through much higher volumes of data traffic, lower interconnection cost, and reduced purchasing cost of international capacity. The impact of increased competition (resulting from open access) and improved international access through CAB5, along with lower interconnection cost, will provide significant potential to decrease retail prices and improve coverage of broadband services.

58. With the 1000 Mbps of international capacity being purchased at present by DRC, a fiber route providing capacity at between US$350/Mbps/month should represent an annual saving to operators of about US$43.8 million when compared to current costs of about US$4000/Mbps/month for satellite bandwidth. With reduced access costs, Internet penetration levels are also expected to increase substantially among lower income groups, further increasing international bandwidth requirements and the consequent savings over satellite bandwidth costs. Access through a 'low-speed' broadband link of 256Kbps would cost over US$5.365 billion per year if provided by satellite at current prices. However, if 10% (conservative estimate) of the total population in the three cities were to be connected by terrestrial fiber by the CAB5 network (Kinshasa, Lubumbashi and Goma, totalizing 13.1 million inhabitants in 2012, this figure would drop to about US$469 million.

59. The CAB5 project will accelerate the growth of the mobile broadband market through increased coverage of mobile broadband services and reduced retail prices of mobile broadband services. In line with similar experiences in other African countries, it is estimated that the CAB5 project will allow DRC to reach a mobile broadband penetration rate comprised between 25.7% and 26.9% in 2019 compared to 3.2% in 2014.

60. Based on the World Bank research on the economic multiplier effect of increased broadband penetration rates and estimated broadband penetration rate with and without the CAB5 project, the analysis indicates that the CAB5 project will increase the GDP growth rate in DRC by an annual average comprised between 0.61 and 0.68 points over the first 5 years of the CAB5 project[25].

61. A **Financial analysis** is provided in annex 6b. It assesses the financial viability of the technical options available under the CAB5 project. It presents the results of a financial model that measures the relationship between investment costs incurred and the revenues generated from commercialization of the fiber optic capacity made available under the US$60 million project infrastructure finance component. The annex provides projections of the financial implications of this investment as well as possible structuring options for commercialization including: leasing, indefeasible right of way payments and profit sharing.

[23] On average, a mobile user in DRC is spending 36% of the gross national income per capita on mobile access compared to 12% in Senegal, 4% in South Africa and less than 1% in the US and Europe.

[24] This will reduce the fragmentation of the existing network and the associated interconnection cost, but also reduce the investment burden for operators allowing them to focus their investment efforts only on active equipment.

[25] The impact of broadband penetration on economic growth is channeled through higher level of productivity, exports, and employment.

62. The financial analysis model assesses the performance of CAB 5 under three different commercialization scenarios: a) SPN leases fiber capacity using Special Purpose Vehicles (SPVs) for successive 10 year periods over the investment cycle, b) SPN receives a fixed payment under an Indefeasible Right of Use (IRU) agreement for successive 10 year periods over the investment cycle, and c) SPN engages in Profit Sharing with the respective partners commissioned to commercialize the fiber capacity for successive 10 year periods over the investment cycle.

63. Under the three different scenarios highlighted above, the net cash flow position of SNP is also analyzed. This cash flow takes into consideration the commercialization revenues in addition to the cost of amortized loan payments, and operating expenditures which include maintenance contracts, overheads and human resources required to run SPN. The resulting cash flow schedule indicates very high levels of liquidity after the first five years of operation. Because this project is funded by an IDA grant and due to a very strong market potential for broadband service commercialization in DRC, the financial analysis predicts a positive internal rate of return on investment costs and a generally favorable cash flow situation from an investment perspective. Furthermore, SPN is expected to be in a favorable position to meet its fiduciary responsibilities under the grant agreement (reinvestment of the SPN income into maintenance and extension of the infrastructure) based on the above analysis

B. Technical

64. The project will complement existing infrastructure and use the strategic geographical position of the DRC (borders with 9 countries) to enhance connectivity in the Central Africa region. To achieve this objective, the project will build fiber optic backbone networks in three economic clusters and link them all together through interregional backbones, using when possible existing infrastructure and proposing the most reliable technology available in each case.

65. For the three clusters, buried fiber optic will be the technology used by default. When possible, or when economically viable and technically reliable, the project will deploy fiber on existing infrastructure (OPGW – Optical Ground Wire - on power lines, buried fiber along roads/rails being built). By optimizing the construction costs, the project will not only save money to finance additional networks, but also help the infrastructure become financially viable on a shorter term (smaller CAPEX will increase the ROI, at least at the beginning). In the eastern Region (Goma), if the terrain is not suitable for buried fiber and if OPGW is not available, the project will switch to high capacity microwave network, provided that power is sufficiently reliable to ensure high quality of service.

66. The cost analysis of the three clusters is proposed below.

Western Cluster	Kinshasa - Muanda
Number of Km	727
Costs	KUSD
Cable	3,635
Civil Works	12,359
Active Equipment	5,816
TOTAL	21,810
IDA funding (KUSD)	**15,994**
Private Sector Funding (KUSD)	5,816

Southern Cluster	Bukama_Kalemie
Number of Km	571
Costs	
Cable	2,855
Civil Works	9,707
Active Equipment	4,568
TOTAL	17,130
IDA funding (KUSD)	**12,562**
Private Sector Funding (KUSD)	4,568

Eastern Cluster	Kalemie_Bukavu	Bukavu_Béni_Lubutu	Lubutu_Kisangani
Number of Km	390	900	230
Costs			
Cable	1,950	4,500	1,150
Civil Works	6,630	15,300	3,910
Active Equipment	3,120	7,200	1,840
TOTAL	11,700	27,000	6,900
IDA funding	**8,580**	**19,800**	**5,060**
Private Sector Funding	3,120	7,200	1,840
IDA funding (KUSD)			**33,440**
Private Sector Funding (KUSD)			12,160

GRANT TOTAL (KUSD)	Total Total number of Km	IDA funding	Private Sector Funding	Total Construction
Western Cluster	727	15,994	5,816	21,810
Southern Cluster	571	12,562	4,568	17,130
Eastern Cluster	1,520	33,440	12,160	45,600
Total Construction (KUSD)	**2,818**	**61,996**	**22,544**	**84,540**

67. The new infrastructure will be managed through Public-Private Partnership(s). The PPP scheme(s) options considered by the project are detailed in Annex 2.

C. Financial Management

68. In accordance with the Financial Management Manual issued in November 2005 as revised on March 2010, the financial management arrangements of the implementing unit of the Central African Backbone SOP5 Project namely COPIREP (*Comité de Pilotage de la Réforme des Entreprises du portefeuille de l'Etat*) has been assessed to determine whether it is acceptable to the Bank with consideration for the country's post conflict situation. To this end, COPIREP must meet the following requirements: (i) assuring correctly and completely the recording of all transactions related to the project; (ii) facilitating the preparation of regular, timely, and reliable

financial statements; (iii) safeguarding the project's assets; and (iv) facilitating the implementation of external auditing diligences as required by the Bank. The arrangement also aims to facilitate the disbursements of the project's resources and to ensure their effective use while, to the extent possible, using the country's own financial management systems. The overall FM risk at implementation is considered **Substantial**. The proposed financial management arrangements including the mitigation measures for this project are considered adequate to meet the Bank's minimum fiduciary requirements under OP/BP10.00.

69. COPIREP will ensure the financial management aspects of the Project until the fully establishment of the SPN (*Société de Patrimoine Nationale*) on acceptable basis to the Bank. This FM Unit is familiar with the Bank FM procedures and requirements and is currently responsible for the FM aspects of the Private Sector Development and Competitiveness Project (PSDCP), an IDA-financed project. The current implementation arrangements in place for the ongoing PSDCP financial management will be applied for the Central African Backbone SOP5 Project. These are considered acceptable to IDA. The FM performance of the PSDCP team was rated Satisfactory following the last implementation support mission of November 2013. Finally, an adequate program of financial management responsibility transfer from COPIREP to the SPN will be established. Prior to this financial responsibility transfer, the Bank financial management team will conduct an assessment to determine whether the SPN has an adequate financial management systems and related capacity which satisfies the Bank's OP/ BP 10.00.

70. The COPIREP FM team is composed of an experienced and qualified FM Administrative and Finance Expert supported by an Accountant, a Treasurer and a Cashier. The current FM staffing arrangement is acceptable to IDA; consequently, no additional staff will be recruited. TOMPRO, the accounting software already installed operates well and will be used for this new project. A new version of the software will be purchased to benefit from new accounting features.

71. The internal controls in place for preparation and approval of transactions and segregation of duties are adequate. The current FM manual of procedures is acceptable to IDA and could be used for the new project. No specific revision is required. The FM team and Internal Auditors have been trained on the use of this manual. The internal audit function of the project is currently contracted out to an individual audit consultant; the arrangement operates well and in a satisfactory manner.

72. Interim Un-audited Financial Reports (IFRs) will be prepared quarterly and submitted to the Bank regularly (e.g. 45 days after the end of each quarter) in a form and substance that complies with IDA Financial Management requirements; similar to the PSDCP.

73. The accounts of the project will be audited on an annual basis by an independent auditor recruited under terms of reference acceptable to IDA no later than 3 months after project effectiveness date. The external audit reports will be submitted to IDA within six months after the end of each financial year.

74. FM arrangements are included under Annex 3.

D. Procurement

75. The project coordination unit (COPIREP) of the previous Private Sector Development and Competitiveness Project (PSDCP) will remain the procurement agent for this project until the creation, establishment and full operationalization of the procurement unit CGPMP (*Cellule de*

Gestion des Projets et Marchés Publics) within the new SPN (*Société de Patrimoine Nationale*) to be set up. The CGPMP is expected to be set up according to the procedure of the new national procurement law and will be staffed with relevant qualification and experience, after the SPN is established. At this time, a decision will be taken to transfer the management of the procurement activities to this CGPMP. The procurement unit within the COPIREP has successfully managed the procurement activities of the previous PSDCP. Given: (i) the country context and associated risk; (ii) the fact that the procurement unit of COPIREP will meanwhile handle the procurement activities until the new SPN is set up and has its CGPMP functional; the procurement risk is rated **Substantial**.

76. Procurement arrangements are included under Annex 3.

E. Social (including Safeguards)

77. The use of existing infrastructure, including the power lines and along roads or rails being built will limit the physical footprint or impact of the construction activities and possible land acquisition. However, once the routing and modalities in specific areas are finalized, it is possible that the laying of fiber optic cable will require temporary disruption of cropping or other livelihood activities (roadside vending) and may under certain circumstances require land acquisition. A Resettlement Policy Framework has been prepared by the government to address such circumstances and supervision and monitoring will identify if abbreviated Resettlement Action Plans will need to be prepared during implementation to address any land acquisition or temporary displacement of livelihood activities. Similarly, although the routing of the fiber optic and/or the use of microwave where terrain does not allow for fiber optic is unlikely to have any impact on indigenous peoples, an Indigenous People's Planning Framework is being prepared by the government as a precautionary measure.

F. Environment (including Safeguards)

78. The Project will support and accompany under Component A activities related to the creation of new business opportunities for local ICT firms. These activities will certainly generate environmental and social adverse impacts as waste management. Furthermore, the construction of broadband network to link the three main cities that are Kinshasa, Goma and Lubumbashi on the one hand, and to expand the network in the other parts of the country on the other hand (Component B), will also induce potential adverse impacts. However, taking into account the nature and the scale of envisioned activities, it appears that they are site-specific, and small scale. Consequently, adverse impacts linked to civil works may be limited, hence manageable at an acceptable level.

79. Five World Bank safeguard policies are triggered under the project: OP/BP 4.01 on environmental assessment; OP/BP 4.04 on Natural Habitats, OP/BP 4.11 on Physical Cultural Resources; OP/PB 4.10 on Indigenous Peoples and OP/BP 4.12 on Involuntary Resettlement. Since the exact location of future activities are not known, the Government has prepared three appropriate safeguards instruments: an Environmental and Social Management Framework (ESMF), an Indigenous People Planning Framework (IPPF) and a Resettlement Policy Framework (RPF). The ESMF outlines an environmental and social screening process for components activities (which includes: Guidelines for an Environmental and Social Impact Assessment (ESIA),an Environmental and Social Management Plan (ESMP); Environmental Guidelines for Contractors; and a summary of the World Bank's safeguard policies). It will also

contain chapters to take into account Natural Habitats and Physical Cultural Resources matters. That means guidance and guidelines will be included in the ESMF to this end. The RPF aims to address potential land acquisition or loss of economic activity on the part of individuals or groups of individuals in project intervention zones. As with both previous documents, the IPPF also seeks to address potential adverse impacts on the indigenous peoples. These three documents have be prepared, in full compliance with World Bank and national safeguard policies, including a broad consultation framework involving all relevant stakeholder groups, both public and private, as well as civil society. After consultations, these three safeguard instruments have been disclosed within the country and at the World Bank Infoshop May 27, 2014.

Annex 1: Results Framework and Monitoring

Country: Africa

Project Name: Central African Backbone SOP5 (P132821)

Results Framework

Project Development Objectives

PDO Statement

The development objective of the proposed project is to contribute to increase the geographical reach and usage of regional broadband infrastructure and to reduce the price of services to enable more people in the DRC to access information and communication technology services.

These results are at	Project Level

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR1	YR2	YR3	YR4	End Target			
Impact of World Bank Technical Assistance on Telecom sector (composite score: 1- low impact to 5-high impact)	☒	Number	0	1	1	2	3	4	yearly	MPTNTIC	PFP MPTNTIC
Access to Internet Services (number of subscribers per	☒	Number	2	3	4	7	12	20	6 months	ARPTC	PFP ARPTC

100 people)											
Retail Price of Internet Services (per Mbit/s per Month, in US$)	☒	Amount(USD)	2000	1800	1500	1000	500	200	yearly	ARPTC	PFP ARPTC
Geographical reach of mobile services	☐	Percentage	25	25	25	25	25	50	6 months	ARPTC	PFP ARPTC
Direct project beneficiaries	☒	Number (in million)	0	1	1	1.5	3	5	6 months	ARPTC	PFP MINPORTFOLIO
Female beneficiaries	☒	Percentage Sub-Type Supplemental	0	20	30	40	45	49	6 months	ARPTC	PFP MINPORTFOLIO

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection
				YR1	YR2	YR3	YR4	End Target			
Length of Fiber Optic Network Built (km)	☒	Kilometers	600	600	1500	2500	2700	2800	yearly	SPN	SPN
Private Sector Capital Mobilized	☒	Amount(million USD)	0	0	0	10	15	22.5	yearly	SPN	SPN and PFP MINPORTFOLIO
Size of Manpower Trained under the Project (number of	☒	Number	0	0	20	40	80	100	6 months	MPTNTIC	PFP MPTNTIC

people)											
Impact on IT/ITES Sector of World Bank Technical Assistance (composite score: 1 # low impact to 5 # high impact)	☒	Number	0	1	2	3	4	4	yearly	MPTNTIC	PFP MPTNTIC
Number of MoUs reached between DRC and neighboring countries to implement a regional interconnection regime	☐	Number	0	0	0	2	4	5	yearly	ARPTC	PFP ARPTC

Annex 2: Detailed Project Description

DEMOCRATIC REPUBLIC OF CONGO: Central African Backbone SOP5 (P132821)

1. **Overall project description.** The project will support the deployment of a national fiber optic network in order to connect the country's disparate economic clusters: **Western Cluster** (Link Kinshasa - Muanda), **Southern Cluster** (Link Bukama - Kalemie), and **Eastern Cluster** (Links Kalemie - Bukavu, Bukavu – Béni - Lubutu and Lubutu - Kisangani) as part of the third phase of the national backbone development plan (See Map 1 – Annex 7). The segments of the backbone financed by this project will be mainly the links connecting to neighboring countries, and thus will enhance international connectivity (See Map 2 – Annex 7). By linking the three economic clusters, this network will provide telecommunications operators with the ability to offer seamless services nationwide. The project would also support the commercialization of the new optical fiber capacity through a Public-Private Partnership (PPP) between a public asset holding company (*Société de Patrimoine Nationale* – SPN) that will own the infrastructure and private investor(s) ("the Concessionaire(s)"). The Concessionaire(s) would therefore be wholesale operator(s), and would only be authorized to sell capacity on a wholesale basis to licensed operators and Internet Service providers. By extending the network nationwide and establishing the project would facilitate competition between the operators at the national level. Increase in competition and economies of scale is expected to lead to reduction in the price of service, increase in the quality of service (i.e. Internet bandwidth capacity) and the availability of value-add ICT services (e.g. mobile banking). Furthermore, the new network would connect to the WACS submarine cable landing in Muanda and possibly to an additional ACE Landing Station to be built in Muanda (under discussions) but would also increase and facilitate cross-border network interconnection with neighboring countries like Rwanda, Burundi, Uganda, Zambia, Angola, as well as extending capacity to rural areas and will eventually provide the DRC with international connectivity through Europe and South Africa. The project would also provide Technical Assistance to strengthen the legal and regulatory framework that would subsequently improve the governance of the sector and will also explore the challenges and opportunities in achieving an enabling environment for better interconnectivity between fiber optic networks in the Central Africa region.

2. **Benefits for the Great Lakes Region.** Due to its large geographical size and location on the African continent, the new network in the DRC would further provide the missing links to the broader Great Lakes Region. Benefits of this new infrastructure is therefore expected to spill over into neighboring countries as it would further improve cross-border connectivity allowing them access to -- in particular the landlocked countries of Rwanda, Burundi and Zambia – international connectivity through the submarine cables landing in Muanda on the eastern coast of the DRC. With the right cross-border interconnection arrangements in place, the new capacity brought in by the new connectivity in the DRC could potentially impact cities as far as Luanda and Nairobi where the demand for Internet bandwidth is continuing to grow rapidly. Facilitating regional integration through the expansion of communications networks is at the heart of the project.

3. **This operation is the fifth phase of the CAB Program**. CAB1A is a technical assistance project covering Cameroon, Chad and CAR and will be completed in March 2016. The CAB1A operation has been restructured in May 2014 (restructuring level 1: rationalization of activities and modification of the PDO indicators). The project is aimed at enabling the legal and

regulatory environment in the three countries. The CAB2 brought the ACE cable to STP and will be closed in December 2014. The CAB3 Project covers the Republic of Congo and will be terminated in December 2016. This project will focus on building the inter-regional links between Congo and neighboring countries. The CAB3 MTR is planned October 2014. CAB4 is being implemented in Gabon and will be closed on December 2016 bringing ACE capacity to the country and connecting Gabon to the Rep. of Congo.

