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Financement de projets d'infrastructure en Afrique : est-ce le bon moment ?

Une évaluation des stratégies utilisées pour investir en Afrique

Rapport Confidentiel

Projet réalisé au sein de Meridiam

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Résumé

L'Afrique a connu une croissance rapide au cours des deux dernières décennies, avec une croissance annuelle moyenne du PIB de 4,6% par an pour la période 2000-2016, constituant la deuxième région du monde à la croissance la plus rapide. Malgré la moyenne élevée, le continent a vécu une crise en 2015-2016 et est sur la voie de la reprise économique.

Après avoir culminé à 4,7% en 2010-2014, la croissance du PIB réel de l'Afrique a ralenti pour s'établir à 3,5% en 2015 et à 2,1% en 2016, en raison notamment de la chute brutale des prix du pétrole et d'autres chocs régionaux tels que les sécheresses en Afrique orientale et australe. La croissance économique a ensuite atteint 3,6% en 2017 et est estimée à peu près au même taux en 2018. À moyen terme, la croissance devrait s'accélérer autour de 4,0% dans les années à venir.

Isolant la région de l'Afrique subsaharienne, le taux de croissance devrait revenir à 2,8% en 2019 après le ralentissement à 2,3% en 2018 et à 3,3% en 2020.

À l'exclusion du Nigéria, de l'Afrique du Sud et de l'Angola, la croissance dans le reste de la région devrait augmenter modérément, passant de 4,1% en 2018 à 4,4% en 2019 et à 4,8% en 2020.

La région de l'Afrique subsaharienne devra également être le principal moteur de la croissance démographique mondiale au XXIe siècle, avec une croissance démographique stable d'environ 2,8% par an.

La croissance démographique accentuée de la région nécessitera un développement important des infrastructures, compte tenu en particulier du déficit d'infrastructure déjà important en Afrique subsaharienne.

La région d'ASS est en retard sur tous les grands indicateurs de développement des infrastructures par rapport aux autres régions. Même dans les indicateurs qui se sont améliorés au cours du dernier quart de siècle, l'ASS est encore loin d'atteindre les niveaux d'infrastructure observés dans d'autres régions du monde. Individuellement, les pays de la région occupent presque tous les postes les moins bien classés dans les évaluations globales des infrastructures.

Les pays de la région sont donc encouragés à investir massivement dans le secteur des infrastructures dans les années à venir pour permettre une croissance économique proportionnée.

Le rapport de la Banque mondiale intitulé « Africa's Pulse » de 2015 indique que la réduction du déficit d'infrastructures en Afrique subsaharienne augmenterait le PIB par habitant de 2,6% par an. Le besoin total de financement pour combler l'écart est d'environ 93 milliards USD par an au cours de la prochaine décennie, ce qui représente environ 15% du PIB de la région (la dernière estimation de la Banque africaine de développement est encore plus élevée : entre 130 et 170 milliards USD).

Aujourd'hui, seule la moitié de ce montant est fournie dans la région (des investissements s'élevant à 45 milliards USD), le secteur public étant responsable de la moitié de cette contribution. L'écart est donc de 48 milliards USD par an. Une étude estime que l'optimisation des opérations pourrait réduire l'écart de financement d'un tiers [6], le ramenant à environ 31 milliards USD par an. Selon le rapport de la Banque mondiale [20], 40% de cet écart peuvent être comblés par des partenariats public-privé.

Bien que la participation du secteur privé au financement des infrastructures en Afrique subsaharienne ait quelque peu évolué, sa part reste faible comparée à celle des autres régions du monde à revenu faible ou intermédiaire, représentant moins de 4% du financement national total des infrastructures.

Au cours des dernières années, les gouvernements des pays d'Afrique subsaharienne ont commencé à lancer des appels d'offres PPP, encourageant la participation du secteur privé et la création de nouveaux projets. Les gouvernements qui lancent des PPP doivent néanmoins offrir une certaine attractivité à l'investissement grâce au partage des risques, à la stabilité politique, à la normalisation des procédures et à une réserve de projets stable.

Les initiatives encourageantes des gouvernements et des organisations multilatérales commencent à porter leurs fruits lorsque l'on analyse l'évolution de l'investissement total réalisé au titre des PPIs au cours des 18 dernières années dans la région.

En 2018, l'Afrique subsaharienne a atteint 7,7 milliards USD d'investissements dans les infrastructures, le plus important investissement réalisé depuis 2014. Cette croissance (le triple du montant en 2017) est principalement due à la montée des projets d'énergie renouvelable et,

géographiquement, à l'Afrique du Sud et au Cameroun (ce dernier étant principalement dû à une centrale hydroélectrique de 1,4 milliard USD).

Les défis présents dans la région en raison de son stade de développement obligent les investisseurs à utiliser une approche plus intégrée pour chaque projet. L'approche doit prendre en compte les cycles de vie des projets, assurer l'adhésion politique, avoir des compétences de négociation locales et accepter des périodes de maturation plus longues accompagnées d'une plus grande incertitude.

Bien que le niveau de développement des infrastructures varie peu dans la région d'Afrique subsaharienne, le cadre réglementaire de chaque pays ne doit pas être traité comme homogène.

Des pays tels que l'Afrique du Sud, le Rwanda, le Botswana et Maurice offrent un environnement réglementaire très solide pour les investissements dans les infrastructures, mais l'Afrique du Sud est le seul à offrir également un grand marché avec des précédents et une capacité de financement.

Le Nigéria, la Tanzanie et l'Éthiopie offrent également un environnement attrayant pour les investisseurs avec un bon cadre réglementaire associé à de grandes opportunités économiques. Ces pays sont à la traîne par rapport à ce qu'on voit en Afrique du Sud, par exemple en ce qui concerne les capacités des gouvernements, les politiques qui ont fait leurs preuves et qui ont fait leurs preuves en matière de bonnes affaires et de stabilité macro-économique dans le cas du Nigéria. La Zambie, le Ghana et le Kenya se retrouvent dans une situation similaire mais, dans leur cas, manquent de facilité d'affaires et d'un bilan général des investissements réussis dans le secteur des infrastructures.