4. **Project route.** The project will support the deployment of fiber optic cables and the associated civil works along the specified routes in **Figure 1**. Most of the fiber will be laid alongside existing roads, rails or other infrastructure. This infrastructure deployment will be coordinated with other infrastructure projects in order to mutualize benefiting from the concept of cross-sector infrastructure sharing[26].The total length of the missing links to be funded by the project is estimated to be 2,800 km and consists of the following three links:

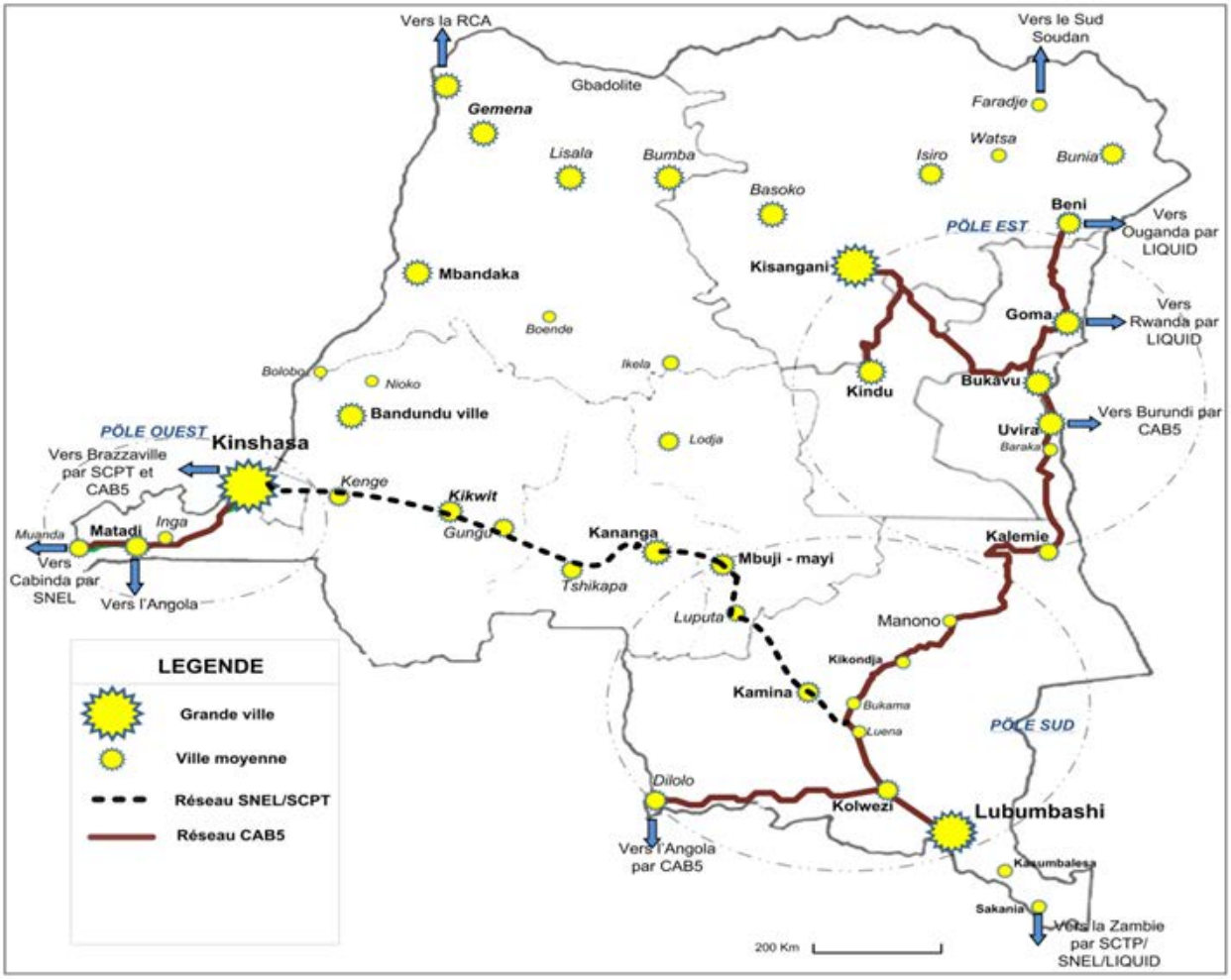
(a) **Western Cluster: link Kinshasa - Muanda**. The link between Kinshasa and Muanda will be deployed in coordination with the *Société Commerciale des Transports et des Ports* (SCTP). It will pass through Matadi and then follow the "*Nationale 1*" road to Muanda. In Muanda, connection will be made to the international submarine cable and to the backbone in the neighboring Republic of Congo through to Brazzaville. Other possible regional links include interconnections with Cabinda, Kongo and Mbanza in Angola.

(b) **Eastern Cluster: links Kalemie - Bukavu, Bukavu – Béni - Lubutu and Lubutu - Kisangani**. The link between Bukavu and Beni (via Goma) will follow the "*Nationale 2*" road. This link will provide regional interconnections with Rwanda, Burundi and Uganda. The connecting link to Kisangani could be considered in the Project CAB5.

(c) **Southern Cluster: link Bukama - Kalemie**. This part of the network will be twofold. The link between Lubumbashi and Kananga will be constructed in coordination with the *Société Nationale des Chemins de Fer du Congo* (SNCC). The second part of the link will be deployed between Bukama and Kalemie following the "*Nationale 33*" road. This link will make possible the regional interconnection to Zambia through Kasumbalesa in DRC.

[26] For instance, discussions have been undertaken with SNCC to share the cost of rights of ways. The team is working on possible sector synergy with SNCC civil work especially since the rehabilitation of the railway network is currently supported by the WB.

Figure 1. Network to be funded by the project



5. **Costs and financing.** The cost of constructing the network (active and passive equipment) is estimated at US$84.54 million including investment by the Concessionaire(s). This estimate was made by the technical experts in the advisory team working on the project under the PPA. It is a conservative estimate by regional standards, reflecting the potentially difficult terrain through which the network will pass and the relatively high cost of doing business in the DRC (i.e. security considerations). Project funds will be used to subsidize the missing links to connect the three economic clusters. It is however expected that the private operators will provide private investment to the cost of the network for the installation of active equipment at an estimated US$ 22.5 million.

Western Cluster	**Kinshasa - Muanda**
Number of Km	727
Costs	KUSD
Cable	3,635
Civil Works	12,359
Active Equipment	5,816
TOTAL	21,810
IDA funding (KUSD)	**15,994**
Private Sector Funding (KUSD)	5,816

Eastern Cluster	Kalemie_Bukavu	Bukavu_Béni_Lubutu	Lubutu_Kisangani
Number of Km	390	900	230
Costs			
Cable	1,950	4,500	1,150
Civil Works	6,630	15,300	3,910
Active Equipment	3,120	7,200	1,840
TOTAL	11,700	27,000	6,900
IDA funding	**8,580**	**19,800**	**5,060**
Private Sector Funding	3,120	7,200	1,840
IDA funding (KUSD)			**33,440**
Private Sector Funding (KUSD)			12,160

Southern Cluster	Bukama_Kalemie
Number of Km	571
Costs	
Cable	2,855
Civil Works	9,707
Active Equipment	4,568
TOTAL	17,130
IDA funding (KUSD)	**12,562**
Private Sector Funding (KUSD)	4,568

GRANT TOTAL (KUSD)	Total Total number of Km	IDA funding	Private Sector Funding	Total Construction
Western Cluster	727	15,994	5,816	21,810
Southern Cluster	571	12,562	4,568	17,130
Eastern Cluster	1,520	33,440	12,160	45,600
Total Construction (KUSD)	**2,818**	**61,996**	**22,544**	**84,540**

6. **The project will be implemented through Public Private Partnerships (PPP)**. There are two main reasons why the project should rely on PPPs. First, neither the Government of DRC nor private operators have the financial capacity on their own to support the high upfront investment required to build a nationwide network. The context is similar to that of Europe and the U.S. where the large geographic size presents significant challenges and disincentives for telecommunications operators to invest and expand outside an economic cluster. Second, (i) in the case of an aggregation of market players to operate the network it would reduce transaction costs for both the Government and the private operators and increase coordination capabilities for maintaining the network and determining wholesale prices in a transparent manner (ii) in the case of an open competition (auction type tender) for each fiber it will maximize the revenues for the Government.

7. **A two-step approach for PPPs.** As a prerequisite, the Government will establish a *Société de Patrimoine Nationale* (SPN – wholly public asset holding company) that will own the infrastructure. It is proposed to separate the tender process for (i) the passive infrastructure (i.e. fiber cables and ducts) and partial active infrastructure (buildings, transmission technology neutral equipment that can be shared among operators) from (ii) the rest of the active infrastructure and network intelligence that usually needs to be operator-specific. In the **first step** the SPN will select a construction company under an ICB to build the infrastructure and conduct civil work and lay down dark fiber on the ground. Once built the infrastructure will be incorporated as equity into the capital of the SPN. In the **second step** the SPN will contract an aggregation of operators or several operators separately to "light" the dark fiber (i.e. to invest in access network and active equipment) and a concession contract would be prepared and

concluded between the SPN and these operators for the maintenance, management and commercialization of the infrastructure.

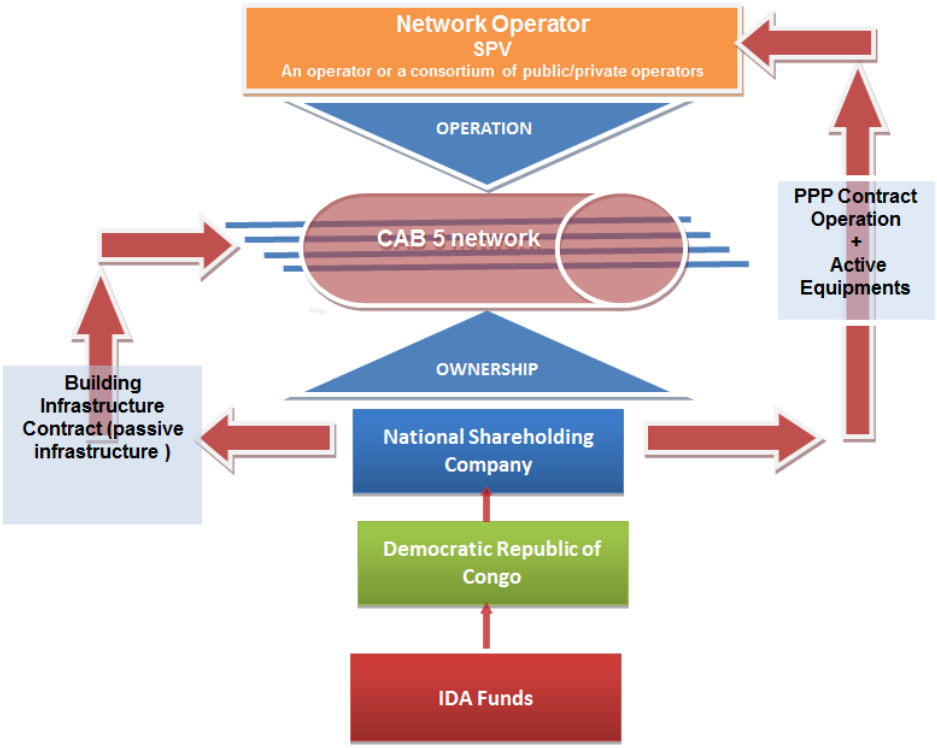
(a) **Step 1: Deployment of the missing links**. The first step will consist of a straightforward turnkey tender in which a contractor will build-out the passive infrastructure for the missing links. This mainly includes the ducts for the fiber optic cable (most likely to be built alongside roads or railways), the actual fiber cables to be blown through the ducts, and also possibly some transmission equipment that is suitable for the operators to share. An International Competitive Bidding (ICB) process will be launched to recruit a company capable of building a world class fiber optic network for the three identified network clusters. The construction of the three clusters, Kinshasa, Goma and Lubumbashi, will be merged under one tender to ensure network integrity, and to maximize geographic coverage through economies of scale. The IDA will finance 100% of this contract and the budget is so far estimated around $60 million. Payments will be paid in tranches against the successful implementation of pre-defined milestones or outputs to be defined in the contract. The new network will be owned by the SPN (*Société de Patrimoine Nationale*).

(b) **Step 2: Commercialization of the new capacity**. The SPN will then enter into a PPP with private investors (the "Concessionaire") to maintain, operate and commercialize the new infrastructure. A "concession" type of contract will most likely be used as the private investors ("Concessionaire") would need to invest further in equipment for the active infrastructure and network intelligence. Open Access principles will be built into the PPP Agreement to help ensure that there is healthy competition in both the wholesale and retail markets. The Concessionaire could consist of a consortium of mobile operators and ISPs operating in or outside the DRC. These investors will make the final investments in the active equipment (e.g. repeaters, access gateways, and supervision and control mechanisms) they will also maintain and commercialize the infrastructure. Operators new to DRC could join a consortium. There are economic advantages to this scenario as the existing operators will have a direct interest in the expansion of the network to expand their existing operations. Step 2 may consist either in one bundle contract for all the pairs of fiber or several contracts allocated according to an auction mechanism on each pair. The infrastructure funded by IDA funds will be considered as an equity contribution to the SPN. Therefore the SPN will be the sole owner of this infrastructure. In any scenario, the SPN will decide, based on the recommendations of the Adviser recruited under the Project, whether to opt for Prepaid Indefeasible Right of Use (IRU) or lease as part of the concessional contract.

8. **Advantages of the two-step approach**. There are several advantages to this two-step approach. First, by having one provider build out the passive infrastructure, network integrity (quality and seamlessness of the network) can be ensured, and regulatory supervision costs are reduced. Further, by focusing the first tender on the deployment of mainly the passive infrastructure, procurement under the project is simplified (under ICB) and would ensure fast disbursement. The second important advantage is that technology neutrality is ensured by allowing the private operators to bring in their own equipment into the active infrastructure layer through the second tender. This approach to network expansion through the separation of passive and active infrastructure has been adopted in other countries such as the U.K. and Singapore, and

is currently being undertaken under the SAPMP Project in DRC[27], the CAB APL3 in the Republic of Congo and WARCIP 2 in Mauritania. Finally, the revenues collected by the SPN through the concession contract(s) will be re-invested in the deployment of additional routes.

9. **Defining the PPP arrangements**. A legal and regulatory expert (Individual Consultant) and a transaction advisor (Firm) have been recruited under the Project Preparation Advance (PPA). The individual consultant supports the COPIREP and the Government to prepare the establishment of the SPN (governance structure, organizational chart, budget…) and identify the best suited PPP structures for the second step. The transaction advisor will assist the Government (i) in finalizing the technical bidding documentation and the process to recruit the equipment provider to build the passive infrastructure and (ii) in implementing the transaction between the SPN and the selected operator(s) for the operation of the infrastructure.



10. **Services will be specified in the PPP Agreements.** The contract in Step 1 and the PPP Agreement in Step 2 will include detailed requirements for the SPN and the Concessionaire. Requirements for Step 1 would include among others: technical specifications for the network, including routing, cable types, installed capacity, domestic transit and dark fiber and drop-off points along the route. Step 2 would include among others: service definitions, including network up-time, mean time between failures, round-trip delays and network maintenance standards; and price controls which will be based on a formula that will specify the price ceilings for reach of the services that an operator is able to charge consumers. The Concessionaire will be able to provide services at a price below this ceiling if it wishes to but will not be able to exceed

[27] The SAPMP project includes a Telecom component to provide an Optical Ground Wire (OPGW) of fiber optic cable to be owned by SNEL along the 2,000 KM transmission line between Inga and Zambia frontier. The Project provides technical assistance to the Government to further study and evaluate the options and alternatives for commercializing the excess capacity and, to eventually appoint a Private Operator (or a consortium of Private operators) for the commercialization and management of the excess capacity of the telecommunication system

it. The price control framework will specify a downward trend in prices over time to reflect international tends. It will also provide a strong commercial incentive for the Concessionaire to sell as much capacity as possible and operate as efficiently as possible. Some flexibility will be incorporated into the formula to take into account unanticipated events such as sudden increases in operating costs or price of onward connectivity (cross-border and international).

11. **Role of the SPN and use of generated revenues.** As the owner of the new network infrastructure, the SPN would collect fees from the Concessionaire by receiving either Prepaid IRU or lease fees to the fiber optic cable. In order to ensure the achievement of the SPN mission to expand broadband service coverage in DRC, the corporate governance of SPN will prevent excessive profits through a break even constraint. Therefore the SPN revenues will exclusively cover operating costs, shared maintenance of the existing infrastructure, monitoring of construction, construction of additional backbone infrastructure and funding Corporate Social Responsibility (CSR) activities.

12. **Further connectivity to submarine cable landing stations and cross border interconnections.** The SPN will be required to ensure onward connections to the submarine cables (WACS, and/or ACE) and to conclude appropriate cross border interconnection agreements with neighboring countries. While the arrival of submarine cables has significantly increased African bandwidth capacity, distributing capacity inland away from the coast remains to be a challenge. The key issue is increasing cross-border network interconnection between countries, including landlocked countries, as well as extending capacity to rural areas. Regional interconnection will require (i) sound technology choices for the efficiency, reliability, and effectiveness of physical interconnections and (ii) regulatory choices that favor efficient and specific technical implementations. The resulting improved regional connectivity in the Great Lake region will help foster a more integrated socioeconomic development and provide significant commercial opportunities for private sector investors in Africa.

13. **Regulation of the network**. The network to be built by the Project will lead to the provision of new services at the national level and therefore would require new regulations. Transparent regulation on interconnection between the owners of various existing and newly deployed networks, including that of the SPN/ Concessionaire will need to be established. Furthermore, oversight will be required over service price, service definition, and service quality. This regulation would be conducted in two ways under the proposed project: (i) the PPP Agreement will contain all of these operating specifications (including price ceilings) and will be a binding contract between the Government and the Concessionaire; and (ii) all operators connecting to the network will continue to operate, via its local subsidiaries, as licensed telecommunications operators and will be subject to the standard regulations of the country.

14. **Restructuring of SCPT and its role in the proposed project.** SCPT, with less than 2,000 properly functioning telephone lines, is not a financially viable company. The COPIREP (*Comité de Pilotage de la Réforme des Entreprises du Portefeuille de l'Etat* – Steering Committee in charge of the Reform of Public Companies) recognizing this has prepared a government proposal for the restructuring of the SCPT. The proposal includes the following options: (i) SCPT is spun-off into two separate legal entities, one for postal services and the other for telecommunications services; (ii) sharing of assets and liabilities between both the postal services and telecommunications divisions. It is important that a social plan is laid down for the retrenchment of public sector staff in either scenario. . Experiences in other countries show that restructuring of state-owned companies is extremely challenging with political and social implications, largely

due to the retrenchment and reliance on revenues from the sector. Therefore the proposed project will first support the Government to establish a roadmap to undertake the SCPT restructuring. The financing of all SCPT related activities will be triggered by a disbursement condition committing the Government to fully engage into the necessary reforms (see para. 35 in Section III of the main text). The Project will not deal directly with the issue of retrenchment but rather start the process of restructuring by supporting the rehabilitation of the Muanda – Kinshasa operations and, possibly assisting the restructured SCPT with its participation in the PPP concession agreement.

15. **Component A – Emergence of an Inclusive Digital Economy (total cost US$13.20m)**

This component will support MINPTNTIC to help enable and accelerate the emergence of an information society and digital economy in the DRC. This component will help the country efficiently manage the new regional communication platform built in component 2. The component will support ICT skills, create new business opportunities for local ICT firms, promote ICT sector and digitalization of the economy through the following TAs (i) capacity building of the Ministry, in particular in the management of the .cd domain name; (ii) e-Waste (the process of recycling electronic equipment) – Preparatory Study, capacity building activities and investment plan (including the construction of the e-waste center); (iii) Government Intranet - Definition and preparatory study, installation of the network and purchase of equipment; and (iv) support to the SCPT operations on the Kinshasa Muanda link and fund the SCPT participation in the PPP concession contract for the operation of the infrastructure owned by the SPN. These activities, with the exception of the e-Waste center, will have a significant spill-over effect on neighboring countries: the restructuring on SCPT (sole operator currently connecting to the cable landing station), and the institutional development of MINPTNTIC to become a key regional player in the telecom sector in Central Africa.

(a) **Technical assistance to the MINPTNTIC**: this subcomponent will design a management policy for ".cd" domain name, through the provision of (i) technical assistance to conduct a diagnostic summary of the current status of the use of ". cd"; to describe the process of public participation in policy development and to develop management policy for the ".cd" domain taking into account the tools, means and outcomes; (ii) technical assistance to design a national implementation policy and a media communication plan around the ".cd" domain at the national and international levels. In addition this subcomponent will support all activities necessary to carry out component A implementation, such as the activity management aspects, project management and oversight, monitoring and evaluation (M&E), including satisfaction surveys of beneficiaries.

(b) **E-waste and management of electronic waste**: this subcomponent will fund the establishment of a regional e-waste center in DRC. The transition from analogic to digital economy, in addition to the millions of mobile device flowing to the country, will soon pose an environmental and health threat to the DRC population. The set-up of an e-waste will allow the country to recycle the components of the old analogic device and refurbish used digital device for a local market. For instance, old computers from private companies can be refurbished for use by primary school across the country, or sold at a very low price to the population. This subcomponent will finance (i) the technical and preparatory study for the establishment of a full-

fledged e-waste center, as well as (ii) the necessary investment (construction, retrofitting, and equipment).

(c) **Support to the SCPT operations on the Kinshasa Muanda link and fund the SCPT participation in the PPP concession contract for the operation of the infrastructure owned by the SPN.** Provided that the disbursement condition is met, this sub-component will fund technical, management experts to conduct a diagnosis of the Kinshasa Muanda link and to propose and conduct a rehabilitation plan that will turn this segment route into a commercially viable asset. This sub component will also fund the equity contribution or IRU or lease fees of the restructured SCPT for its participation in the PPP agreement.

(d) **Government Intranet**: the Government of DRC is currently operating in silos, with no horizontal applications and almost no infrastructure sharing. The result is a waste of resources by duplicating applications and infrastructure such as servers, data center and urban network. This subcomponent will finance the technical study to design the future Governmental Intranet. More specifically, this study will look at all the current e-gov initiatives currently implemented across the Ministries, and will provide an exhaustive list of Ministry-specific needs. The study will then propose a rationalization of resources and investments by proposing infrastructure sharing and horizontal applications. Based on the above, this subcomponent will finance the construction of the Intranet, from the construction of the optic backbone linking key Ministries and Government's facilities, to the development of applications. This subcomponent will finance, for instance, the development of application that will improve the efficiency of public finance by automating some bottlenecks in the public finance chain. This will allow a greater transparency and significantly improve governance.

Component A – Facilitating the emergence of a global and inclusive digital economy (KUSD)	
Project Preparation Advance	
Individual Consultant - Legal , accounting and regulatory matters	150
CAB5 Project	
Technical Assistance - Management of the .cd domain name	600
Technical Investment - e-Waste - Preparatory Study	900
Goods & Works - e-Waste - Investment Plan	3,000
Technical Assistance - Government Intranet - Definition and preparatory study	500
Goods & Works - Government Intranet - Equipment and Investment	3,250
Technical Assistance - SCPT Social Plan Strategy	700
Goods & Works - SCPT Participation in SPV	1,000
Goods & Works - SCPT - Support to Operations	2,000
Individual Consultant on Technical Assistance to MINPTT Project Component Supervision (Component A - Technical Project Coordination)	400
Goods & Works - Computer, and Project Coordination Equipment and furnitures	200
Technical Assistance - Training and Capacity Building	500
TOTAL COMPONENT A	**13,200**

16. **Component B – Construction, Management and Commercialization of the CAB5 Infrastructure through a PPP Scheme (total cost US$71.60m)**

This component will support MINPORTFOLIO mainly in the deployment of interconnected networks at both a national and regional level. The project proposes a mix of interventions covering investment focused on improving connectivity through the establishment of three neutral carrier hotels and regional IXPs, and the establishment of three interregional links to neighboring countries (including civil works and fiber-optic cables). The component will also finance the SPN operating cost for the first two years including the monitoring and the quality control of the construction.

(a) **Technical studies for backbone infrastructure**: this subcomponent is partly financed by the PPA. The technical and environmental studies for the backbone infrastructure will start before effectiveness. This subcomponent will finance the environmental and resettlements frameworks, the technical and engineering studies (e.g. design network routes, supervise technical specifications and surveys), Environmental and Social Studies, and Technical Assistance to (i) prepare and finalize the legal, financial, regulatory and technical documentation for the international tender to build the CAB5 Network, (ii) prepare a set of options to help the Government to take a final decision and (iii) conduct and finalize the PPP transaction in light of the option chosen by the Government. In particular, this subcomponent will finance the consultant (firm, or consortium) that will advise the Government throughout the process, from the technical studies and design of the PPP scheme, to the actual transaction, including the selection of the Concessionaire(s), and the related legal statutes. The "adviser" to the Government will propose a list of options and help the Government identify the most suitable PPP scheme for the sector and the country.

(b) **Carrier Hotel**: IDA funding will be used to establish a neutral 'carrier hotel' in Kinshasa, Goma and Lubumbashi. Carriers with international infrastructure would all connect with the Carrier Hotel to provide services to other operators/users and also to ensure the security and redundancy of their own links by having a single point from which to cross-connect. The presence of the Carrier Hotel would also attract other international operators (as well as content and application providers) to land their fiber infrastructure and data servers there, as the most cost effective place to meet, peer, and trade capacity. This would also be the ideal location for establishing the Internet Exchange Point (IXP).

(c) **Construction of backbone infrastructure**: this subcomponent will finance the construction of backbone infrastructure (fiber optic) across the country. In order to complement and secure this network, and to expand infrastructure in other parts of the country, the Project will finance the construction of a broadband network to commercialize, on a wholesale basis, bandwidth in three key economic clusters: Kinshasa, Lubumbashi, and Goma. Furthermore the proposed network would help ensure that the DRC connects to submarine cables via the most efficient routes (e.g. WACS for Kinshasa and other cross-border connections for Lubumbashi and Goma). The three "regional backbones" will link DRC to the neighboring countries and will be linked all together by the fiber optic currently laid on the high tension line (OPGW

technology) by the energy project SAPMP, between Kinshasa and the Lubumbashi region. The three regional backbones will be partly financed by private investors through the PPP (active equipment and maybe some additional secondary links).

(d) **SCPT – Restructuring roadmap**: this subcomponent will assist the Government in the restructuring of the incumbent operator SCPT. The Government, through its Ministry of Portfolio, has engaged into deep reforms for all state-owned enterprises, including the public telecom operator. The activities will fund the development of a clear restructuring roadmap for the SCPT. The disclosure of this roadmap by the Government will be disbursement condition for Sub-component A(4).

(e) **Establishment and operating costs of the SPN (*Société de Patrimoine Nationale*).** Pursuant the work carried by the legal expert under the PPA this subcomponent will finance all legal and regulatory for the operationalization of the SNP: recruitment of the SPN key staff based on the organization chart, purchase of equipment and furniture of the SPN. The signing of a cooperation agreement between the Government and the SPN will be disbursement condition for Sub-component B(2). This sub component will also subsidize the first two years of operating costs, including for instance individual consultant to follow up on implementation of environmental and resettlements frameworks.

(f) **Support to COPIREP and MINPORTFOLIO**: this subcomponent will support all activities necessary to carry out project implementation, such as the fiduciary aspects, project management and oversight, monitoring and evaluation (M&E), including satisfaction surveys of beneficiaries. COPIREP will play the role of Project Coordination until the SPN takes over. During the transaction period the COPIREP will carry out the recruitment of procurement and financial management specialists, the draft of the Manual of Procedures of the SPN, including the M&E Manual, the external auditor for the whole project and all equipment and operating costs necessary to carry out efficient project management. In addition, this subcomponent will build COPIREP's capacity by funding the project focal point for the MINPORTFOLIO and individual expert as needed.

Component B - Construction, management, commercialization of the CAB5 Infrastructure through PPP scheme	
Project Preparation Advance	
Individual Consultant - Safeguards related frameworks (environmental, social and resettlements)	200
Individual Consultant - Adviser on ICT and infrastructure	200
Individual Consultant - Technical and Engineering (design network routes, supervise technical specifications and surveys)	150
Individual Consultant - Procedure Manual - External Audit and equipment	300
Goods and Works - Subsidy to finance fiduciary support from COPIREP	300
Technical Assistance - Environmental and Social Studies	600
Technical Assistance to (i) prepare and finalize the legal, financial, regulatory and technical documentation for the recruitment of a PPP to build, manage and commercialize the CAB5 Network, (ii) prepare a set of option and help the Government to take a final decision and (iii) conduct and finalize the PPP transaction in light of the option chosen by the Government	2,100
CAB5 Project	
Technical Assistance, Goods & Works - Infrastructure Cluster 1 - Kinshasa Cluster	16,000
Technical Assistance, Goods & Works - Neutral carrier hotel and national / regional IXP - Cluster 1	400
Technical Assistance, Goods & Works - Infrastructure Cluster 2 - Goma Cluster	12,600
Technical Assistance, Goods & Works - Neutral carrier hotel and national / regional IXP - Cluster 2	400
Technical Assistance, Goods & Works - Infrastructure Cluster 3 - Lubumbashi Cluster	33,500
Technical Assistance, Goods & Works - Neutral carrier hotel and national / regional IXP - Cluster 3	400
Technical Assistance - Roadmap for the restructuring of SCPT	600
Technical Assistance - Creation of the SPN	600
Individual Consultant - Technical Assistance on SPN Project Component Supervision (Component B - Technical Project Coordination)	300
Individual Consultant - Technical Assistance on SPN Project Component Supervision (Component B - Procurement Support)	300
Individual Consultant - Technical Assistance on SPN Project Component Supervision (Component B - Financial Management Suport)	300
SPN Operating Cost	1,500
Goods & Works - Computer, and Project Coordination Equipment and furnitures	200
Goods & Works - Subsidy to finance fiduciary support SG COPIREP	650
TOTAL COMPONENT B	**71,600**

17. **Component C – Enabling Environment and Regulatory Effectiveness (Total cost $7.30 million)**

(a) **This component will reinforce ARPTC and strengthen the regulatory tools and capacity** to promote further sector reform so as to maximize benefits from access to capacity, strengthen PPP framework to provide a sound basis for both the connectivity component. This component will support the functioning of the regulatory body (ARPTC) to ensure that the GoDRC's objectives are being met. This component will include, inter alia, the following activities; (i) TA for the design and implementation of a Digital Switchover Plan in DRC; (ii) TA to promote an Open Access and Wholesale pricing regime and to design regulatory toolkit, and finally to develop regulatory tools for broadband market (market analysis, network mapping, cost models, QoS and KPI); (iii) TA for strategic development of ARPTC (training, applications, equipment); and (iv) TA to design frequency spectrum management regulatory tools and to prepare bidding documents for the purchase of spectrum management equipment.

(b) **Building the capacity of ARPTC**. This subcomponent will finance technical assistance such as the promotion of an Open Access and Wholesale pricing regime and the design of regulatory toolkit, and finally the development of regulatory tools for broadband market services (market analysis, network mapping, cost models, QoS and KPI). In addition, this subcomponent will finance another technical assistance on frequency spectrum management regulatory tools at cross-border. This TA will promote and strengthen Cross Border Frequency management regime, help design frequency spectrum management regulatory tools at the border with the Republic of Congo, the Zambia and Rwanda and support the drafting of bidding documents for the purchase of spectrum management equipment. Finally, this subcomponent will finance training and capacity building activities for the ARPTC, as necessary to carry out efficiently its mandate.

(c) In addition this subcomponent will support all activities necessary to carry out component C's implementation, such as the activity management aspects, project management and oversight, monitoring and evaluation (M&E), including satisfaction surveys of beneficiaries.

Component C - Enabling environment and improving regulatory effectiveness at the regional and national levels	
CAB5 Project	
Technical Assistance - Frequency Management - Preparatory Study	1,000
Goods & Works - Frequency Management - Equipment	3,000
Technical Assistance - Network Integrity and Cybersecurity - Preparatory Study	500
Goods & Works - Network Integrity and Cybersecurity - Equipment	1,500
Technical Assistance - Regulatory Tools for Broadband markets - Concession M&E - Study & Training	400
Goods & Works - Information System, Computer (LAN, WAN, Applications)	500
Individual Consultant - Technical Assistance on ARPTC Project Component Supervision (Component C - Financial Management Suport)	400
TOTAL COMPONENT C	**7,300**

Component C - Enabling environment and improving regulatory effectiveness at the regional and national levels (KUSD)	
CAB5 Project	
Technical Assistance - Frequency Management - Preparatory Study	1,000
Goods & Works - Frequency Management - Equipment	3,000
Technical Assistance - Network Integrity and Cybersecurity - Preparatory Study	500
Goods & Works - Network Integrity and Cybersecurity - Equipment	1,500
Technical Assistance - Regulatory Tools for Broadband markets - Concession M&E - Study & Training	400
Igoods & Works - nformation System, Computer (LAN, WAN, Applications)	500
Individual Consultant - Technical Assistance on ARPTC Project Component Supervision (Component C - Financial Management Suport)	400
TOTAL COMPONENT C	**7,300**

Annex 3: Implementation Arrangements

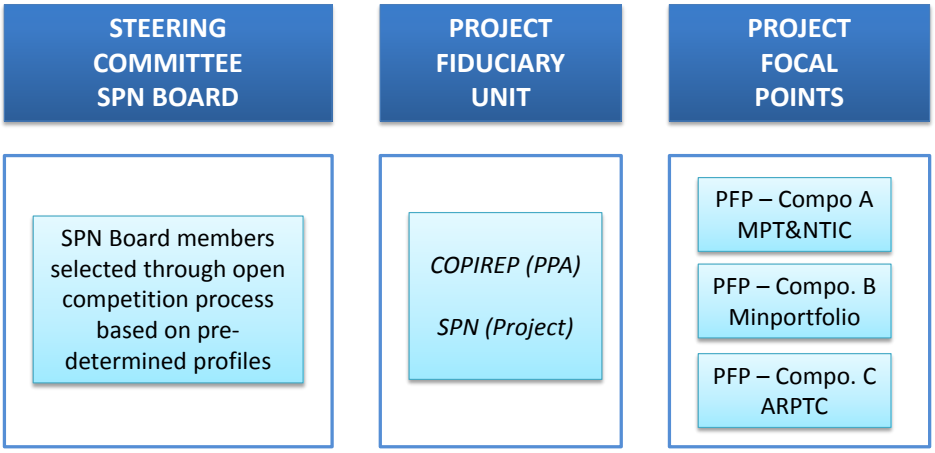
DEMOCRATIC REPUBLIC OF CONGO: Central African Backbone SOP5 (P132821)

Project Institutional and Implementation Arrangements

1. The implementation arrangements have been designed with the objective to take into account the multi-agency nature of the project, the weak capacity and coordination failures within the public sector. The implementation arrangements involve three organizational levels: (i) the project Steering Committee (*Comité de Pilotage*) will be responsible for the overall coordination and supervision of the project; (ii) the Project Fiduciary Unit (PFU) will be responsible for fiduciary management; and (iii) the Project Execution Units (PEUs) will implement activities.

2. The implementation arrangements involve three organizational levels described below.

Figure 2: CAB5's Institutional Arrangements



(a) The **Project Steering Committee** (*Comité de Pilotage*) will be responsible for the overall coordination and supervision of the project. The project Steering Committee will have the fiduciary and governance oversight and will provide advice regarding cross-sectoral issues. The Board of the SPN will play the role of the project Steering Committee.

(b) The **Project Fiduciary Unit** will handle the fiduciary aspects of the Project (Procurement and Financial Management) and will be situated within the SPN (the COPIREP will handle the fiduciary functions until these functions can be transferred to the SPN. See paragraph 3 below). It will ensure the proper fiduciary planning of Project activities and preparation of Project annual work programs; financial management, procurement, and audits under the Project.

(c) The **Project Focal Points (PFPs)**, in close collaboration with the technical teams from MINPTNTIC, Ministry of Portfolio (COPIREP) and ARPTC will be responsible for oversight of all technical, social, and environmental matters relating to Project implementation in their respective component; planning of Project activities and preparation of Project annual work programs; monitoring and evaluation of Project activities including quality assurance.

Administrative mechanisms

3. Project coordination including fiduciary aspects will be carried by COPIREP during PPA and early implementation until the SPN takes over. Once the SPN is established, properly staffed, and able to carry out fiduciary activities of the project, the project will then fall under the oversight of the SPN Board.

(a) **Project Steering Committee**. The Board members of the SPN will be appointed by a Decree signed by the President of DRC. The Board of the SPN / Project Steering Committee will be composed of members selected through an open competition. The Government will draft the profiles which will be representative of all the expertise necessary to carry out the SPN's mission. The Board of the SPN / Project Steering Committee will meet twice a year to review and validate (i) the proposed budget and annual work plan, (ii) the quarterly consolidated M&E reports for all components, (iii) procurement plan and finally to identify the routes to be funded by the revenues from the concession contract(s).

(b) **Project Fiduciary Unit**. The PFU will ensure the day-to-day project fiduciary aspects (procurement and financial management). It will be anchored within SPN and will be responsible for procurement and financial management oversight of any matters relating to Project implementation; financial management, procurement, and audits under the Project. The PFU shall be staffed with experts recruited through a competitive basis. The PFU will be comprised of a Procurement Specialist, a Financial Management Specialist, and Accountant and an Internal Auditor.

(c) **Project Focal Points (Components A, B and C)**. The project components will be executed by technical services of MINPTNTIC, Ministry of Portfolio/COPIREP and ARTPC. These entities are the main recipients/beneficiaries of the project and will coordinate the activities included in their respective components. Three Focal Points will be recruited through a competitive process, and will be anchored at MINPTNTIC, Ministry of Portfolio/COPIREP and ARTPC. The three focal points will be responsible for successful implementation of the activities falling under their respective agencies. More specifically the PFPs will be responsible for (i) the drafting of all terms of reference; (ii) the monitoring of the selection process while participating in the selection/evaluation committee; and (iii) the monitoring of the proper implementation of the tasks.