À l'opposé, les Comores, la Guinée équatoriale, le Lesotho, la Mauritanie, le Niger, le Soudan du Sud et la République démocratique du Congo (RDC) ne disposent pas du cadre réglementaire propice aux investissements privés dans les infrastructures électriques et de transport. Cependant, la RDC négocie toujours des accords ponctuels en utilisant les directives de certains ministères sectoriels, notamment dans les secteurs des mines, de l'électricité et du ciment.

Malgré les différences, les pays d'Afrique subsaharienne partagent des difficultés communes très spécifiques à la région, telles que les capacités limitées du secteur public, les

incertitudes politiques, la manque de personnes possédant les compétences techniques, et les complexités financières requises liées aux risques de change et la durée plus longue des projets.

Malgré les risques supplémentaires, de nombreux outils sont disponibles pour les investisseurs de la région. Grâce aux nombreuses mesures prises pour atténuer les risques et garantir les investissements sur le continent africain, les projets d'infrastructures deviennent très protégés. Cela peut être attesté par le taux de défaut pour les projets, qui était le plus bas de tous les continents en 2017 (2,7%), selon le rapport Moody's 2017 [12].

Cela signifie qu'une fois le projet sécurisé (jusqu'à la clôture financière), les risques de défaillance sont très faibles. Le principal risque pour les investisseurs en Afrique est donc le risque de non-déploiement. En effet, le temps et les efforts nécessaires pour lancer les projets africains sont largement reconnus.

Compte tenu de la complexité et des particularités de la SSA, qui exige une approche intégrée de la part des investisseurs (du développement proactif du projet à la préparation des pourparlers et à la négociation avec le gouvernement, à la clôture du financement avec les prêteurs et enfin à la supervision et au contrôle de l'exécution), les sponsors doivent avoir compréhension profonde de la dynamique de l'environnement local du pays dans lequel ils mettent en œuvre leur projet.

Les sponsors doivent être persévérants et résilients, en particulier pendant la phase de développement. Le profil des investisseurs en Afrique subsaharienne doit être innovateur : partir de zéro et créer un environnement propice aux prochaines opportunités. Ils doivent également être disposés à se rendre sur place, à suivre les détails techniques et à faire face aux difficultés imprévues, en les abordant avec une approche entrepreneuriale.

En faisant tous ces efforts et en employant les outils disponibles, l'investisseur dans l'infrastructure en Afrique subsaharienne pourra se retrouver à l'avant-garde d'un marché très prospère en trouvant des importants retours économiques.

Mots-clés : *Financement de projets, Partenariats public-privé (PPP), Afrique subsaharienne, Institutions de financement du développement (DFI), Mitigation des risques, Infrastructures de transport, Energies renouvelables*

Abstract

This report presents and evaluates the particular opportunities and risks of investing in Sub-Saharan Africa's infrastructure as a private investor.

An overall social and geopolitical evaluation is made along with more country-specific analysis, and comparisons related to the infrastructure sector. The report then focuses on evaluating the PPP legislation in each country, the obstacles to be overcome by investors and the main risks they face. It incorporates potential strategies, tools for development, and solutions for investors, as well as environmental risks of the region.

Finally, two case studies of projects developed are presented, a hydro power plant in Gabon and an airport in Burkina Faso, along with the strategies applied and the reasoning for each of the steps taken.

Keywords: *Project Finance, Public-Private Partnerships (PPPs), Sub-Saharan Africa, Development Finance Institutions (DFI), Risk Mitigation, Transport Infrastructure, Renewable Energy*

Summary

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Abbreviations List

AFC	"Africa Finance Corporation"
AFD	"Agence française de développement", the French Development Agency
AfDB	"African Development Bank"
AIFP	"Africa Infrastructure Fellowship Program"
AMP	"Aéroports de Marseille Provence"
BAFO	"Best and Final Offer"
BCG	"Boston Consulting Group"
BNDES	"Banco Nacional de Desenvolvimento Econômico e Social", the Brazilian National Bank for Economic and Social Development
CAPEX	"Capital Expenditure"
CEMAC Countries	"Central African Economic and Monetary Community"
COP 21	The 21st "Conference of the Parties"
DBFM	"Design-Build-Finance-Maintain"
DFI	"Development Finance Institution"
DRC	"Democratic Republic of Congo"
EAIF	"Emerging African Infrastructure Fund"
EBRD	"European Bank for Reconstruction and Development"
EDF	"Electricité de France", the French Electricity of France
EDF-CIST	"EDF- Centre d'Ingénierie Système Transport"
EIB	"European Investment Bank"
EMDEs	"Emerging Markets and Developing Economies"
EMP	"Environmental Management Plan"
EPC	"Engineering, Procurement and Construction"
ESAP	"Environmental and Social Action Plan"
ESG	"Environmental, Social, and Governance"
ESIA	"Environmental and Social Impact Assessment"
ESMP	"Environmental and Social Management Plan"
EUR	ISO 4217 code for "Euro"
FGIS	"Fonds Gabonais d'Investissements Stratégiques"
FIR	"Flight Information Regions"
FX risk	"Foreign Exchange Risk"
GDP	"Gross Domestic Product"
GoBF	"Government of Burkina Faso"
GoG	"Government of Gabon"
HIV	"Human Immunodeficiency Virus"
HPP	"Hydro Power Plant"
IATA	"International Air Transport Association"
ICAO	"International Civil Aviation Organization"
ICIEC	"Islamic Corporation for Insurance of Investment and Export Credit"