Financial Management, Disbursements and Procurement

Financial Management

4. **Overview of Project and implementing entity.** The Project Development Objective is to contribute to increase geographical reach and usage of regional broadband infrastructure and to reduce the price of services to enable more people in the DRC to access ICT services. The project is envisaged as having three components: (i) Component A: Facilitating the emergence of an inclusive digital economy (US$13.2 million); (ii) Component B: Construction, management, commercialization of the CAB5 Infrastructure through PPP scheme (US$71.6 million); and (iii) Component C: Improving regulatory effectiveness and enabling environment at the regional and national levels (US$ 7.3 million).

5. The Project coordination will be carried by COPIREP during PPA and early implementation until the SPN takes over. Once the SPN is established, properly staffed and able to carry out fiduciary activities, the project will then fall under the oversight of the SPN Board. Prior to this financial responsibility transfer, the Bank financial management team will conduct an assessment to determine whether the SPN has an adequate financial management systems and related capacity which satisfies the Bank's OP/ BP 10.00.

6. **Country PFM situation and Use of Country System.** The Country Financial Accountability Assessment (CFAA), the Public Expenditures Review (PER), and the Public Expenditure and Financial Accountability (PEFA) 2008 and 2012 have shown an unsatisfactory economic and financial control environment including weak budgeting preparation and control, financial reporting, external audit and human resources. In-depth structural reforms are consequently required in the areas of economic governance, public expenditure management, financial sector and public enterprises to strengthen capacity in the public administration. To this end, with the support of the donor community, the Government of DRC has undertaken a series of PFM reforms in budget preparation and execution, adhesion to Treasury forecasts, preparation of regular budget execution reports, and simplification of the national budget classification system. The first critical step of these series of Public Financial Management (PFM) reforms is the adoption in July 2011 of a new PFM organic Law preceded by the adoption of a new Procurement code in December 2008. Additional decrees are being finalized to further clarify the organic Law. Yet, there is reason for cautious optimism; since it will take time for these reforms to yield substantial improvements in the management of public funds. As a result, the overall country fiduciary risk is still considered **High**. The repeated PEFA, concluded at the end of 2012, took stock of the areas of progress and revised the existing PFM strategy plan accordingly. The new project "Strengthening PFM and Accountability" (P145747), approved on January 2014 by the World Bank's Board, will strengthen the Public Financial Management system both at the central and in some provinces levels. The outcomes of the use of the country national PFM systems (UCS) assessment report which had been undertaken in April 2013 will be gradually implemented for the implementation of Bank-financed projects.

7. **Risk Assessment and Mitigation Measures.** The Bank's principal concern is to ensure that project funds are used economically and efficiently for the intended purpose. Assessment of the risks that the project funds will not be so used is an important part of the financial management assessment work. The risk features are determined over two elements: (i) the risk associated to the project as a whole (inherent risk), and (ii) the risk linked to a weak control environment of the project implementation (control risk). The content of these risks is described below.

Risk	Risk rating	Risk Mitigating Measures Incorporated into Project Design	Risk after mitigation measures	Conditions for effectiveness (Y/N)
INHERENT RISK	**H**		**S**	
Country level Delay in the implementation of the different PFM reforms that might hamper the overall PFM environment.	H	Some PFM reform programs are currently ongoing through IDA-financed projects Enhancing Governance Capacity (P104041), and Establishing Capacity for Core Public Management (P117382), in addition to the project "Strengthening PFM and	H	N

		Accountability" (P145747) approved on January 2014 by the World Bank's Board. These reforms will address the key new challenges the country is facing.		
Entity level The SPN is confirmed as the implementing agency, which poses risks of implementation delays since the FM capacity of this SPN will be built.	H	The FM function of the project will be managed by the FM Unit of COPIREP. This FM Unit is familiar with IDA FM procedures and is composed of experienced fiduciary staff.	S	N
Project level The resources of the project may not reach all beneficiaries and used for the intended purposes.	S	Use the FM team of COPIREP and its existing FM arrangements.	S	N
CONTROL RISK	**S**		**S**	
Budgeting Weak budgetary execution and control inducing budgetary overspending or the inefficient use of funds.	S	Annual work plan and budget will be prepared each year. The project FM Manual of Procedures will define the arrangements for budgeting, budgetary control and the requirements for budgeting revisions. Annual detailed disbursement forecasts and budget required. IFR will provide information on budgetary control and analysis of variances between actual and budget.	S	N
Accounting Increase of the FM team workload leading to some delays	M	The current FM staffing arrangement is adequate; no need to increase FM staff. However, a new accounting software will be purchased for the project under the PPA. This accounting software will be customized to generate the financial reports of the project	M	N
Internal Controls and Internal Audit Specific aspects of the new project may not be applied or reflected in the FM manual of procedures; and procurement internal controls not applied	S	(i) Update the PSDCP's existing manual of procedures to capture the specificities of the new project; (ii) update the ToRs of the current internal audit unit to reflect the new project specificities ; and (iii) establish a channel of collaboration between IGF and the current project's internal audit unit to agree on project's risk mapping and work program.	S	N

Funds Flow - Risk of misused of funds and use funds to pay non eligible purposes - Risk of misused and inefficient use of funds. - Weak capacity in the disbursement procedures of the World Bank which could affect the disbursement rate.	S	- Organize frequent controls in each involved agency in order to help to prevent and mitigate the risk of diversion of funds. - Payment requests will be approved by the Coordinator and the administrative and financial manager prior to disbursement of funds. - Require of the FM team to ensure monthly submission of the withdrawal application.	S	N
Financial Reporting Delay and difficulties in the submission of acceptable IFRs to the World Bank due to the increase in COPIREP activities.	M	(i) A computerized accounting system in place and adequate staffing arrangements are in place under the PSDCP. (ii) The current content and format of the PSDCP's IFR are acceptable to IDA. The IFR of the new project will use the same format and content.	M	N
External Auditing External audit arrangements are not defined and lack of capacity of public institutions of control to assure the external audit of the project	S	Recruitment of independent external auditor based on agreed TOR developed in line with International Accounting Standards (including fraud and corruption). This process will involve the DRC's Supreme Audit Institution (*Cour des Comptes*) through external auditors' selection and their reports reviewing.	M	N
Governance and Accountability Possibility of circumventing the internal control system with colluding practices as bribes, abuse of administrative positions, mis-procurement..., is a critical issue.	H	(i) The TOR of both internal audit unit and external auditor will comprise a specific chapter on corruption auditing (ii) FM manual of procedures will include anti-corruption measures with a specific safety mechanism that enables individual persons and NGOs to denounce abuses or irregularities ; (iii) Robust FM arrangements designed to mitigate the fiduciary risks; (iv) Measures to improve transparency such as providing information on the project status to the public, and to encourage participation of civil society and other stakeholder will be built into the project design. The implementing agency will prepare a code of	H	N

		conduct including clear procedures for disciplinary action.		
Overall FM risk	**S**		**S**	

8. The overall risk rating at implementation is **Substantial**.

Financial Management Action Plan to reinforce the control environment

Issue	**Remedial action recommended**	**Responsible entity**	**Completion**	**Effectiveness conditions**
Information system accounting software	Purchase a new accounting software for the project under the PPA	COPIREP	Three months after effectiveness	N
Financial reporting : IFR	Format, content, and frequency of the IFR to be prepared and discussed during project negotiation	COPIREP	Discussed and agreed during project negotiation	N
Administrative, Accounting and Financial Manual of procedures	Update the current PSDCP's manual of procedures (i) to include the specificities of the new project; (ii) ensure adequate ownership by the new players; and (iii) strengthen the anti-corruption aspects.	COPIREP	Three months after effectiveness	N
Internal auditing	Revision of the ToRs of the current internal auditor to reflect the new project specificities.	COPIREP	Three months after effectiveness	N
External financial auditing	Recruitment of the external auditor acceptable to IDA	COPIREP	Three months after effectiveness	N

9. **Governance and anticorruption considerations**. The country political situation has weakened the governance and corruption environment. In the context of the project, the following governance and anti-corruption measures will contribute to enhance transparency and accountability during the project implementation : (i) an effective implementation of the fiduciary mitigation measures should contribute to strengthen the control environment, (ii) the appropriate representation and oversight of the Steering Committee involving key actors, as well as the transparency in both operation implementation and dissemination to stakeholders and the public during project implementation, (iii) the TOR of both internal audit unit and external auditor will comprise a specific chapter on corruption auditing, (iv) the FM manual of procedures will include anti-corruption measures with a specific safety mechanism that will enable individual persons and NGOs to denounce abuses or irregularities, (v) measures to improve transparency such as providing information on the project status to the public and to encourage participation of civil society and other stakeholders will be strengthened during

project implementation, and (vi) finally, an Anti-corruption action plan will be prepared in addition to the robust FM arrangements designed to mitigate the fiduciary risks.

10. **Staffing and Training**: The FM aspects of the new project will be handled by the current FM team of COPIREP until the fiduciary functions are transferred to the SPN. The current FM staffing arrangement is acceptable to IDA; no additional staff will be recruited.

11. **Budgeting**: The preparation and approval procedures of the annual work program and budget will follow the same arrangements currently in place and is in compliance with the FM manual of procedures. This annual work plan and budget will be prepared for implementing project activities taking into account the project's objectives. The work plan and budgets will identify the activities to be undertaken and the role of respective parties in implementation. Annual work plans and the budgets will be consolidated into a single document with the support of the FM team, which will be submitted to the steering committee for approval, and thereafter to the World Bank for no objection not later than November 30 of each year proceeding the year the work plan should be implemented. The consolidation will be done after the COPIREP ensures, through its technical departments, that the plan and budget meet the project objectives.

12. **Accounting Policies and Procedures**: The multi-projects version of the current accounting software, TOMPRO, already used by COPIREP for PSDCP will be used to manage this new project. A new version of the software will be purchased to benefit from new features.

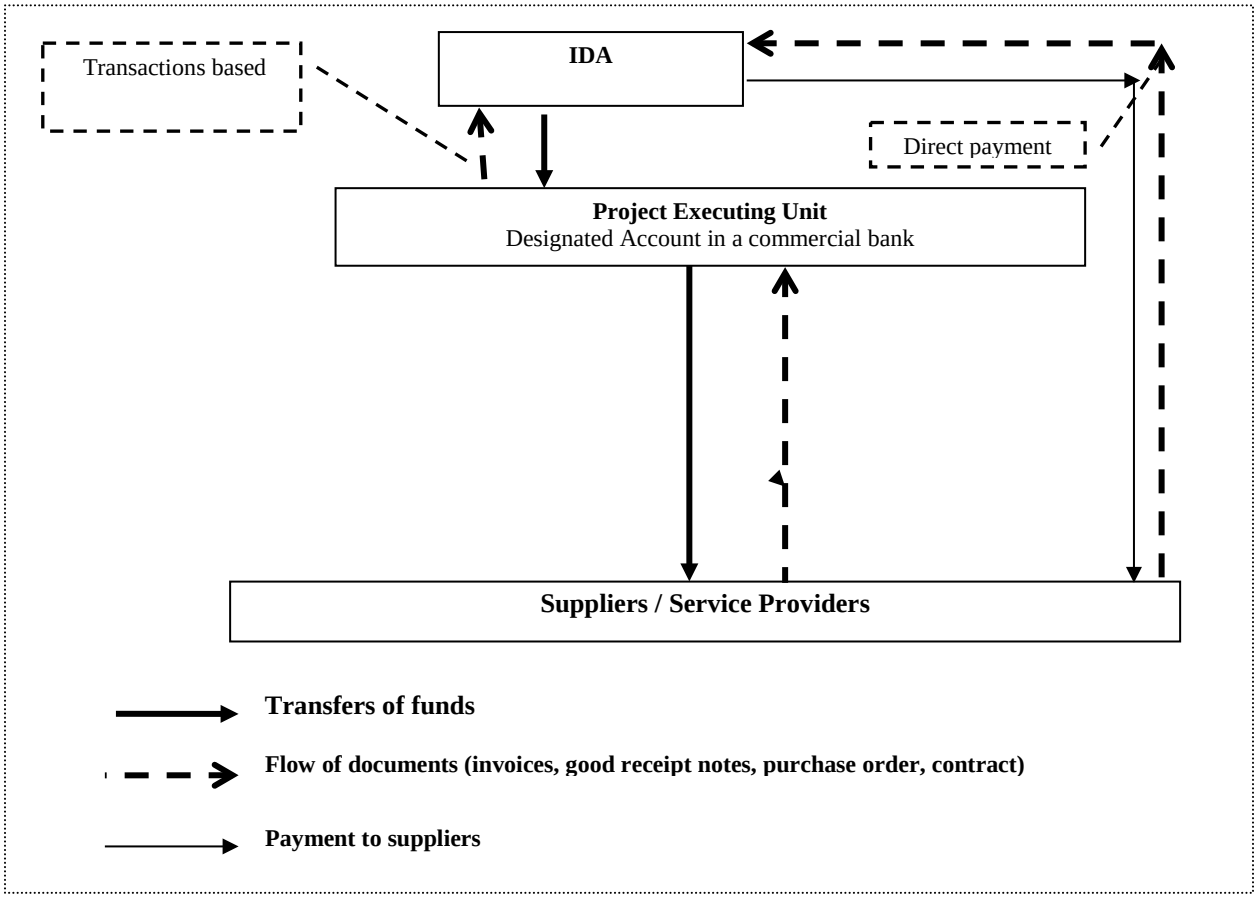
13. **Internal Control and Internal Auditing**: The existing version of the FM manual of procedures is deemed acceptable to IDA and could be used for the new project. No specific revision is required. The team and Internal Auditors have been trained on the use of this manual. In line with the DRC Use of Country System (UCS) Report to fully rely on *Inspection Générale des Finances* (IGF) for project's internal audit, the project's internal control system could be strengthened by establishing a channel of collaboration between IGF and the project's internal audit unit to agree on project's risk mapping and work program.

Funds Flow and Disbursement Arrangements

14. A Designated Account (DA) has been opened in a commercial bank on terms and conditions acceptable to IDA under the fiduciary responsibility of the COPIREP. This DA will be managed according to the disbursement procedures described in the PIM and the Disbursement Letter (DL) for the Project. The ceiling of the account is specified in the DL estimated to be the equivalent of four months of project cash needs and takes into account the disbursement capacity of the various structures implementing the Project. This ceiling will be set at US$3.3m. This Designated Account will be used to finance all eligible project expenditures under the different components. Payments will be made in accordance with the provisions of the manual of procedures (i.e. two authorized signatures will be required for any payment). The Designated Account will be replenished against withdrawal applications supported by Statements of Expenditures (SOE) and other documents evidencing eligible expenditures as specified in the Disbursement Letter. All supporting documents should be retained at the project and readily accessible for review by periodic IDA implementation support missions and external auditors.

Disbursements

15. **Disbursement method**: Upon Grant effectiveness, transaction-based disbursements will be used during the first year of the project implementation. Thereafter, the option to disburse against submission of quarterly unaudited Interim Financial Report (also known as the Report-based disbursements) could be considered subject to the quality and timeliness of the IFRs submitted to the Bank and the overall financial management performance as assessed in due course. In the case of the use of the report-based disbursement, the DA ceiling will be equal to the cash forecast for two quarters as provided in the quarterly unaudited Interim Financial Report. The option of disbursing the funds through direct payments to suppliers/contractors for eligible expenditures will also be available for payments equivalent to twenty percent (20%) or more of the DA ceiling. Another acceptable method of withdrawing proceeds from the IDA grant is the special commitment method whereby IDA may pay amounts to a third party for eligible expenditures to be paid by the Recipient under an irrevocable Letter of Credit (LC). The funds' flows diagram for the DA are as follows:



16. **Disbursement of Funds to other Service Providers and Suppliers**: The COPIREP/SPN will make disbursements to service providers and suppliers of goods and services in accordance with the payment modalities, as specified in the respective contracts/conventions as well as the procedures described in the project's Administrative, Accounting, and Financial Manual. In addition to these supporting documents, the Project will consider the findings of the internal audit unit while approving the payments. The COPIREP/SPN, with the support of its internal audit unit, will reserve the right to verify the expenditures ex-post, and refunds might be

requested for non-respect of contractual clauses. Misappropriated activities could result in the suspension of financing for a given entity.

17. **Disbursements by category**: The table below sets out the expenditure categories to be financed out of the Grant. This table takes into account the prevailing Country Financing Parameter for DRC in setting out the financing levels. In accordance with Bank standard procurement requirements, contracts will continue to be approved "all taxes included" for local expenditures. The project will, however, claim invoiced amounts excluding taxes. The Government will take appropriate steps to cover the tax portion of contracts signed by the project with contractors and suppliers of goods and services.

Category	Amount of the Grant Allocated (expressed in SDR)	Percentage of Expenditures to be Financed (inclusive of Taxes)
(1) Goods, Works, Non-Consulting Services, Consultants' Services, Operating Costs, Workshops and Training for Components A, B et C of the Project and Works for Components A2 and C of the Project	14,200,000	100%
(2) Works for Component A4 of the Project	1,900,000	100%
(3) Works for Component B of the Project	41,100,000	100%
(4) Refund of Preparation Advance	2,600,000	Amount payable pursuant to Section 2.07 of the General Conditions
TOTAL AMOUNT	59,800,000	

18. **Financial Reporting and Monitoring**: Financial reports will be designed to provide quality and timely information on Project performance to Project management, and relevant stakeholders. Formats of the various periodic IFRs to be generated from the financial management system will be developed using the World Bank's Financial Management Practices in WB-financed Investment Operations. The quarterly IFR includes (i) the statements of sources and used funds, and utilization of funds per category, (ii) the update of the procurement plan, (iii) the physical progress, (iv) expenditure types and implementing agent, showing comparisons with budgets; (iv) Designated Account activity statements and explanation notes to the IFR; (v) and the summary of missions of internal audit as well as implementation status of the recommendations of internal or external audit and supervision missions. The IFR will be prepared and submitted to IDA, 45 days after the end of each quarter. In compliance with International Accounting Standards and IDA requirements, the Project will produce annual financial statements. These include: (i) a Balance Sheet that shows Assets and Liabilities; (ii) a Statement of Sources and Uses of Funds showing all the sources of Project funds, expenditures analyzed by Project component and category expenditures (iii) a Designated Account Activity Statement; (iv) an Implementation Report containing a narrative summary of the implementation

progress of the Project; (v) a Summary of Withdrawals using SOE (transactions-based disbursement), listing individual withdrawal applications by reference number, date and amount; and (vi) Notes related to significant accounting policies and accounting standards adopted by management and underlying the preparation of financial statements. The financial statements will be submitted for audit at the end of each year or other periods to be stated.

19. **External Auditing**: The project's financial statements and internal control system will be subject to external annual audit by an independent external auditor which will be recruited on ToRs acceptable to IDA. The external auditor will give an opinion on the annual financial statements in accordance with auditing standards of IFAC. In addition to audit reports, external auditor will also produce a management letter on internal control to improve the accounting controls and compliance with financial covenants under the financing agreement. The project will be required to submit, not later than June 30 of each fiscal year, the annual audited financial statements of the previous year. In compliance with the DRC UCS Report, the DRC's Supreme Audit Institution (*Cour des Comptes*) could start being involved in the process of the external auditors' selection and their reports reviewing. In line with the new access to information policy, the project will comply with the disclosure policy of the Bank of audit reports (for instance making available to the public without delay after receipt of all reports final financial audit, including audit reports qualified) and place the information on its official website within one month after acceptance of final report by IDA.

20. **Implementation support Plan**: The Bank's FM implementation support mission will be consistent with a risk-based approach, and will involve a collaborative approach with the entire Task Team. Based on the current overall residual FM risk, the project will be supervised twice a year to ensure that project FM arrangements still operate well and funds are used for the intended purposes and in an efficient way. A first implementation support mission will be performed within six months after the project effectiveness. Afterwards, the missions will be scheduled by using the risk based approach model and will include the following diligences: (i) monitoring of the financial management arrangements during the supervision process at intervals determined by the risk rating assigned to the overall FM Assessment at entry and subsequently during Implementation (ISR); (ii) integrated fiduciary review on key contracts, (iii) review the IFRs; (iv) review the audit reports and management letters from the external auditors and follow-up on material accountability issues by engaging with the task team leader, Client, and/or Auditors; the quality of the audit (internal and external) also is to be monitored closely to ensure that it covers all relevant aspects and provide enough confidence on the appropriate use of funds by recipients; and, (v) physical supervision on the ground; and (vi) assistance to build or maintain appropriate financial management capacity. The supervision mission will include transactions reviews of expenditures occurred.

21. **Conclusions of the FM Assessment**: The overall residual FM risk at preparation is considered **Substantial**. The proposed financial management arrangements for this project are considered adequate to meet the Bank's minimum fiduciary requirements under OP/BP10.00.

Procurement

A. General: Procurement rules to be applied

22. **Applicable guidelines**: Procurement for the project will be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated January

2011; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011; and the provisions stipulated in the Legal Agreement. The various procurement actions under different expenditure categories are described in general below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The procurement plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants” dated October 15, 2006 and updated January 2011, shall apply to the project.

B. Reference to the National Procurement Regulatory Framework

Reference to the National Procurement Regulatory Framework

23. For all contracts awarded through NCB method, the Bank may authorize the use of the national institutions and regulations that comprise the law including its texts of application, the institutions set up for the control and regulation and the institutions responsible for procurement activities implementation. The national competitive bidding procedures currently in force in the DRC deviate slightly from the World Bank Procurement Guidelines (dated January 2011) NCB procedures for procurement of Works, Goods and services (other than consultants services); thus, they have been already reviewed and appropriate modifications have been proposed to assure economy, efficiency, transparency, and broad consistency with the provisions included in Section I and paragraphs 3.3 and 3.4 of the Bank Procurement Guidelines (refer to the paragraph below).

Requirements for National Competitive Bidding

24. The procedures to be followed for National Competitive Bidding shall be those set forth in the Recipient’s Procurement Code of April 27, 2010, as revised from time to time in a manner deemed acceptable to the Association, subject, however, to the modifications described in the following paragraphs required for compliance with the Procurement Guidelines:

(a) **Standard Bidding Documents**: All standard bidding documents to be used for the Project under NCB shall be found acceptable to the World Bank before their use during the implementation of Project;

(b) **Eligibility**: Eligibility of bidders and acceptability of their goods and services shall not be based on their nationality and/or their origin; and association with a national firm shall not be a condition for participation in a bidding process. Therefore, except for the ineligibility situations referred to in paragraphs 1.10(a) (i) and 1.10(a) (ii) of the Procurement Guidelines, the eligibility of bidders must be based solely on their qualification, experience and capacity to carry out the contract related to the specific bidding process ;

(c) **Advertising and Bid Preparation Time**: Bidding opportunities shall be advertised at least in a national newspaper of wide circulation and on the website of the Recipient’s Procurement Regulator (*Autorité de Régulation des Marchés Publics*) and bidders should be given at least 30 days from the date of invitation to bid or the date of availability of the bidding documents, whichever is later;

(d) **Criteria for Qualification of Bidders**: Qualification criteria shall only concern the bidder's capability and resources to perform the contract taking into account objective and measurable factors. Such criteria for qualification of bidders shall be clearly specified in the bidding documents;

(e) **Bid Evaluation and Contract Award**: A contract shall be awarded to the substantially responsive and lowest evaluated bidder provided that such bidder meets the qualification criteria specified in the bidding documents. No scoring system shall be allowed for the evaluation of bids, and no "blanket" limitation to the number of lots which can be awarded to a bidder shall apply. The criteria for bid evaluation and the contract award conditions shall be clearly specified in the bidding documents;

(f) **Preferences**: No preference shall be given to domestic/regional bidders; to domestically/regionally manufactured goods; and to bidders forming a joint venture with a national firm or proposing national sub-contractors or carrying out economic activities in the territory of the Recipient;

(g) **Publication of Contract Award**: Information on all contract awards shall be published in at least a national newspaper of wide circulation or in the Recipient's Procurement Regulator (*Autorité de Régulation des Marchés Publics*) web-site;

(h) **Fraud and Corruption**: In accordance with the Procurement Guidelines, each bidding document and contract shall include provisions stating the World Bank's policy to sanction firms or individuals found to have engaged in fraud and corruption as set forth in the Procurement Guidelines;

(i) **Inspection and Audit Rights**: In accordance with the Procurement Guidelines, each bidding document and contract shall include provisions stating the World Bank's policy with respect to inspection and audit of accounts, records and other documents relating to the bid submission and contract performance;

(j) **Requirement for administrative documents and/or tax clearance certificate:** The bidding documents shall not require foreign bidders to produce any administrative or tax related certificates prior to confirmation of awarding a contract;

(k) **Modifications of a Signed Contract:** Any change in the contract amount which, singly or combined with all previous changes, increases the original contract amount by fifteen (15) percent or more must be done through an amendment to the signed contract instead of signing a new contract.

C. Items to be procured and the methods to be used

25. **Advertisement**: General Procurement Notice (GPN), Specific Procurement Notices (SPN), Requests for Expression of Interest, and results of the evaluation and contracts award should be published in accordance with advertising provisions in the following guidelines: "Guidelines: Procurement under IBRD Loans and IDA Credits" dated January 2011; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011. For this purpose, the COPIREP will prepare and submit to the Bank a General Procurement Notice (GPN). Specific Procurement Notice (SPN) for all goods, non-consulting services and works to be procured under International Competitive Bidding (ICB) and Requests for Expressions of Interests for all consulting services costing the equivalent of US$200,000.00 and above will be

published in “Dg Market”, on the Bank’s external website, and in the national press, in addition to other media with wide circulation. All other specific procurement notices and other requests for expression of interest shall be published at a minimum in the national press with wide circulation.

26. **Procurement of works:** works procured under this project include mainly Infrastructure for the establishment of the Cluster 1; Cluster 2; and Cluster 3. The procurement will be done under ICB or NCB using the Bank’s Standard Bidding Documents for all ICB and National Standard Bidding Documents agreed with or satisfactory to the Bank. Small value works may be procured under shopping procedures. Direct contracting may be used where necessary if agreed in the procurement plan in accordance with the provisions of paragraph 3.7 to 3.8 of the Procurement Guidelines. The prequalification processes for all contracts for works to be procured using ICB are subject to prior review by the Bank.

27. **Procurement of goods and non-consultancy services**: goods procured under this project include the Frequency Management – Equipment; and the Computer, and Project Coordination Equipment and furniture for Components A, B and C. Non-consulting services under this project include maintenance of office equipment, training in the region and abroad. Depending on the size of the contracts goods and non-consultancy services procured under this project will be done either under ICB using Bank procurement rules that include the related SBD or under NCB using National Standard Bidding Documents agreed with or satisfactory to the Bank. Small value goods may be procured under shopping procedures. Direct contracting may be used where necessary if agreed in the procurement plan in accordance with the provisions of paragraph 3.7 to 3.8 of the Procurement Guidelines.

28. **Selection and employment of Consultants:** consultancy services required for the project would cover consultancies and technical assistance. The selection method for consultant services will be Quality and Cost Based Selection (QCBS) method whenever possible. Contracts for specialized assignments estimated to cost less than USD 200,000 equivalent may be contracted through Consultant Qualification (CQ). The following additional methods may be used where appropriate: Quality Based Selection (QBS); Selection under a Fixed Budget (FB); and Least-Cost Selection (LCS).

> **(a)** Short lists of consultants for services estimated to cost less than the equivalent of US$100,000 per contract for ordinary services and USD 200,000 for design and contract supervision may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. However, if foreign firms express interest, they will not be excluded from consideration.
>
> **(b)** Single Source Selection (SSS) may be employed with prior approval of the Bank and will be in accordance with paragraphs 3.8 to 3.11 of the Consultant Guidelines. All services of Individual Consultants (IC) will be procured under contracts in accordance with the provisions of paragraphs 5.1 to 5.6 of the Guidelines.

29. **Operating Costs:** Operating costs shall consist of operations and maintenance costs for vehicles, office supplies, communication charges, equipment, utility charges, travel expenses, per diem and travels costs, training costs, workshops and seminar and associated costs, among others. Operating costs will not include salaries of civil servants.

30. **Training and Workshops.** Training and workshops will be based on capacity needs assessment. Detailed training plans and workshops activities will be developed during project implementation, and included in the project annual plan and budget for Bank's review and approval.

D. Implementation arrangements for procurement and capacity assessment

1) Implementation arrangements

31. **Guiding principles of the implementation of the procurement**: The project coordination unit (COPIREP) of the previous Private Sector Development and Competitiveness Project will remain the procurement agent for this project until the creation, establishment and fully operationalization of the procurement unit CGPMP within the new SPN (*Société de Patrimoine Nationale*) to be set up. After the SPN has been set up and its CGPMP created and is fully operational, a decision will be taken to transfer the management of the procurement activities to the SPN's CGPMP. When transferring the management of the procurement activities to the CGPMP its procurement capacity will be evaluated by the World Bank. If needed the CGPMP will benefit from the support and technical assistance from the COPIREP's procurement unit. The procurement unit within COPIREP has the required qualification and experience on World Bank procurement rules and procedures. It has successfully managed the procurement activities of the previous PSDCP and the procurement activities under PPA of this project.

2) Assessments of the risks and the related mitigation measures

Risks that have been identified

32. The Key issues and risks concerning procurement for implementation of the project have been identified and include: (i) Government officials likely to be involved in project procurement through tender and evaluation committees may not be familiar with procurement procedures according to World Bank guidelines and rules; and (ii) Control and regulation mechanism according to the provisions of the Country procurement law and its application procedures could delay the procurement process if mandatory reviews are required.

33. The overall unmitigated risk for procurement is **Substantial**.

34. Proposed corrective measures which have been agreed to mitigate the risk are summarized in the following table.

TABLE 1: Action plan corrective measures

Ref.	Tasks	Responsibility	Due date
1	Prepare a Project Implementation Manual (PIM) that will include procurement methods to be used in the project along with their step by step explanation as well as the standard and sample documents to be used for each method.	COPIREP	By Board approval (PIM already submitted to the Bank)
2	Identify the root cause of procurement delays at national level and propose appropriate solutions (global)	COPIREP	By the end of 2014

E. Frequency of Procurement Supervision

35. In addition to the prior procurement review carried out by the Bank, the procurement specialist recommends at least two implementation support field missions to carry out post review of procurement activities. As agreed with the Government, contracts will be published on the web. Annual compliance verification monitoring will also be carried out by an independent consultant and would aim to:

(a) verify that the procurement and contracting procedures and processes followed for the project were in accordance with the Financing Agreement;

(b) verify technical compliance, physical completion and price competitiveness of each contract in the selected representative sample;

(c) review and comment on contract administration and management issues as dealt with by the implementation entity;

(d) review capacity of the implementation entity in handling procurement efficiently; and

(e) identify improvements in the procurement process in the light of any identified deficiencies.

36. **Contract Management and Expenditure Reports**: As part of the Procurement Management Reports (PMR), the COPIREP/SPN will submit contract management and expenditure information in quarterly reports to the World Bank for the project. The procurement management report will consist of information on procurement of goods, works and consultants' services and compliance with agreed procurement methods. The report will compare procurement's performance against the plan agreed at negotiations and as appropriately updated at the end of each quarter. The report will also provide any information on complaints by bidders, unsatisfactory performance by contractors and any information on contractual disputes if any. These contract management reports will also provide details on payments under each contract, and will use these to ensure no contract over-payments are made or no payments are made to sanctioned entities.

F. Procurement planning

37. The Borrower has prepared a Procurement Plan for the first 18 months of the project implementation which provides the basis for the procurement methods. This plan was agreed between the Borrower and the Bank during negotiation. It will also be available in the project's database and in Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

TABLE 2: THRESHOLDS FOR PROCUREMENT METHODS AND PRIOR REVIEW

Expenditure Category	Contract Value Threshold (US$)	Procurement Method	Contracts Subject to Prior Review (US$) by the Bank procurement
1. Works	≥10,000,000	ICB	All
	<10,000,000	NCB	All contracts ≥ 5.000.000
	<200,000	Shopping	None
	All amount	Direct contracting	100.000 or more
2. Goods	≥1,000,000	ICB	All
	<1,000,000	NCB	All contracts ≥500,000
	<500,000	Shopping from all major brands of vehicles dealers or distributors of petroleum products	Shortlist of: (i) vehicles dealers; and (ii) distributors of petroleum products. The technical specifications of vehicles.
	<100,000	Shopping	None
	All amount	Direct contracting	100.000 or more
2. Services	≥200,000		All
Firms	<200,000	CQ	None
	All amount	SSS	100.000 or more
Individual Cons.	≥100,000	IC	All
	<100,000	IC	None
	All amount	SSS	100.000 or more
All TORs regardless of the value of the contract are subject to prior review.			

Note: (ICB: international competitive bidding; NCB: national competitive bidding; CQ: Consultants qualification; SSS: Single source selection; IC: individual consultant.

G. Details of the Procurement Arrangements Involving International Competition

1) Goods, Works, and Non Consulting Services

List of main contract packages to be procured following ICB and direct contracting

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract name**	**Estimated Cost USD**	**Procurement Method**	**Prequalification (Yes/No)**	**National Preference (Yes/No)**	**Review (Priori / Post)**	**Expected Bid Opening Date**	**Comment**
1	Frequency Management - Equipment	3,000,000	ICB	N	N	Priori	jan.-16	
2	Infrastructure for the establishment of the CLUSTER 1 - Kinshasa - regional network CAB including fiber optics cables, terminal equipment and switches	16,000,000	ICB	N	N	Priori	dec.-15	
3	Infrastructure for the establishment of the CLUSTER 2 - Goma - regional network CAB including fiber optics cables, terminal equipment and switches	12,600,000	ICB	N	N	Priori	dec.-15	
4	Infrastructure for the establishment of the CLUSTER 3 - Lumbumbashi - regional network CAB including fiber optics cables, terminal equipment and switches	33,500,000	ICB	N	N	Priori	dec.-15	

2) Consulting Services

List of main consulting assignments with short-list of international firms

1	2	3	4	5	6	7
Ref. No.	**Contract name**	**Estimated Cost USD**	**Method**	**Review (Priori / Post)**	**Proposal submit date**	**Comment**
1	TA on the management of ".cd" domain name	600,000	QCBS	priori	dec.-14	
2	Government Intranet - Definition and preparatory study	500,000	QCBS	priori	dec.-14	
3	SCPT - Roadmap for Restructuring of SCPT	600,000	QCBS	priori	sept.-14	

1	2	3	4	5	6	7
Ref. No.	**Contract name**	**Estimated Cost USD**	**Method**	**Review (Priori / Post)**	**Proposal submit date**	**Comment**
4	Frequency Management - Preparatory Study	1,000,000	QCBS	priori	dec.-14	
5	CAB5 - COMPONENT 1 - 2 years Follow up - IC Technical Assistance on MINPTT Project Component Supervision (C1 Technical Project Coordination)	200,000	IC	priori	N/A	
6	CAB5 - COMPONENT 2 - 2 YEARS Follow up - IC Technical Assistance on MINPORTFOLIO Project Component Supervision (C2 Technical Project Coordination)	200,000	IC	priori	N/A	
7	CAB5 - 2 years Technical Assistance on Procurement to MINPORTFOLIO	200,000	IC	priori	N/A	
8	CAB5 - 2 years Technical Assistance on FM to MINPORTFOLIO	200,000	IC	priori	N/A	
9	CAB5 - Follow up - IC Technical Assistance on ARPTC Project Component Supervision (C3 Technical Project Coordination)	200,000	IC	priori	N/A	

Environmental and Social (including safeguards)

38. **Environment**. The project is classified as EA category B due to the fact that potential impacts associated to planned construction of the broadband network and others infrastructures are likely less adverse, small-scale and site specific; thus manageable to an accepted level.

39. **Five safeguard policies are triggered by the project's activities**. There are **OP/BP 4.01** on Environmental Assessment, **OP/BP 4.04** on Natural Habitats, **OP/PB4.11** on Physical Cultural Resources, **OP/PB 4.10** on Indigenous Peoples and **OP/BP 4.12** on Involuntary Resettlement. Given that the physical locations of planned activities are not yet known, the Borrower is preparing an Environmental and Social Management Framework (ESMF), an Indigenous Peoples Planning Framework (IPPF) and a Resettlement Policy Framework in accordance respectively with OP/BP 4.01, OP/PB 4.10 and OP/BP 4.12. The three reports have been elaborated, reviewed, consulted upon and disclosed in DRC (at www.copirep.org) and at Infoshop on May 27, 2014. These safeguard instruments provide basic principles and operational guidelines to be followed to prepare for each construction or activity that may induce adverse impacts, the relevant safeguard instrument which could be an Environmental and Social Impact Assessment (ESIA) and/or Environmental and Social Management Plan (ESMP) or an Indigenous People Plan (IPP) or a Resettlement Action Plan (RAP) when the exact locations of these investments will be known.

40. The ESMF formulates standards, methods, and procedures specifying how future activities whose location, number, and scale are unknown will systematically address environmental and social issues. It includes: (i) a systematic environmental and social impact assessment for all activities before selection and implementation; (ii) procedures for conducting activity-specific ESIAs, Limited Environmental Impact Assessment (LEIA) or Environmental and Social

Management Plan (ESMP); (iii) capacity strengthening and awareness raising campaigns targeted at relevant stakeholder groups for better implementation and monitoring of project safeguard measures; and (iv) establishment and implementation of a consultation framework for the environmental control and monitoring. The ESMF will include chapters on Natural Habitats and potential Physical Cultural Resources discoveries in compliance respectively with OP/PB4.04 and OP/PB4.11. During the project implementation, an Indigenous Peoples Plan (IPP) or a Physical Cultural Resource Protection Plan (PCRPP) will be prepared if needed.