IFC	"International Finance Corporation"
IMF	"International Monetary Fund"
IPP	"Independent Power Producer"
IRR	"Internal Rate of Return"
IsDB	"Islamic Development Bank"
KYC	"Know your Customer"
LoI	"Letter of Interest"
LTA	"Lenders' Technical Advisor"
MIGA	"Multilateral Investment Guarantee Agency"
MOAD	"Maitrise d'Ouvrage de l'Aéroport de Donsin", the dedicated public entity that operates as the project manager to the Airport of Donsin representing the Government of Burkina Faso.
MoU	"Memorandum of Understanding"
NGO	"Non-Governmental Organization"
O&M	"Operations and Maintenance"
OBA	"Output-Based Aid"
OPIC	"Overseas Private Investment Corporation"
PAB	"Plan d'Action de Biodiversité", or Biodiversity Action Plan
PAX	"Passengers"
PKWeir	"Piano Key Weir"
PPA	"Power Purchase Agreement"
PPI	"Private Participation in Infrastructure"
PPP	"Public-Private Partnership"
Q&A	"Questions & Answers"
RAP	"Resettlement Action Plan"
RCC	"Roller-Compacted Concrete"
RDIA	"Redevance de Développement des Infrastructures Aéroportuaires", revenues paid by the IATA to the operators of airports per aircraft movement
RFP	"Request for Proposals"
SEEG	"Société d'Energie et d'Eau du Gabon"
SPV	"Special Purpose Vehicle"
SSA	"Sub-Saharan Africa"
TSA	"Technical Service Agreement"
UN	"United Nations"
USD	ISO 4217 code for "United States Dollar"

1 Introduction

Sub-Saharan Africa comprises, well knowingly, a majority of the world's under-developed countries. When it comes to infrastructure, the scenario is not very different: the region extensively lacks essential infrastructure.

According to The World Bank's "Africa Pulse" from 2015, closing the infrastructure gap in Sub-Saharan Africa (SSA) would increase its per capita GDP by 2.6% a year. Only half of that gap is being financed today, with public investments accounting for half of it, while the rest is financed by international investors, mostly development banks and international aid.

The same report points out that PPPs could account for around 40% of the remaining gap. How can these PPPs be established? How can the region attract the private sector? What are the tools available to investors today in order to finance infrastructure in SSA?

The Sub-Saharan countries have been enacting laws to establish regulatory frameworks for PPPs, but are still found in a vast array of stages regarding institutional strength, maturity and experience in the sector. What are the factors that define the attractiveness for infrastructure private investors of one country over another?

What are the strategies and the best practices investors can use in order to promote successful projects? What are the most beneficial practices, and effective approaches that investors can utilize to help overcome the region's risks and ensure successful projects?

This report will firstly explore the overall social and geopolitical situation of the Sub-Saharan countries, along with more country-specific analysis and comparisons focusing on the infrastructure sector. It will, then, focus in evaluating the PPP legislation in each country, the obstacles and risks the investors will face, as well as useful methods to counteract, and minimize those risks to investment.

Finally, it incorporates two case studies of projects being developed: a hydro power plant in Gabon and an airport in Burkina Faso, along with the strategies applied and their rationales.

2 Geopolitical and Infrastructure Analysis in Sub-Saharan Africa

2.1 Geopolitical Overview of Sub-Saharan Africa

Africa has experienced a fast-paced growth in the last two decades, with an average annual GDP growth of 4.6% per year from 2000 to 2016, making it the second fastest-growing region of the world. Despite this high average, the continent experienced a crisis in 2015-2016, and is still in the process of making an economic recovery.

After peaking at 4.7% in 2010–14, Africa's real GDP growth slowed to 3.5% in 2015 and 2.1% in 2016, impart due to the drastic drop in oil prices and other regional shocks such as droughts in East Africa and Southern Africa. Economic growth then reached 3.6% in 2017, and about the same rate is estimated in 2018. In the medium-term, growth is projected to accelerate to around 4.0% in the next five years.

About 40% of African countries are projected to see growth of at least 5% in 2019, while about 25% are projected to see growth of less than 3%. And though lower than China's and

India's growth, Africa's growth is projected to be higher than that of other emerging and developing countries.

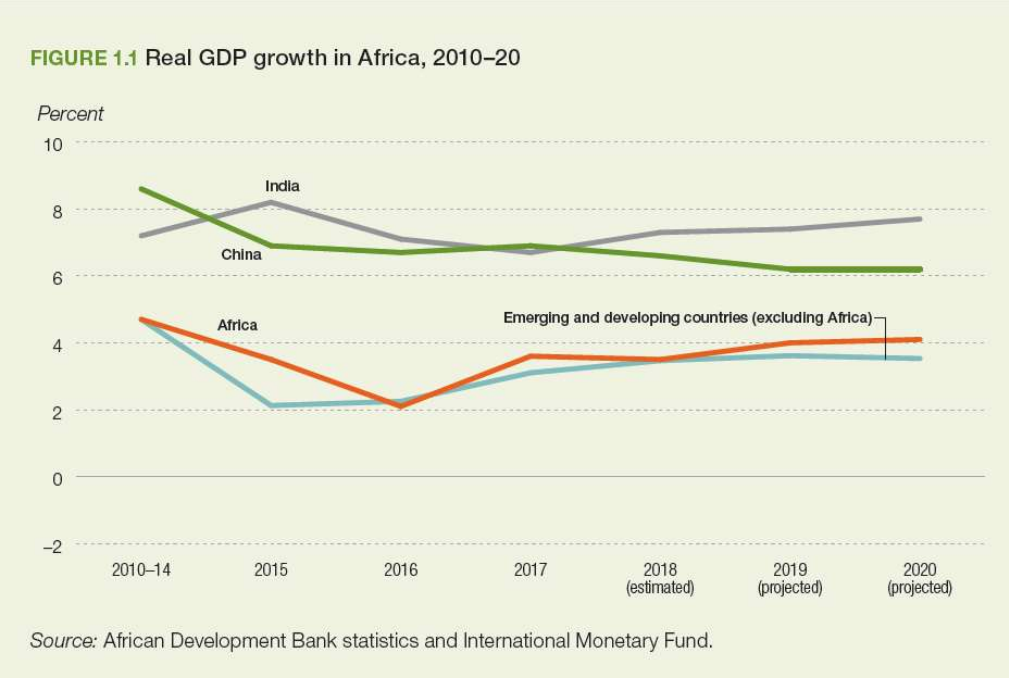


Figure 1 - Real GDP growth in Africa, 2010-2020 [1]

The drivers of Africa's economic growth have been gradually rebalancing in recent years. Consumption's contribution to real GDP growth declined from 55% in 2015 to 48% in 2018, while investment's contribution increased from 14 to 48%.