41. The RPF looks into the policy, legal and regulatory mechanisms for addressing potential cases of land acquisition/loss of economic activities on the part of individual or communities as a result of project activities. It provides a coherent framework, eligibility criteria and asset valuation methods for compensation and/or resettlement of affected people, as well as grievance mechanisms of affected persons, in case of unsatisfactory arrangements.

42. **Social and Environmental management**. As part of the capacity-building to be provided for implementation of the proposed operations, the PIU will recruit an environmental and social Expert who will be responsible for the following up safeguard issues and concerns; and in particular work with the enterprises in charge of works environmental and social focal points in applying the screening checklists to various sub-projects. To assist in this capacity building, and to provide subsequent guidance and review of the ESMF, IPPF and RPF's application, the World Bank environmental and social safeguard specialists in the project task team will provide guidance to both the COPIREP/SPN and Ministries in charge of project implementation. During supervision of these operations, the Bank will assess the implementation of the ESMF, the IPPF and the RPF, and recommend additional strengthening, if required.

43. The environmental and social safeguard function as in any project, concerns both the implementation and monitoring of mitigation measures. The proposed institutional arrangements, in terms of the roles and responsibilities of the main actors involved, will focus on: (i) the coordination and planning of the external supervision and (ii) internal, as well as external monitoring of project environmental and social measures.

44. In addition to the above institutional arrangements, it is noteworthy that the Recipient is familiar with World Bank safeguards policies and has reasonable capacity implementing. This provides the Project Team and relevant actors a good framework for smooth implementation of safeguard measures. The safeguard instruments will include further provisions for capacity strengthening at all levels for the successful implementation of the project safeguard measures, in compliance with national and World Bank safeguard policies. Specific attention will be taken and resources earmarked to strengthen the capacity of the COPIREP/SPN and all those involved in the project's environmental and social function.

45. Lastly, World Bank supervision teams will include the environmental and social safeguard specialists. To ensure effective World Bank supervision, the Project Environmental and Social expert will prepare and update detailed reports on the implementation of ESMF, IPPF and RPF, as well as activity-specific ESIAs and/or ESMPs or IPP and RAPs, whichever is applicable, before World Bank supervision missions. Appropriate budget for supervision will be included in the Project financial evaluation to ensure that regular and effective safeguards supervision is carried out all throughout project supervision.

Monitoring & Evaluation

46. The COPIREP/SPN will consolidate all project indicators, plus additional ones as they see fit. They will bear the primary responsibility for project monitoring and evaluation (M&E), and, as such, will establish standard formats and guidelines for data collection and reporting, and will organize training sessions for project stakeholders in their use. In particular, COPIREP/SPN will be responsible for ensuring that adequate M&E capacity is in place in each implementing agency: MINPTNTIC, ARPTC, and MINPORFOLIO.

47. An M&E system will be set up within the COPIREP/SPN at the coordination level, as well as within each implementing agency (for each component) to keep track of and evaluate implementation progress of the project execution within the broader context of the institutional framework for the telecommunications sector. This monitoring system will be web-based and allow for online reporting for easier and more efficient monitoring. Increased geographical reach and reduction of prices at the country level remains the hallmark of success of an enabling environment and will be the ultimate objective of this operation. However, the project's M&E system will seek first to measure results that are closely associated with project activities. Hence, the first order of indicators that the M&E system will look at shall include lower order indicators related to quality, quantity, and time. Ultimately, improvement of laws and decrees by the project activities (e.g. in component A) will have positive ripple effects on the whole sector and on service delivery.

48. Each agency will designate a person responsible for M&E, based on the capacity assessment of the implementing agencies' staff right after effectiveness. More specifically, the person responsible for M&E will liaise with all the project's stakeholders (through designated focal points) to gather relevant information and data regularly. The views of direct beneficiaries will be brought into the monitoring and evaluation process through regular surveys. Comprehensive M&E reporting will be needed to monitor the results and performance of the project. It will involve mainly the direct beneficiaries of project activities, but will be extended to other beneficiaries such as telecommunications operators and private ICT firms, which ultimately are the main beneficiaries of the project's outcomes. The COPIREP/SPN will review and validate the reports on performance indicators and recommend corrective action if necessary. The M&E reporting will be carried out through an online (web-based) monitoring system, where all focal points will be able to report and post the latest indicator measurements. The platform will allow both the COPIREP and the Bank to monitor the implementation progress and identify the bottlenecks in real time.

Role of Partners:

49. Other Donors such as the *Agence Française de Développement* (AFD) may be interested in financing telecom infrastructure through the SPN. If this additional funding materializes, the SPN will receive funds from the AFD and will be able to expand the geographical scope of the backbone infrastructure. Reimbursement mechanisms will be put in place to allow the SPN to reimburse the AFD. Following discussions with the AFD, the French cooperation agency would be interested in providing parallel financing to establish complementary backbone infrastructure under the CAB5 Project. The AFD group has various financial instruments which can be used including Non sovereign loans (i.e. without any sovereign guarantee) which could be extended to a state-owned entity (such as the SPN). Providing a long term non-sovereign financing to the SPN could therefore be a potential additional source of financing. However the AFD requires that the recipient be a bankable structure (from a financial, economic and legal standpoints) in

order to be in a position to service its debt obligations without a guarantee from the Government of DRC. As structured, the project will not be affected if the AFD financing does not materialize.

Annex 4 : Operational Risk Assessment Framework (ORAF)

Africa: Central African Backbone SOP5 (P132821)

<table>
<tr><td>Stakeholder Risk</td><td>Rating</td><td colspan="5">High</td></tr>
<tr><td rowspan="4">Risk Description:

Key stakeholders such as the local private operators or any future private investors may be reluctant to participate in the PPP if they feel that the environment is not safe enough to protect their interests and future investments (see risks to Design below). The Government may also shift its position on SCPT's role in the CAB5 project and the PPP in particular and thus take the risk to scare the private investors away. Some local stakeholders may perceive the future CAB5 infrastructure as a threat instead of an opportunity and may use their political leverage to affect the implementation of CAB5.</td><td colspan="6">Risk Management:
The Government has already committed to the key principles of the CAB Program in terms of infrastructure management. The Bank had been communicating intensively with the highest authorities for the past 2 years to ensure continuous engagements of the Government. The Prime Minister's office, the Ministry of Telecommunications, and the Ministry of Portfolio are unanimous on the role of the SCPT and the issues it is facing.</td></tr>
<tr><td>Resp:
Both</td><td>Status:
In Progress</td><td>Stage:
Both</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="6">Risk Management:
The project will continue to communicate effectively on its objectives and design to ensure that SCPT staff, management and unions understand the scope of CAB5 and the opportunities offered by the project to SCPT. In addition, the project will include, at the Government's request, a budget line to fund key structural studies for the public operator to facilitate its restructuring and to reinforce its capability to operate in the new telecom environment.</td></tr>
<tr><td>Resp:
Client</td><td>Status:
In Progress</td><td>Stage:
Both</td><td>Recurrent:
☑</td><td>Due Date:</td><td>Frequency:
Quarterly</td></tr>
<tr><td colspan="7">Implementing Agency (IA) Risks (including Fiduciary Risks)</td></tr>
<tr><td>Capacity</td><td>Rating</td><td colspan="5">Substantial</td></tr>
<tr><td>Risk Description:

With the discontinuation of independent PIUs by the</td><td colspan="6">Risk Management:
COPIREP as implementing agency would minimize the capacity-related risks during the project preparation and early implementation. COPIREP has an extensive experience of</td></tr>
</table>

Government, the project will be implemented by an existing entity like COPIREP and later by the SPN. The later option may increase Governance's related risk as the SPN will be newly established with no initial capacity.	management of Bank-funded project, and falls under the Ministry of Portfolio, which oversees public-private partnerships across sectors. Later the SPN will be staffed with competitively recruited experts and will be subject to close monitoring by Bank's fiduciary teams.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	31-Oct-2014	
	Risk Management:					
	During implementation, and in order to mitigate the risks related to the weak implementation capacity of the client, the project design proposes to transfer all fiduciary functions to the newly created SPN, once adequately staffed.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	30-Oct-2015	
Governance	**Rating**	**Substantial**				
Risk Description: Procurement - The Key issues and risks concerning procurement for implementation of the project have been identified and include: (i) Government officials likely to be involved in project procurement through tender and evaluation committees may not be familiar with procurement procedures according to World Bank guidelines and rules; and (ii) Control and regulation mechanism according to the provisions of the Country procurement law and its application procedures could delay the procurement process if mandatory reviews are required. Financial Management - The SPN is confirmed as the implementing agency, which poses risks of implementation delays since the FM capacity of this SPN will be built. Financial Management - The resources of the project may not reach all beneficiaries and used for the intended purposes	**Risk Management:** Procurement - (i) Submit a Project Implementation Manual (PIM) that includes procurement methods to be used in the project along with their step by step explanation as well as the standard and sample documents to be used for each method (ii) Identify the root cause of procurement delays at national level and propose appropriate solutions (global)					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Both	☐	31-Dec-2014	
	Risk Management: Financial Management - The FM function of the project will be managed by the FM Unit of COPIREP. This FM Unit is familiar with IDA FM procedures and is composed of experienced fiduciary staff Financial Management - Use the FM team of COPIREP and its existing FM arrangements.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Both	☑		Yearly
	Risk Management:					

	The project will support the establishment of a modernized telecommunication and IT legal, regulatory and institutional framework. This should increase the Regulatory Authority independence but at the same time more controls will be imposed (i.e. Annual financial and technical audit). Also the Project will provide some support (Technical assistance and training) to the regulator.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☑		Yearly

Project Risks

Design	**Rating**	**Substantial**			
Risk Description: The design of the project includes complex features such as PPPs and large infrastructure. There is a risk that the PPP may not materialize if the private investors do not feel enough confident that their investments will be protected (active equipment). Based on the lessons learned from other CAB phases, the PPP will be designed at the earliest stage of project implementation. The project team and implementing agencies may not have the experience of establishing and implementing a PPP. In addition, the construction of such a large infrastructure, covering regions far away from the capital city (like the region of Lubumbashi), or close to conflict/unstable areas (like the region of Goma), may be affected by the lack of appropriate monitoring or difficult access to these regions by the contractors for construction and maintenance.	**Risk Management:** The implementing agencies (MINPTNTIC, SPN, and ARPTC) through their project teams and focal points will benefit from capacity-building activities focusing on the design, establishment and implementation of PPP schemes. These activities will be financed through the PPA.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	31-Oct-2014	
	Risk Management: The project design includes specific monitoring schemes to ensure that the works in remote areas are properly monitored by the project unit.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	31-Oct-2014	
Social and Environmental	**Rating**	**Substantial**			
Risk Description: No major negative impact of the cable is expected though there may be some environmental and social impacts for the cable and associated equipment onshore. Potentially negative social and environmental impact of proposed activities – to be further detailed once the ESMF and RPF have been prepared	**Risk Management:** The Bank's environmental and social safeguards policies require that the recipient prepare an Environmental and Social Management Framework (ESMF) (consistent with national laws, any applicable treaty concerning international waters, and OP 4.01) for the portion of the cable that will be laid in international waters, and an ESMF and a Resettlement Policy Framework (RPF) for the lateral cables and any associated equipment that will be laid from the junction with the main cable through territorial waters and onto the national shores. These safeguards documents have been prepared,					

	disclosed and consulted on before appraisal. Once the specific sites are known, Environmental Impact Assessments (EIAs) and Resettlement Action Plans for the lateral cable and equipment will be prepared as part of project implementation but before the cable is laid.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	31-Dec-2014	
Program and Donor	**Rating**	**Low**				
Risk Description: No specific risk identified.	**Risk Management:**					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
				☐		
Delivery Monitoring and Sustainability	**Rating**	**Substantial**				
Risk Description: The complexity of this operation will require adequate monitoring. With activities implemented in remote areas, there are risks of slippage, poor coordination between the contractors involved in large works that will lead to inefficiencies.	**Risk Management:** The project must put in place all the data collection mechanisms and the associated monitoring capacity within the implementing agency prior to implementation. The PPA will finance the recruitment of the M&E specialist that will train all the project stakeholders and design the M&E reports prior to the Board.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	In Progress	Implementation	☐	31-Oct-2014	
Other (Optional)	**Rating**					
Risk Description:	**Risk Management:**					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
				☐		
Other (Optional)	**Rating**					
Risk Description:	**Risk Management:**					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**

				☐		

Overall Risk		
Overall Implementation Risk:	**Rating**	**High**

Risk Description:

The overall risk is rated High. DRC has inherent risks pertaining to governance and capacity in the telecom sector. In addition, experiences in other countries show that restructuring of state-owned companies such as the incumbent operator SCPT, are extremely challenging with political and social implications. To mitigate this risk, the proposed project includes technical assistance to transform the SCPT into a modern operator, and help the SCPT participate in the PPP scheme put in place by the project.

Annex 5: Implementation Support Plan

DEMOCRATIC REPUBLIC OF CONGO: Central African Backbone SOP5

Strategy and Approach for Implementation Support

1. The implementation support plan (ISP) has been developed on the basis of the nature of the Project and its high risk profile. The ISP has been designed so as to guarantee efficient and flexible support to the client and facilitate implementation of the risk mitigation measures defined in the ORAF. The ISP responds to complexities of the project given a low capacity for implementation and a challenging environment due to the fragile situation in the country.

Main areas of Supervision

2. Bank team members will be based both at headquarters and in the DRC Country Office to ensure timely, efficient and effective implementation support to the client. The Bank's TTL, Procurement Specialist and Financial Management Specialist, are located in Kinshasa and can ensure continued support, advice and monitoring to the implementing agencies. Formal IS missions and field visits will be carried out three to four times a year.

Technical expertise

3. Technical knowledge in infrastructure engineering design but also legal and regulatory matter will be provided for a proper assessment of bidding documents for public-financed infrastructure. Technical skills in infrastructure finance, transaction and Private Sector Participation and PPP infrastructure will be made available to monitor the preparation of complex balanced contracts between public, private, and regional stakeholders to reach a fair sharing for the GoDRC of the economic surplus/risk generated by CAB5. Technical staff will work closely with the GoDRC and its advisors on the further development of the project structuring. They will review ToRs and interim and final outputs of all TA activities. Technical staff will liaise with other donors and stakeholders to coordinate approaches and crowd in expertise.

Procurement

4. The Bank's project team will help strengthen procurement management efficiency by: (i) reviewing relevant procurement documentation and providing timely feedback to COPIREP/SPN; (ii) providing detailed guidance on the Bank's Procurement Guidelines to the implementation units as needed; and (iii) monitoring procurement progress against the Procurement Plan, which will be updated as required to reflect project implementation needs and improvements in institutional capacity. Recruitment of a procurement consultant and tailored training to COPIREP/SPN procurement staff by the Bank team have been planned as part of implementation support to the Project.

5. At least two implementation support missions per year will be organized to carry out post review of procurement actions. Annual compliance verification monitoring will also be carried out by an independent consultant and would aim to: (i) verify that the procurement and contracting procedures and processes followed for the projects were in accordance with the Financing Agreement; (ii) verify technical compliance, physical completion and price

competitiveness of each contract in the selected representative sample; (iii) review and comment on contract administration and management issues as dealt with by the implementation entity; (iv) review capacity of the implementation entity in handling procurement efficiently; and (v) identify improvements in the procurement process in the light of any identified deficiencies.

Financial management

6. FM missions will be scheduled using a risk based approach model and will include the following due diligence: (i) monitoring of the financial management arrangements during the supervision process at intervals determined by the risk rating assigned to the overall FM Assessment at entry and subsequently in Implementation Status Reports; (ii) carrying out integrated fiduciary review on key contracts, (iii) reviewing IFRs; (iv) reviewing audit reports and management letters from the external auditors and following-up on material accountability issues by engaging with the Task Team Leader, Client, and/or Auditors; (v) monitoring the quality of the audit (internal and external) also is to be monitored closely to ensure that it covers all relevant aspects and provide enough confidence on the appropriate use of funds by recipients; and, (vi) physical supervision on the ground ; and (vii) assistance to build or maintain appropriate financial management capacity.

Environmental and Social (including safeguards)

7. The Bank's project team will pursue close monitoring of environmental and social management but also legal and regulatory matters under the Project. Bank staff will review ToRs and interim and final outputs of all TA activities. Technical staff will liaise with other stakeholders to coordinate approaches and crowd in expertise.

Table 1: **Implementation Support Plan**

Time	Focus	Skills Needed	Resource Estimate	Partner Role
First twelve months	Institutional Arrangements, creation of SPN, technical studies	Technical Procurement FM E&S Legal	US$600,000	coordinated supervision and policy dialogue
12-60 months	Construction, monitoring, PPP creation, support to regulator	Technical Procurement FM Environmental Social Legal	US$2,000,000	coordinated supervision and policy dialogue

Table 2: Skills Mix Required

Skills Needed	Number of Staff Weeks/year	Number of Trips Per year	Comments
General supervision and project management (TTL)	24	6	
ICT Specialist	15	3	
Operation Specialist	12	3	
Legal Counsel	4	1	

Network Engineering Specialist	12		Field based
Legal and Regulatory Specialist	12		Field based
Procurement Specialist	4		Field based
Financial Management Specialist	4		Field based
Environmental Specialist	4		Field based
Social Development Specialist	4		Field based
Administrative support	6		Field based

Annex 6a: Economic Analysis

DEMOCRATIC REPUBLIC OF CONGO: Central African Backbone SOP5 (P132821)

1. This annex aims at providing estimates of the impacts related to the development of the fiber optic network infrastructure that would be permitted by the CAB5 project. Based on a survey of the literature regarding the impacts of broadband services on economic growth and job creation, Section 1 discusses the reasons why the potential of the telecommunication sector as an enabler of economic development is largely untapped in DRC. In Sections 2, the impacts of the CAB5 project on operational costs of operators (a), penetration of broadband services (b), GDP growth (c), and telecom sector turnover (d) are estimated.

Broadband services as an enabler of sustainable economic growth and job creation

2. Recent empirical evidences have shown that broadband is a powerful driver for sustainable economic growth and job creation. Relying on an empirical study covering 120 countries, World Bank (2009) estimates that each 10 percentage points (ppts) increase in broadband penetration increases overall GDP growth in developing countries by 1.38ppts.

3. The impact of broadband on economic growth is channeled through higher productivity, competitiveness, ability to export and attractiveness of foreign direct investment (FDI). As shown by World Bank (2014) broadband is an engine of growth in labor productivity. The introduction of broadband improves labor productivity by 5% in the industry sector and by 10% in services. This is essential for the competitiveness of all countries. In addition, broadband enables "smart" infrastructure such as smart electricity grids that greatly enhance the performance of the electricity grid, reduce peak load energy requirements, allow for better integration of renewable energy sources, and promote effective energy use (Nocentini, Gavazzi, and Pupillo 2013). Furthermore, broadband can help countries to diversify away from natural resource related sectors. Clarke and Wallsten (2006) found that a one percentage point increase in the number of Internet users is correlated with a boost in exports of 4.3 percentage points. Access to affordable and quality broadband service reduces transaction costs and allows flexible firm locations. In addition, broadband allows for information technology (IT)-enabled service exports such as business process outsourcing (BPO).

4. As witnessed in both developed and developing countries, broadband can also be a key enabler of job creation. Crandall et al. (2007) show that for every one percentage point increase in broadband penetration within a region, employment increases by 0.2-0.3 percent per year for the private, non-farm economy. Katz (2009) estimates that the implementation of the broadband plan in Germany would create one million jobs over the next 10 years and contribute substantially to Germany's GDP. In the United States, it is estimated that broadband added 1.0–1.4 percentage points to the growth rate in the number of jobs during 1998 and 2002. In sub-Saharan Africa, GSMA (2012) estimates that the mobile eco system (including mobile broadband) is significantly contributing to employment by generating 3.3 million of direct jobs. And, by 2020, it is projected that direct employment by the mobile ecosystem will grow to 6.6 million. Broadband also contributes indirectly to job creation by expanding the frontiers of traditional jobs, enabling new job and income opportunities, including information and communications technology (ICT)-based contracting, microwork and crowdsourcing, jobs in the

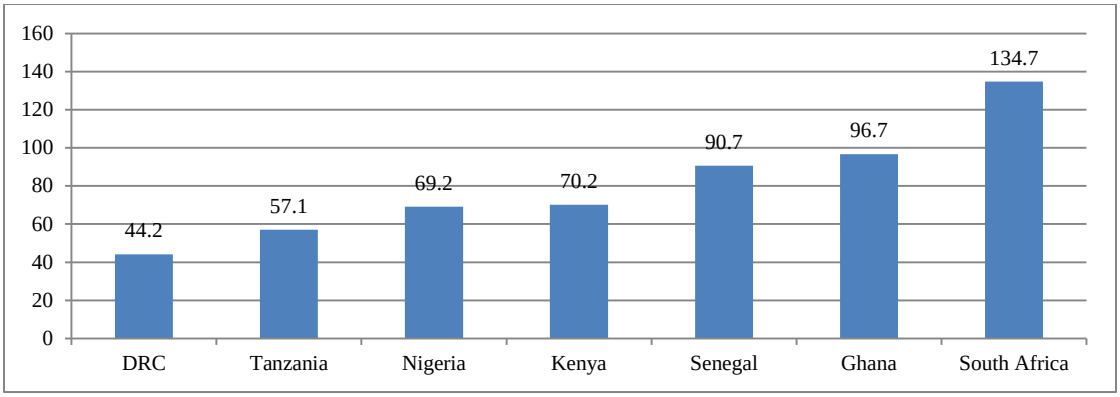
virtual economy, and jobs related to the emerging app economy (Rossotto, Kuek, and Paradi-Guilford 2012). By 2020, is estimated that 20% of all jobs will be operated exclusively online (World Bank, 2014).

5. In DRC, the potential of broadband as an enabler of economic growth is largely untapped because the uptake of mobile telephony and broadband services in DRC has been strikingly slow. The penetration of mobile services, as a percentage of the population, is only about 44.16% in 2014 while it reaches almost 70% in Nigeria and Kenya and more than 90% in Senegal and Ghana (Figure1). Regarding mobile broadband services, the market is still nascent in 2014 with only 2.2 million of 3G subscribers or a penetration rate of 3,24% (Table 1). This penetration rate is much below the Sub-Saharan region average of 7.6%. DRC also faces a significant lack of fixed infrastructure with only 58,197 fixed lines in 2013, none of which are equipped with ADSL. This means that mobile is the only medium for accessing internet.

Table 1. Main features of the telecommunication market in DRC

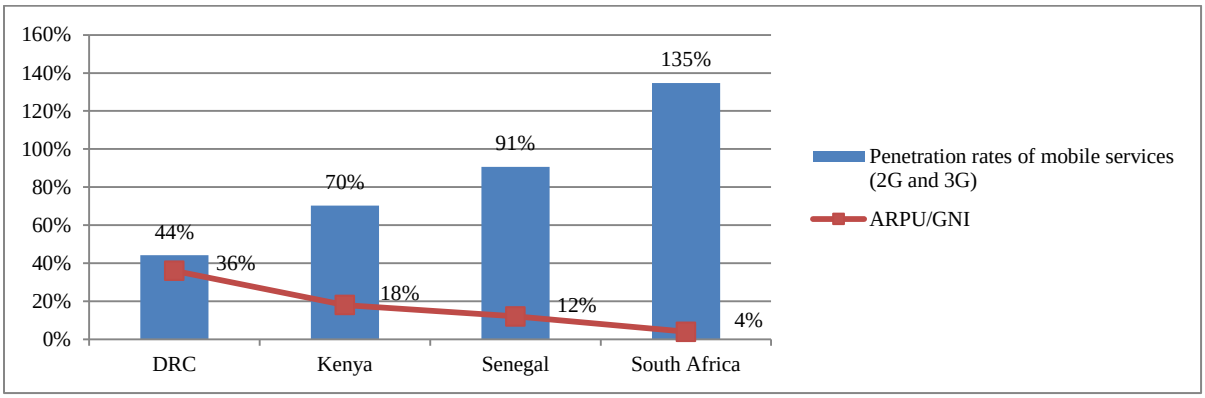
	number of suscribtions	% of connections	market penetration (% of population)
Total Mobile (GSMA, 2014)	30,428,382	100%	44.16%
Mobile telephony - 2G suscribers	28,197,899	92.67%	40.93%
Mobile broadband - 3G suscribers	2,230,483	7.33%	3.24%
Total fixed (telegeography, 2013)	58,197	100%	0.084%
Fixed telephony	58,197	100%	
Fixed broadband	0		
Population	68,898,508		

Figure 1. Penetration of mobile services (2g+3g) in DRC and other African countries



6. There are two major explanatory factors to the low penetration levels of mobile services in DRC. First, access to services – via subscription – is too expensive for most of the population. It is estimated that, in average, a mobile user in DRC is spending 36% of the gross national income per capita on mobile access compared to 12% in Senegal, 4% in South Africa and less than 1% in the US and Europe. Figure 2 shows the existing relation between affordability of mobile services and subscribers penetration rates. Affordability of broadband services is even more problematic due to the high cost of computer ownership and smartphone. While a recent survey revealed that mobile devices is the main mean through which people connect to the internet in Sub-Saharan Africa, smartphone penetration is only about 4% in the region and less than 1% in DRC.

Figure 2. Relation between affordability of mobile services and subscribers penetration rates in SSA



7. Second, the existing telecommunications infrastructures in DRC face important limits both in terms of quality and coverage. While the telecommunications sector is severely fragmented with disparate wireless, copper and fiber optic cable networks operating in different parts of the vast country (resulting in high interconnection cost), most of the infrastructure network only covers the wealthiest segments of the population living in urban areas. In addition, the existing infrastructure network is not adapted to the provision of broadband services. In particular, DRC is lacking a fiber optic backbone covering major urban centers. Expansion of broadband service is further restrained by the high cost of international capacity since operators rely on satellites, instead of submarine cables, to purchase bandwidth.

Table 2. Key statistics in DRC

Key Statistics	
Population (Jan 2014)	68,898,508
Population grow th rate (2013-2014)	2.739%
Population in Capital City (Kinshasa, 2013)	10,000,000
GDP (current USD, 2012)	17,200,000,000
GNI/Capita (2011) US$	231
Area (sq Kms)	2,345,410
Fixed Line Operators	3
Mobile 2G Operators	7
Mobile 3G Operators	5

Impact of CAB5 on operational costs, broadband penetration, economic growth, and telecom sector turnover

A. Impacts on operational costs of operators

8. The CAB5 project will support the construction of a backbone fiber optic network linking the three major economic clusters in DRC, namely: Kinshasa (West), Lubumbashi (south) and Goma (East), and connecting international submarine cables. This backbone will allow operators to reduce their operational costs through much higher volumes of data traffic and to offer better quality of services. At first glance, relying on a fiber optic backbone interconnected to submarine cables – instead than on satellites, as it is currently the case in DRC – significantly reduces the purchasing cost of international capacity for operators. With the 1000 Mbps of international capacity being purchased at present by DRC, a fiber route providing capacity at between US$350/Mbps/month should represent an annual saving to operators of about US$43.8 million when compared to current costs of about US$4000/Mbps/month for satellite bandwidth. This

saving would be expected to increase dramatically as bandwidth utilization levels rise. With reduced access costs, Internet penetration levels are also expected to increase substantially among lower income groups, further increasing international bandwidth requirements and the consequent savings over satellite bandwidth costs. As a conservative indication, if only 10% of the total population of the three cities covered by the CAB5 network (Kinshasa, Lubumbashi and Goma, totalizing 13.1 million inhabitants in 2012) accessed a 'low-speed' broadband link of 256Kbps, this would require about 111.79Gbps of annual international capacity, which would cost over US$5.365 billion per year if provided by satellite at current prices, compared to about US$469 million if provided by terrestrial fiber.

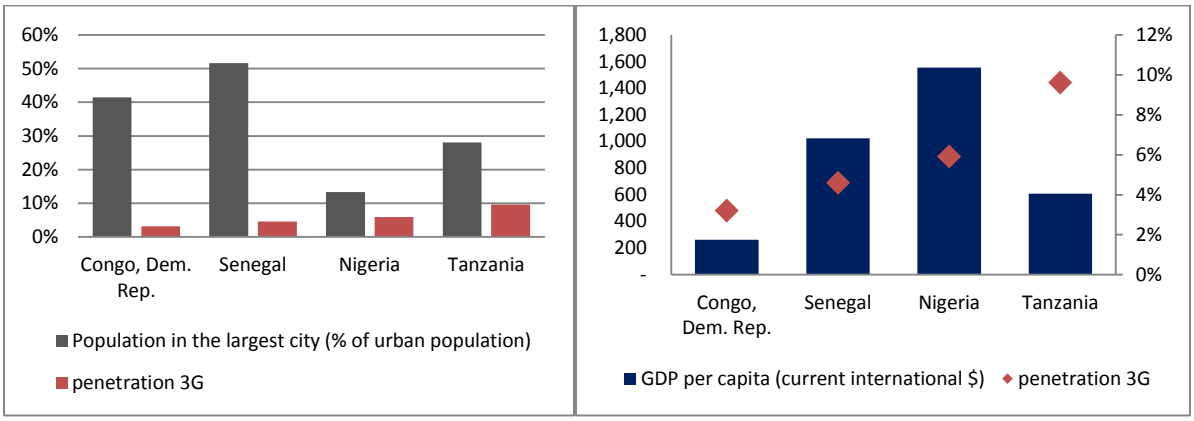
B. Impacts on penetration of broadband services

9. Impact of improved international access through CAB5, along with lower interconnection cost, will provide significant potential to decrease retail prices for broadband services in DRC via mobile (3G) broadband access networks for residential and businesses. Recent research indicates for example that a compound annual decline of 3% in cost of broadband access in the Africa and Middle East region could increase penetration rate by more than 4 times between 2010 and 2015. Along with its effects on retail prices, the CAB5 project will contribute to increase the quality of services offered by operators through better internet speed permitted by fiber optic networks.

10. While the focus of this economic analysis is on the evolution of 3G services, and not on 2G services, it is important to note that GSMA data indicate that, with or without the CAB5 project, the growth of the penetration 2G services is projected to slow down over time as a result of a substitution effect with 3G services. By accelerating the growth of 3G services the CAB5 project will therefore indirectly reduce the growth of 2G services.

11. Market evolution without CAB5. In 2014, DRC currently has 30.428 million mobile subscribers of which 2.230 million have access to broadband through 3G subscriptions (Table 1). Mobile is the only medium for accessing internet. The penetration of broadband services as a percentage of the population is 3.2% in 2014. According to GSMA projections (Table 3), the number of mobile broadband subscriptions is expected to increase by an average growth rate of 46% over the next 5 years reaching 14.6 million in 2019 and resulting in a penetration rate 18.7% (of the population). There are several explanatory factors to the significant growth potential of the mobile broadband market in DRC even without the CAB5 project. First, although DRC has a relatively low GDP per capita compared to other countries in the region, experiences of Tanzania (Figure 4) shows that the level of GDP per capita is not a binding constraint to the mobile broadband market growth. In addition, the relatively high GDP growth rates registered by DRC since 2009 (Figure 6) create the conditions for income growth and the expansion of the mobile broadband market. Second, the growth perspectives of the mobile broadband market are driven by the increased level of competition in the telecom sector and the associated growth of private investment in recent years (Figure 5). Third, the high concentration rate of the urban population in the largest city facilitates the expansion of the mobile broadband market by reducing the investment that operators need to make to develop their activities (Figure 3).

Figures 3 (left) and 4 (right). Penetration of 3G services, GDP per capita and % of the urban population in the largest country in DRC and other African countries



Figures 5 (left) and 6 (right). Private investment in the telecom sector and GDP growth (2012) in DRC and other African countries

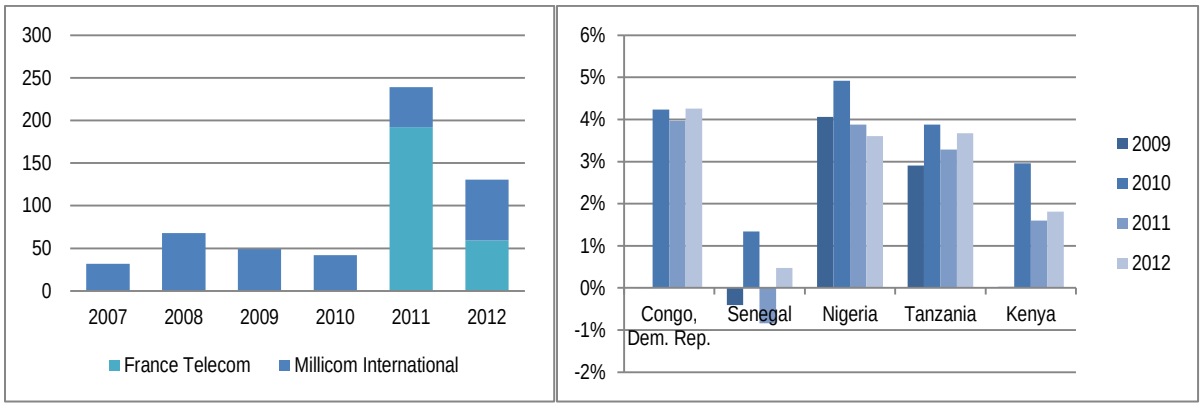


Table 3. Projections of broadband connections growth without the CAB5 project

	2014	2015	2016	2017	2018	2019
Total population in DRC	68,898,508.00	70,774,796.00	72,690,975.00	74,646,149.00	76,639,196.00	78,668,681.00
Number of broadband subscribers in DRC ***without CAB5***	2,230,483	3,527,910	5,275,932	7,763,064	11,118,033.00	14,698,984
Broadband penetration rate in DRC ***without CAB5***	3.2%	5.0%	7.3%	10.4%	14.5%	18.7%

12. Market evolution with CAB5. It is expected that the CAB5 project will accelerate the growth of the mobile broadband market by financing the construction of a national fiber optic network that operators cannot and do not intend to develop (lack of financial resources, high risk of investment). This network will not only reduce the fragmentation of the existing network and the associated interconnection cost, but also reduce the investment burden for operators allowing them to focus their investment efforts only on active equipment. Overall, by ensuring open access to the network, the CAB5 project will address the current issues of limited and non-competitive access to fiber optic network and submarine cable leading to high broadband prices and constrained demand. In sum, it is expected that through its effects on i) increased competition ii) lower cost of international capacity, and iii) lower interconnection cost, the

CAB5 will increase coverage of broadband services and reduce retail prices of services. This will accelerate the growth of mobile broadband penetration.

13. In the absence of data allowing to calculate the satisfaction level of the effective demand for mobile broadband services with and without CAB5, we estimate the potential impact of the CAB5 project on mobile broadband penetration based on two different methods:

14. In the first case, we base our calculations on the experience of the CAB4 project implemented in Gabon. In line with this experience, and compared to a situation without CAB5 project, we assume that the CAB5 project will allow to improve broadband penetration by a total of 22 percentage points (ppts) over the first five years of the project (2015-2019). We also assume that the distribution of this additional growth over the first five years of the project will be similar to the one observed in the CAB4 experience: +2, +3, +5, +5, +7. By opting for this distribution rule, it is anticipated that the level of competition among operators providing broadband services will progressively grow over time (as a result of the open access principle), thus increasing the impact of the CAB5 project on penetration thanks to lower prices and higher quality offers. Table 4 presents the evolution of the broadband penetration rate resulting from CAB5 over the first five years of the project. In this scenario, the number of broadband subscriptions is expected to reach 20.2 million subscribers in 2019.

Table 4. Projections of broadband connections growth with and without CAB5 based on the experience of CAB4

	2014	2015	2016	2017	2018	2019
Total population in DRC	68,898,508.00	70,774,796.00	72,690,975.00	74,646,149.00	76,639,196.00	78,668,681.00
Number of broadband subscribers in DRC ***without CAB5***	2,230,483	3,527,910	5,275,932	7,763,064	11,118,033.00	14,698,984
Broadband penetration rate in DRC ***without CAB5***	3.2%	5.0%	7.3%	10.4%	14.5%	18.7%
Number of broadband subscribers in DRC ***with CAB5***		4,943,406	7,456,661	11,495,371	14,949,993	20,205,792
Broadband penetration rate in DRC ***with CAB5***		7.0%	10.3%	15.4%	19.5%	25.7%

15. In the second case, we base our calculations on the observed relation between prices of mobile broadband (i.e. Mobile-broadband sub-basket value[28]) and mobile broadband penetration in Africa and MENA countries (Figure 7). In line with the case of Kenya – which experienced strong price reduction in recent years thanks to a significant development of fiber optic infrastructure and increased level of competition[29] – we assume that with the CAB5 project, DRC could reduce the prices of mobile broadband by a factor of 10 over the period 2014-2019 resulting in a mobile broadband penetration rate of 26.9% in 2019 (instead of 18.7% without CAB5). This means that over the period 2014-2019, the CAB5 project will allow improving mobile broadband penetration by a total of 23.7 percentage points (ppts). We also reasonably assume that the distribution of this additional growth over the first five years of the project will

[28] The mobile-broadband sub-basket groups mobile-broadband prices into a single benchmarking value per country, following a harmonized methodology that allows for international comparisons across countries (ITU, 2012). Mobile-broadband sub-basket value may vary between a theoretical 'zero' (mobile broadband is for free) and 100 (the price of the two mobile-broadband plans is equal to, or exceeds, the monthly GNI p.c.).