Isolating the Sub-Saharan Africa region (SSA), the growth rate is forecast to recover to 2.8% in 2019 from the decrease to 2.3% in 2018, and rise to 3.3% in 2020.

Figure 2 - GDP Growth in SSA [21]

Excluding Nigeria, South Africa, and Angola, growth in the rest of the region is projected to rise moderately, from 4.1% in 2018 to 4.4% in 2019 and stabilize at 4.8% in 2020. *The outlook for CEMAC countries has improved slightly, with oil production rebounding in several countries, and security conditions stabilizing in countries affected by conflict and violence; but continued fiscal consolidation will weigh on the pace of economic expansion. The outlook for metals exporters has also improved, with growth expected to strengthen in several countries, as mining production expands, supported by stable metals prices, and infrastructure investment helps boost non-mining economic activity.* [21]

The majority of African economies are forecasted to grow significantly in the next few years with Ethiopia as its fastest growing country and a growth rate averaging 8.2% for the next 6 years:

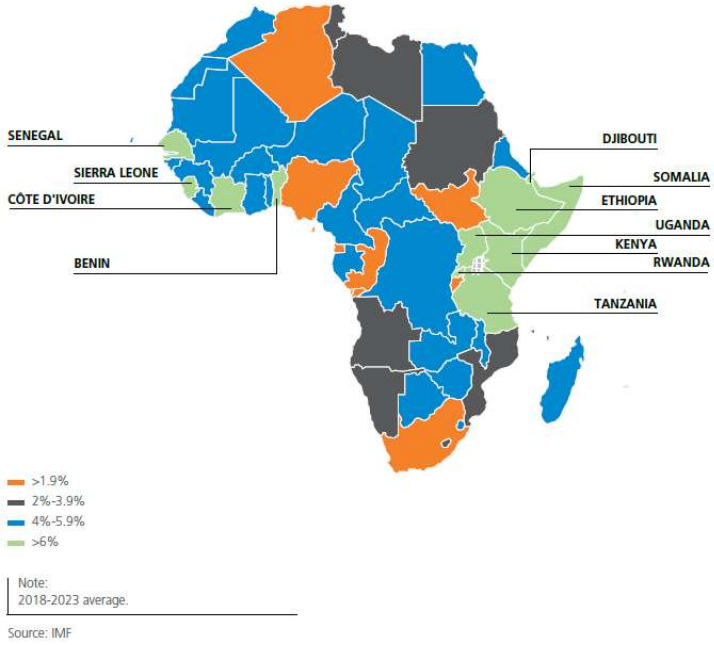


Figure 3 - Forecasted growth rates for individual African Economies 2018-2023 [13]

The SSA region is also expected to be the main driver of the world population growth in the twenty-first century:

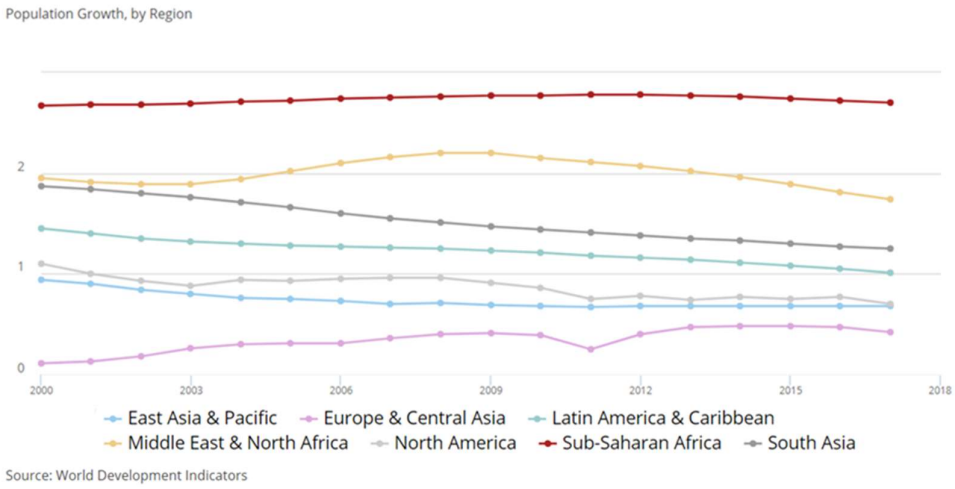


Figure 4 - Population Growth, by Region [22]

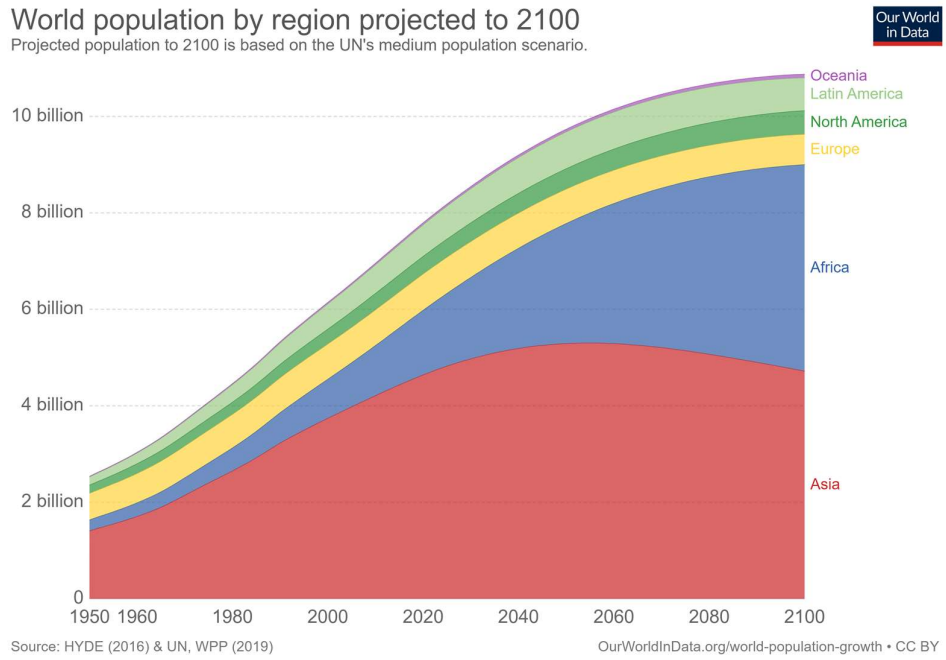


Figure 5 - Forecasted World Population by Region (2015-2100) [14]

The accentuated population growth of the region will require sizable infrastructure development, especially considering the already substantial infrastructure gap in SSA, which is detailed in the next chapters. Therefore, countries of the region are encouraged to heavily invest in the infrastructure sector in the coming years to allow for a proportionate economic growth.

2.2 Infrastructure Gap in Sub-Saharan Africa

Infrastructure gap is a term frequently used to refer to the current need for investors in infrastructure of a given region or locale. This indicator is key in this document because it gives an important orientation on infrastructure strategic planning, selecting and prioritizing infrastructure projects in order to optimize sustainable socioeconomic impact.

Infrastructure gap is calculated as a monetary value expressed in either an absolute unit (as in a given currency), or in relative terms (as a percentage of GDP, for example). Though methodologies of calculation may differ, the indicator aims at calculating the difference between the required infrastructure and the current economic infrastructure (projects that generate economic growth).

The infrastructure gap can be better evaluated by analyzing the main infrastructure quantity and quality indicators. The following graphs, extracted from the World Bank Group's

Africa's Pulse Report of 2017, compare the evolution of various infrastructure sectors in the 1990-2015 (or latest study) period between regions of the world.

2.2.1 Transport Infrastructure

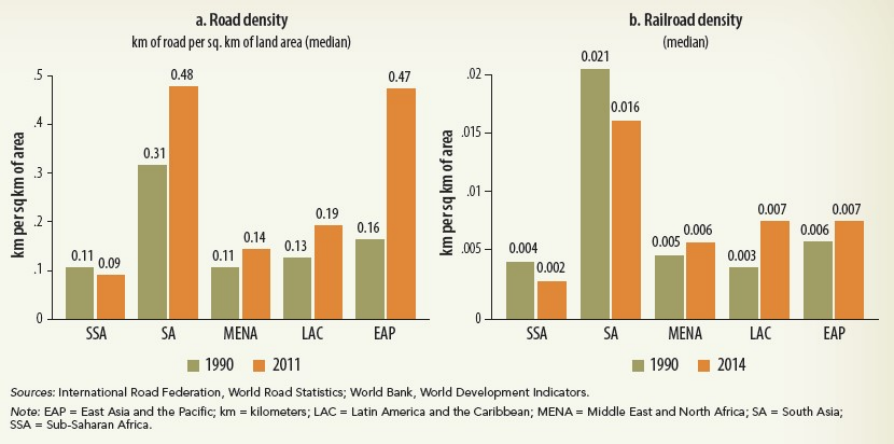


Figure 6 - Quantity of Transport Infrastructure: Road and Railroad Density by Region [20]