[29] As a result, bandwidth usage has significantly increased from 1,517 Mbps in 2008 to 39,245 Mbps in 2012 (Telegeography, 2013).

follow the same distribution rule that the one projected without CAB5, though the annual gain will be higher thanks to the effect generated by the CAB5 project. Through this assumption, we anticipate that the impacts of the CAB5 project on competition, international capacity and interconnection cost will progressively grow over time.

Figure 7. Relation between mobile broadband prices and broadband penetration

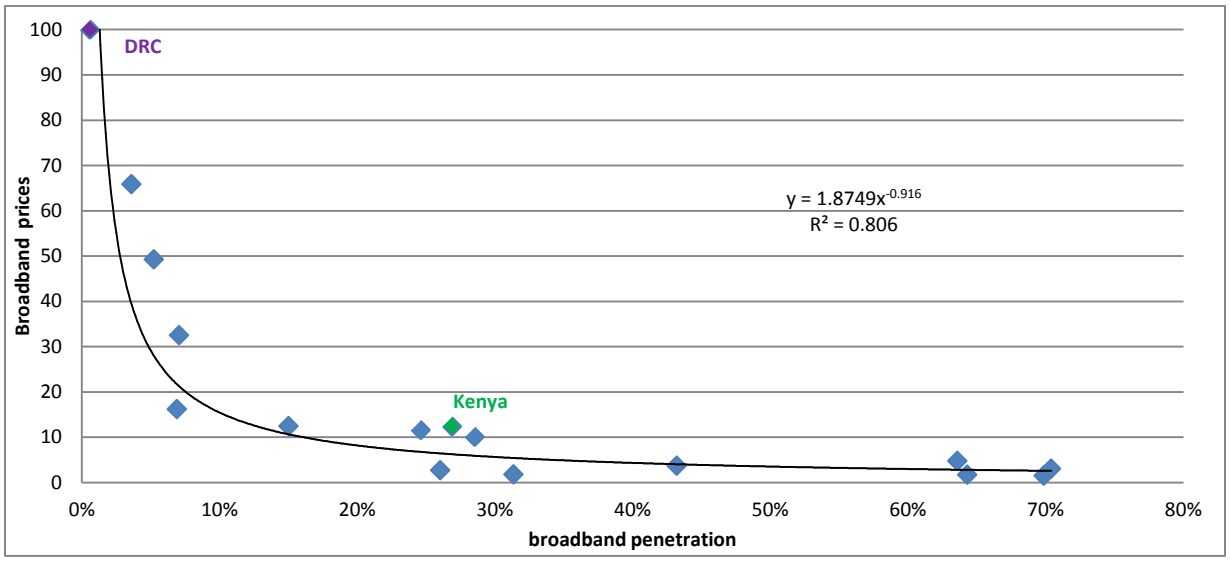


Table 5. Projections of broadband connections growth with and without CAB5 based on the experience of Kenya

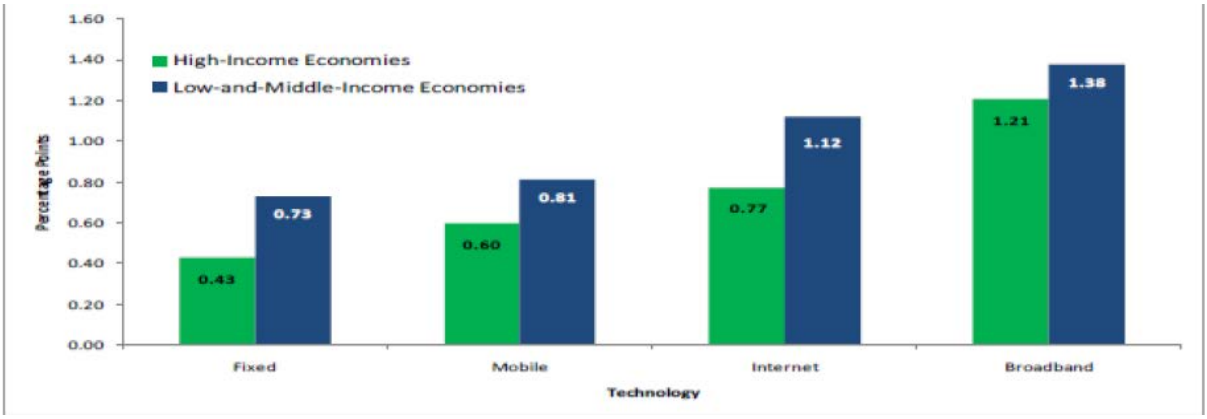
	2014	2015	2016	2017	2018	2019
Total population in DRC	68,898,508.00	70,774,796.00	72,690,975.00	74,646,149.00	76,639,196.00	78,668,681.00
Number of broadband subscribers in DRC ***without CAB5***	2,230,483	3,527,910	5,275,932	7,763,064	11,118,033.00	14,698,984
Broadband penetration rate in DRC ***without CAB5***	3.2%	5.0%	7.3%	10.4%	14.5%	18.7%
Number of broadband subscribers in DRC ***with CAB5***		4,690,786.51	7,664,653.18	11,442,520.16	16,154,962.85	21,161,875.19
Broadband penetration rate in DRC ***with CAB5***		6.6%	10.5%	15.3%	21.1%	26.9%

16. Since the two different methods used to estimate the potential impact of the CAB5 project on mobile broadband penetration provide very similar results, it is very likely that the CAB5 project will allow DRC to reach a mobile broadband penetration rate comprised between 25.7% and 26.9% in 2019.

17. The CAB 5 project and its impacts on GDP growth. Recent evidence suggests that increasing overall service coverage and promoting access to telecommunications services provide a substantial economic benefit to low and middle income countries. World Bank research on the economic multiplier effect of increased broadband penetration rates (Figure 8), indicates that each 10% increase in broadband penetration increases overall GDP growth in developing countries by 1.38. The impact of broadband penetration on economic growth is channeled through higher level of productivity, exports, and employment. Although causality in

the relationship between broadband and growth is hard to prove with the data available, analysis suggests high likelihood of causality.

Figure 8. Increase in GDP growth for each 10 ppts increase in penetration rate of telecom services by type of technology



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

18. Based on the economic multiplier and estimated broadband penetration rate with and without the CAB5 project, we estimate the impact of the project on annual GDP growth. In this approach, we take into account the results obtained with the two different methods previously used to estimate the potential impact of the CAB5 project on mobile broadband penetration.

19. Relying on the result obtained with the estimation method based on the CAB4 experience, the analysis indicates that the CAB5 project will increase annual GDP growth in DRC by an annual average of approximately 0.61 ppts over the first 5 years of operation of the CAB5 project (Table 6).

Table 6. GDP growth in DRC from increased broadband penetration[30] (estimation method based on the CAB4 experience)

	2014	2015	2016	2017	2018	2019
Total population in DRC	68,898,508.00	70,774,796.00	72,690,975.00	74,646,149.00	76,639,196.00	78,668,681.00
Number of broadband subscribers in DRC ***without CAB5***	2,230,483	3,527,910	5,275,932	7,763,064	11,118,033.00	14,698,984
Broadband penetration rate in DRC ***without CAB5***	3.2%	5.0%	7.3%	10.4%	14.5%	18.7%
Number of broadband subscribers in DRC ***with CAB5***		4,943,406	7,456,661	11,495,371	14,949,993	20,205,792
Broadband penetration rate in DRC ***with CAB5***		7.0%	10.3%	15.4%	19.5%	25.7%
GDP multiplier /10ppts increase in penetration	1.38	1.38	1.38	1.38	1.38	1.38
Increase in GDP growth with CAB5 (in ppts)		0.28	0.41	0.69	0.69	0.97
Average in GDP growth with CAB5 (in ppts)			0.35	0.46	0.52	0.61

[30] The ninth row computes in increase in GDP growth rate by multiplying the difference between Broadband Penetration with and without CAB5, divide it by 10% and multiply it 1.38. The last row shows the average over the years of the increase in GDP growth rate.

20. Relying on the result obtained with the estimation method based on the case of Kenya, the analysis indicates that the CAB5 project will increase annual GDP growth in DRC by an annual average of approximately 0.68 ppts over the first 5 years of operation of the CAB5 project (Table 7).

Table 7. GDP growth in DRC from increased broadband penetration[31] (estimation method based on the case of Kenya)

	2014	2015	2016	2017	2018	2019
Total population in DRC	68,898,508.00	70,774,796.00	72,690,975.00	74,646,149.00	76,639,196.00	78,668,681.00
Number of broadband subscribers in DRC ***without CAB5***	2,230,483	3,527,910	5,275,932	7,763,064	11,118,033.00	14,698,984
Broadband penetration rate in DRC ***without CAB5***	3.2%	5.0%	7.3%	10.4%	14.5%	18.7%
Number of broadband subscribers in DRC ***with CAB5***		4,690,786.51	7,664,653.18	11,442,520.16	16,154,962.85	21,161,875.19
Broadband penetration rate in DRC ***with CAB5***		6.6%	10.5%	15.3%	21.1%	26.9%
GDP multiplier /10ppts increase in penetration	1.38	1.38	1.38	1.38	1.38	1.38
Increase in GDP growth with CAB5 (in ppts)		0.23	0.45	0.68	0.91	1.13
Average in GDP growth with CAB5 (in ppts)			0.34	0.45	0.57	0.68

21. In sum, it is estimated that, through its impact on mobile broadband penetration, the CAB5 project will increase the annual GDP growth rate in DRC by an annual average comprised between 0.61 and 0.68 ppts.

[31] The ninth row computes in increase in GDP growth rate by multiplying the difference between Broadband Penetration with and without CAB5, divide it by 10% and multiply it 1.38. The last row shows the average over the years of the increase in GDP growth rate.

Annex 6b: Financial Analysis

DEMOCRATIC REPUBLIC OF CONGO: Central African Backbone SOP5 (P132821)

Disclaimer: *The results included in the below financial valuation model are by no means to be considered as a reference for the future commercialization of SNP fiber optic capacity. The results indicated herewith are for the purposes of loan appraisal and financial evaluation and would require further validation and review upon project implementation.*

1. Financial analysis. This annex assesses the financial viability of the technical options available under the CAB5 project. It presents the results of a financial model that measures the relationship between (public) investment costs incurred and the revenues generated from commercialization of the fiber optic capacity made available under the US$60 million passive infrastructure finance component. The annex provides projections of the financial implications of this investment as well as possible structuring options for commercialization including: leasing, indefeasible right of way payments and profit sharing.

2. Loan Profile. Although the project will be funded by an IDA grant and the SPN will not reimburse the Government (for the Equity contribution), for the stake of model sustainability and long run robustness of the operation the he financial analysis performed to project future performance of CAB5 investments is made based on the specifications set forth by IDA loan amortization schedules. As indicated in Table 1 a regular IDA Credit in the amount of US$60 million is assumed to be applied for the purposes of CAB5. The issued IDA loan is assumed to have an overall maturity period of 40 years including a 10 year grace period and is extended at a 0% annuity rate. Loan installments are made in six month intervals with 2% amortization for the first 10 years of payment and 4% amortization for the last 20 years.

Table 1: IDA Amortization Schedule

Financial Product	IDA Credit – Regular
Maturity Profile	Standard
Total Loan Amount (US$)	60,000,000
Loan Period	40 years
Grace Period	10 years
Payment Frequency	6 months
Annuity Rate	0%

3. Breakdown of investment costs. The breakdown of infrastructure investment over the course of the project includes the payment for civil works, telecommunication components and human resources. Table 2 presents the overall breakdown of costs per investment cluster: Kinshasa in the West, Lubumbashi in the East and Goma in the South. The respective cost per investment cluster is a function of the total distance of fiber deployed.

Table 2: Breakdown of cost per investment cluster		
Cluster	**Distance**	**Cost (US$)**
Kinshasa	618	10,996,441
Lubumbashi	1,764	31,387,900
Goma	990	17,615,658
Total	3,372	60,000,000

4. Investment scenarios. The financial analysis model assesses the performance of CAB 5 under three different commercialization scenarios: a) SPN *leases* fiber capacity using Concession contracts for successive 10 year periods over the investment cycle, b) SPN receives a fixed payment under an *Indefeasible Right of Use* (IRU) agreement for successive 10 year periods over the investment cycle, and c) SPN engages in *Profit Sharing* with the respective partners (*Concessionnaires*) to commercialize the fiber capacity for successive 10 year periods over the investment cycle. The financial impact of the profit sharing scenario is evaluated according to a projection of international bandwidth demand in DRC that is modeled according to a bandwidth demand function extrapolated from the mobile internet usage over the past 10 years. Due to the absence of fixed-broadband services in DRC, the profit sharing scenario is then conducted under four different fixed-broadband market situations including i) zero uptake of fixed broadband and all international capacity is used for mobile broadband), ii) low uptake of fixed broadband and mobile internet usage trends continue growing at historic rates, iii) medium uptake of fixed broadband and mobile internet usage trends continue growing at historic rates, and iv) high uptake of fixed broadband and mobile internet usage trends continue growing at historic rates.

5. Results of financial analysis. Under a 3% discount rate the above three scenarios yield an internal rate of returning that ranges from 1% minimum to 12% maximum. The Net Present Value of investment is positive except in two cases:

a) IRU at 40% of investment cost

b) Profit sharing with either no uptake or low uptake of fixed broadband services and when capacity is sold at US$40/Mbps/Month

- In reference to table 3 below leasing at 6, 8, or 10% of project cost per year for successive 10 year periods over the course of the project investment cycle yields high internal rates of return and a favorable present valuation profile.
- Issuing IRU contracts at 40% can be seen as favorable from an investment perspective with an internal rate of return of 3%. However, from a cash flow perspective this yields a loss of around US$2.2 million at a 3% discount rate. IRU agreements issued at 45% and 50% of cost yield positive outcomes from both an investment and cash flow perspective.
- Profit Sharing scenarios under different conditions of fixed broadband uptake generally yield positive results with the two exceptions highlighted above. From the analysis performed in this annex both Leasing and Profit Sharing exhibit superior financial results to those shown under the IRU scenario.

Table 3: CAB5 Investment Model

SPV Contract Type	NPV	IRR
Leasing		
Leasing at 6%	$13,013,361.06	4%
Leasing at 8%	$37,356,753.80	7%
Leasing at 10%	$61,700,146.54	8%
IRU		
IRU at 40%	($2,234,813.42)	3%
IRU at 45%	$4,987,937.05	4%
IRU at 50%	$12,210,687.52	5%
Profit Sharing (No fixed-broadband uptake)		
$40/Mbps/Month wholesale	($19,074,356.99)	1%
$60/Mbps/Month wholesale	$8,699,890.93	4%
$100/Mbps/Month wholesale	$64,248,386.76	8%
Profit Sharing (Low fixed-broadband uptake)		
$40/Mbps/Month wholesale	($7,964,657.82)	2%
$60/Mbps/Month wholesale	$25,364,439.68	5%
$100/Mbps/Month wholesale	$92,022,634.68	10%
Profit Sharing (Medium fixed-broadband uptake)		
$40/Mbps/Month wholesale	$367,616.56	3%
$60/Mbps/Month wholesale	$37,862,851.24	6%
$100/Mbps/Month wholesale	$112,853,320.62	11%
Profit Sharing (High fixed-broadband uptake)		
$40/Mbps/Month wholesale	$8,699,890.93	4%
$60/Mbps/Month wholesale	$50,361,262.80	7%
$100/Mbps/Month wholesale	$133,684,006.55	12%

6. Results of Cash Flow Analysis. Under the three different scenarios highlighted above the net cash flow position of SPN is also analyzed. This cash flow takes into consideration the commercialization revenues in addition to the cost of amortized loan payments, and operating expenditures which include maintenance contracts, overheads and human resources required to run SPN. The resulting cash flow schedule indicates very high levels of liquidity after the first five years of operation. Table 5 below presents the overall results of the cumulative net cash flow position of SPN under CAB5 and during the investment life cycle in millions of US$.

Table 4: Cumulative Net Cash Flow Schedule for SPN (US$ millions)

Concession Contact Type	2015	2020	2025	2030	2035	2040	2045	2050	2054
Leasing									
Leasing at 6%	3.4	20.6	36.5	47.7	57.6	62.8	67.9	73.1	77.2
Leasing at 8%	4.6	27.8	49.7	66.9	82.8	94.0	105.1	116.3	125.2
Leasing at 10%	5.8	35.0	62.9	86.1	108.0	125.2	142.3	159.5	173.2
IRU									
IRU at 40%	23.8	23.0	44.9	38.1	54.0	41.2	52.3	39.5	29.2
IRU at 45%	26.8	26.0	50.9	44.1	63.0	50.2	64.3	51.5	41.2
IRU at 50%	29.8	29.0	56.9	50.1	72.0	59.2	76.3	63.5	53.2
Profit Sharing (No fixed-broadband uptake)									
$40/Mbps/Month wholesale	-0.2	2.3	9.3	13.9	17.2	15.8	14.3	12.9	11.8
$60/Mbps/Month wholesale	0.1	6.1	19.5	31.5	42.4	48.5	54.5	60.6	65.4
$100/Mbps/Month wholesale	0.8	13.7	39.8	66.8	92.7	113.8	134.8	155.9	172.8
Profit Sharing (Low fixed-broadband uptake)									
$40/Mbps/Month wholesale	-0.1	3.8	13.4	20.9	27.3	28.9	30.4	32.0	33.2
$60/Mbps/Month wholesale	0.3	8.3	25.6	42.1	57.5	68.1	78.6	89.2	97.6
$100/Mbps/Month wholesale	1.1	17.5	49.9	84.5	117.9	146.4	175.0	203.6	226.4
Profit Sharing (Medium fixed-broadband uptake)									
$40/Mbps/Month wholesale	0.0	4.9	16.4	26.2	34.8	38.7	42.5	46.3	49.3
$60/Mbps/Month wholesale	0.5	10.0	30.1	50.1	68.8	82.7	96.7	110.6	121.8
$100/Mbps/Month wholesale	1.4	20.3	57.5	97.7	136.7	170.9	205.1	239.3	266.7
Profit Sharing (High fixed-broadband uptake)									
$40/Mbps/Month wholesale	0.1	6.1	19.5	31.5	42.4	48.5	54.5	60.6	65.4
$60/Mbps/Month wholesale	0.6	11.8	34.7	58.0	80.1	97.4	114.8	132.1	145.9
$100/Mbps/Month wholesale	1.6	23.2	65.2	111.0	155.6	195.4	235.3	275.1	306.9

7. Conclusion. Due to the very favorable lending conditions under IDA and a very strong market potential for broadband service commercialization in DRC, the above financial analysis predicts a positive internal rate of return on investment costs and a generally favorable cash flow situation from an investment perspective. Furthermore, SPN is expected to be in a favorable position to meet its fiduciary responsibilities under the loan agreement based on the above analysis.