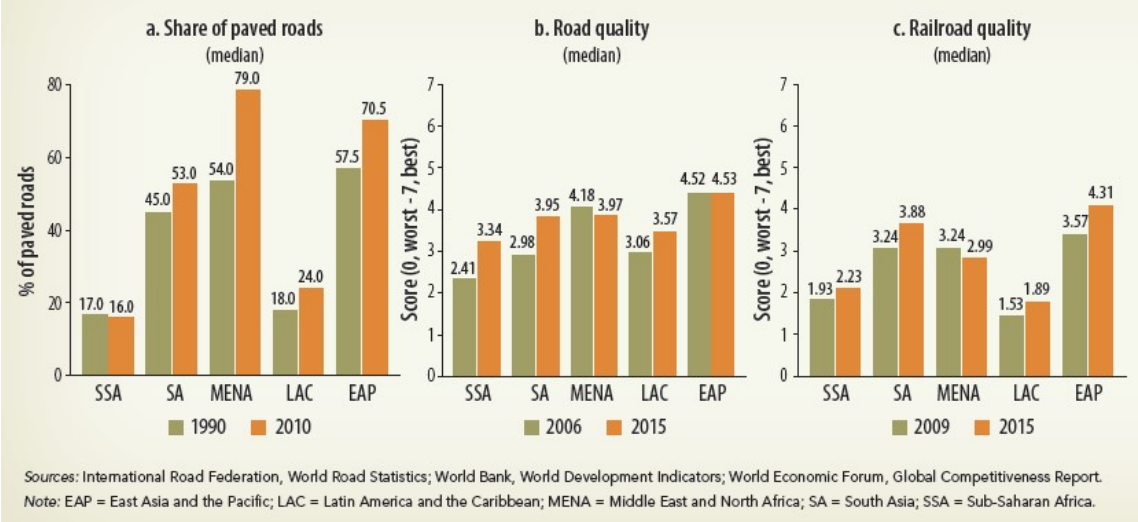


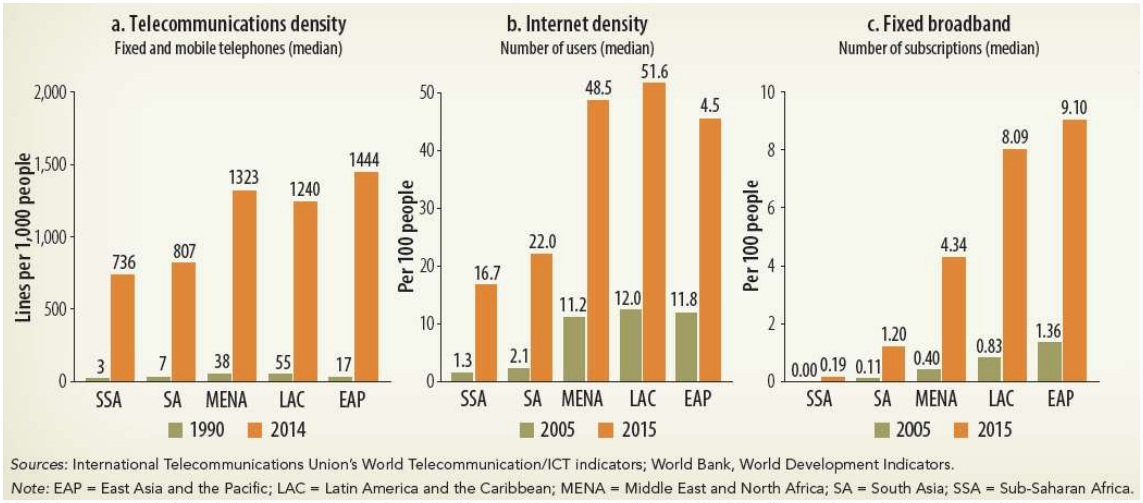
Figure 7 - Quality of Transport Infrastructure: Share of Paved Roads and WEF Perception of Road and Railroad Quality by Region [20]

It's important to note the negative trend of road and railway density in SSA, as opposed to every other region of the world. These trends indicate that the expansion of the transport networks is not as fast as the urbanization of countries in the region.

Also going against the global upward trend is the evolution of the share of paved roads in SSA, which is also the lowest of any region.

The perception of quality of transport infrastructure, charts b. and c. in Figure 7, is measured by the World Economic Forum perception scores on the quality of roads and railroads. These are the only indicators in the transport sector in SSA to have a positive trend in the period of the survey.

2.2.2 Telecommunications Infrastructure



Sources: International Telecommunications Union's World Telecommunication/ICT indicators; World Bank, World Development Indicators.
Note: EAP = East Asia and the Pacific; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SA = South Asia; SSA = Sub-Saharan Africa.

Figure 8 - Telecommunications Infrastructure by Region [20]

Sources: International Telecommunications Union's World Telecommunication/ICT indicators; World Bank, World Development Indicators.
Note: EAP = East Asia and the Pacific; LAC = Latin America and the Caribbean; LIC = low-income countries; LMC = lower-middle-income countries MENA = Middle East and North Africa; SA = South Asia; SSA = Sub-Saharan Africa; UMC = upper-middle-income countries.

Figure 9 - Quality of Telecommunications Infrastructure: Internet Traffic [20]

There was, as opposed to what's seen on the transport sector, a sharp rise in telecommunications infrastructure in Sub-Saharan Africa. The trend follows other regions of the world and, although having the biggest percentual growth, SSA still is the region with the least-developed telecommunications, both in quantity and quality.

2.2.3 Power Infrastructure

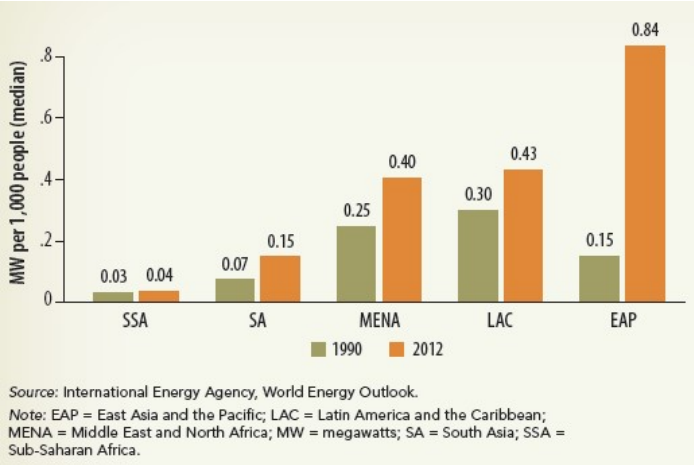


Figure 10 - Quantity of Power Infrastructure: Electricity-Generating Capacity by Region [20]

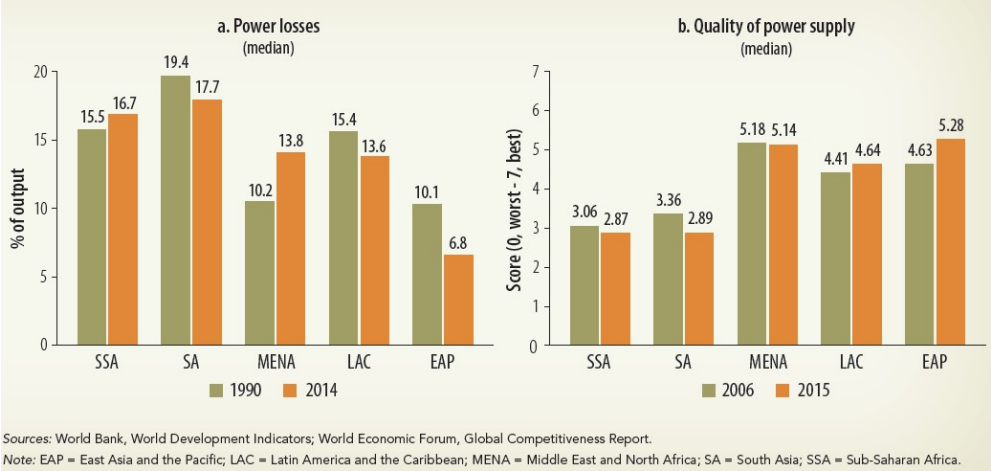


Figure 11 - Quality of Power Infrastructure by Region [20]

Unlike other developing regions of the world, SSA's power-generating capacity almost didn't change in the 22-year period of the research. This means it is now less than a third of what's observed per 1,000 people in South Asia and less than 10% of the same metric for every other region of the world.

2.2.4 Access to Infrastructure

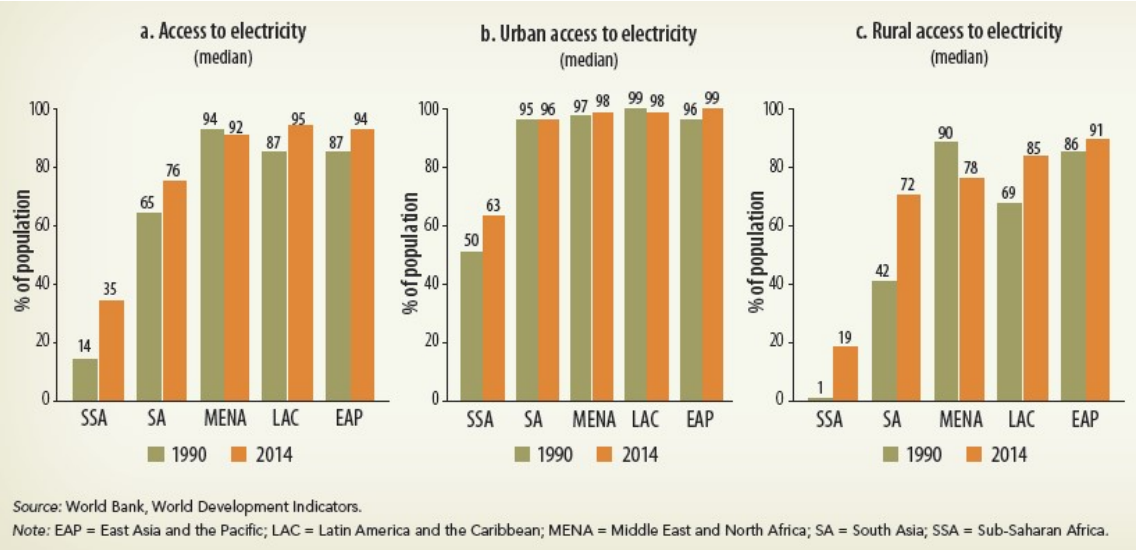


Figure 12 - Access to Electricity by Region: Total, Urban and Rural Access Rates by Region [20]

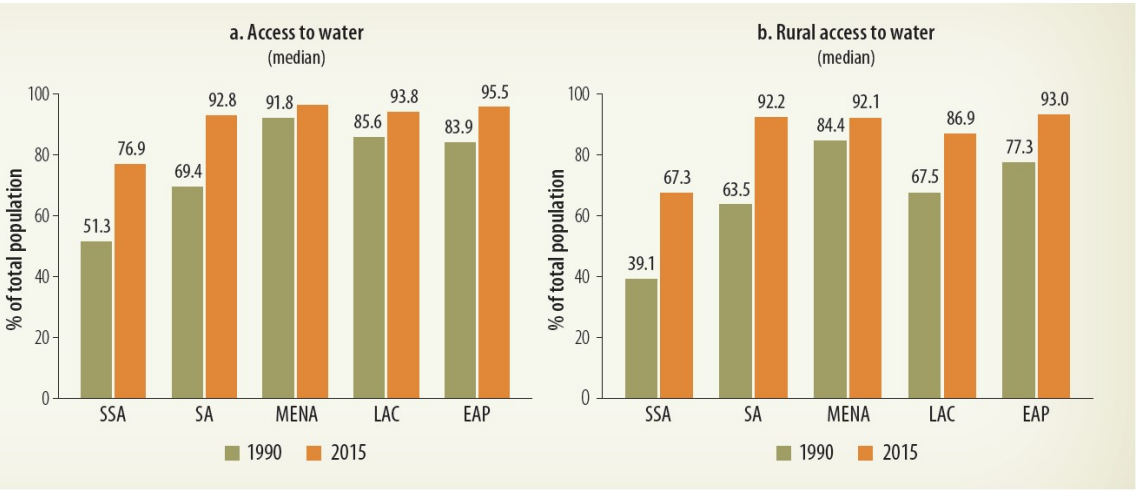


Figure 13 - Access to Water Infrastructure: Total and Rural Access Rates by Region [20]

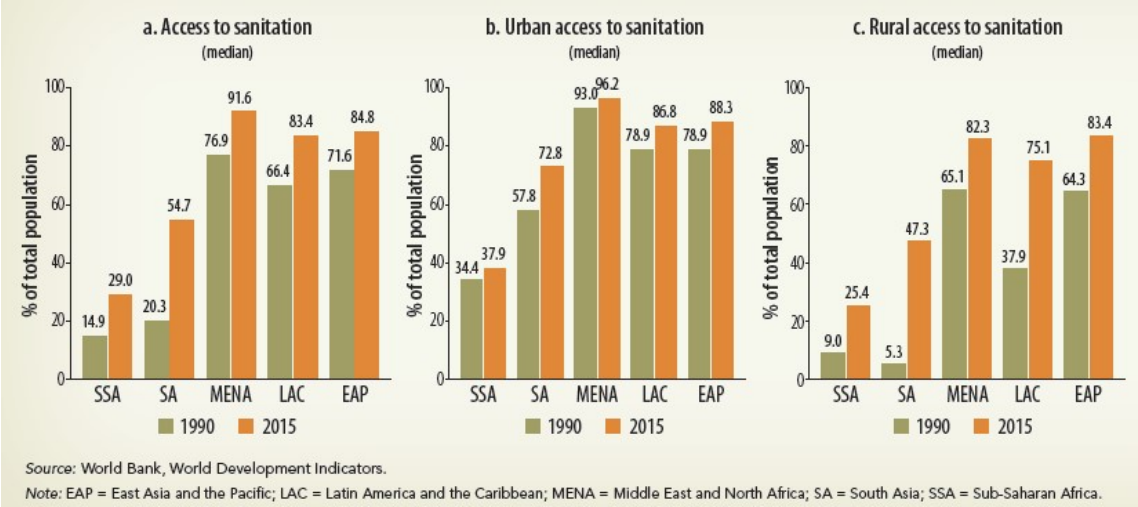


Figure 14 - Access to Sanitation Infrastructure by Region: Total, Urban and Rural Access Rates [20]

The Access to electricity in SSA has been increasing rapidly due to the rural portion of the population, which has seen a 19-fold rise in the 24 year-period of the study. Sharp improvements have been seen in the access to drinking water and sanitation facilities. Despite the significant increases in all metrics of access to infrastructure, the region still holds the last position in every chart.

These charts highlight the lagging behind of the SSA region in every big indicator of infrastructure development when compared to other regions. Even in metrics that have shown improvement over the last quarter-century, SSA is still far from competing with levels of infrastructure seen in other regions of the world.

Moving to the overall analysis of infrastructure country by country, the World Economic Forum determined in its 2018 Global Competitiveness Report that the countries of this region retain almost all the lowest ranking positions.

Except for five outliers (South Africa, Mauritius, Seychelles, Namibia and Eswatini), the list of Sub-Saharan countries can almost replicate the list of the bottom quarter in the world ranking. The countries of the region occupy 28 among the 35 last positions of the countries on the study. It should also be noted that many of the countries recognized by the UN that had no available data are from the SSA region, being the absence of data usually a strong indicator of institutional and/or social instability in the country (such as civil wars).

Table 1 - Global Competitiveness Report 2018 - Infrastructure Pillar Ranking (n = 140) [25]

Info	▲ Rank / 140	Country / Economy	Score 0-100 (best)
i	64	South Africa	68.6
i	67	Mauritius	68.0
i	70	Seychelles	67.0
i	91	Namibia	59.7
i	94	Eswatini	58.8
i	105	Kenya	54.8
i	106	Cape Verde	54.7
i	108	Botswana	53.9
i	110	Gambia, The	52.1
i	111	Senegal	51.8
i	113	Côte d'Ivoire	51.2
i	114	Zambia	51.0
i	115	Rwanda	50.8
i	116	Ghana	50.3
i	119	Tanzania	46.0
i	120	Ethiopia	45.5
i	121	Uganda	43.2
i	122	Zimbabwe	42.9
i	123	Mali	42.7
i	124	Nigeria	42.3
i	125	Cameroon	42.1
i	126	Benin	41.0
i	127	Angola	40.7
i	128	Burkina Faso	37.9
i	129	Malawi	37.8
i	130	Mozambique	37.3
i	131	Guinea	37.2
i	132	Burundi	36.6
i	133	Sierra Leone	36.3
i	134	Lesotho	35.6
i	135	Mauritania	35.4
i	136	Liberia	34.8
i	137	Chad	34.1
i	139	Congo, Democratic Rep.	33.1

Source: World Economic Forum, Global Competitiveness Report 2018

2.3 Closing the Infrastructure Gap

The World Bank's report "Africa Pulse" from 2015 points out that closing the infrastructure gap in Sub-Saharan Africa (SSA) would increase per capita GDP by 2.6% a year. The total financing requirement to close the gap is about USD 93 billion per year over the next

decade, which accounts for about 15% of the region's GDP (the African Development Bank's latest estimate is even higher, amounting to USD 130-170 billion).

Today, only half of that amount is being provided in the region (investments amounting to USD 45 billion), being the public sector responsible for half of that contribution. Therefore, the gap is of USD 48 billion per year. A study estimates that operation optimization could reduce the financing gap by one-third [6], narrowing it to around USD 31 billion per year. The World Bank's report [20] estimates 40% of that gap can be addressed through PPPs.

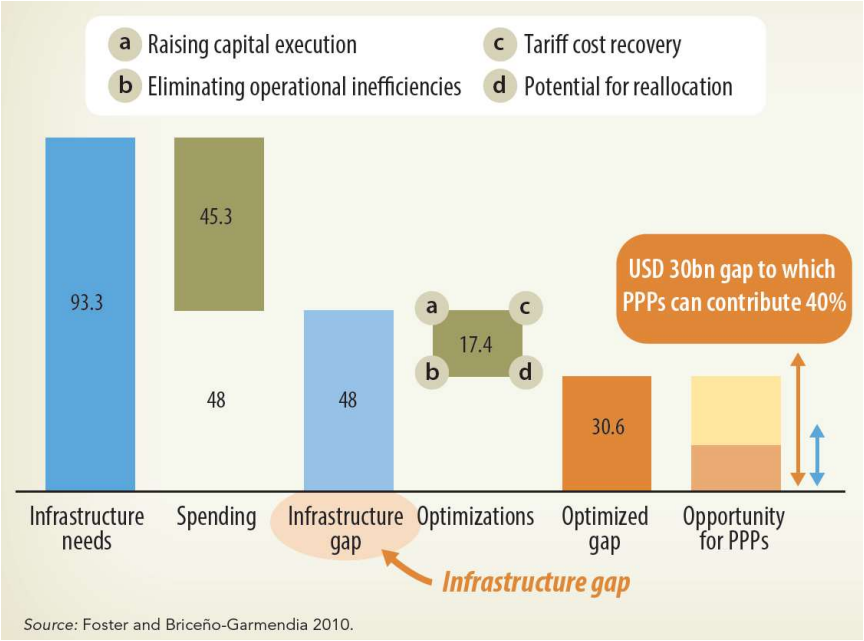


Figure 15 - Infrastructure Financing Needs in Africa, in USD billions [20]

Although there's been some evolution in the participation of the private sector in funding infrastructure in SSA, its share is still low compared to other low and middle-income regions of the world, accounting for less than 4% of the total domestic funding of infrastructure.

2.3.1 Private Participation in Infrastructure in SSA

In the most recent years, SSA countries' governments have started issuing PPP tenders, encouraging the private sector participation and origination of new projects. Governments issuing PPPs must nevertheless provide some investment attractiveness through risks sharing, political stability, standardization of procedures and a stable pipeline of projects.

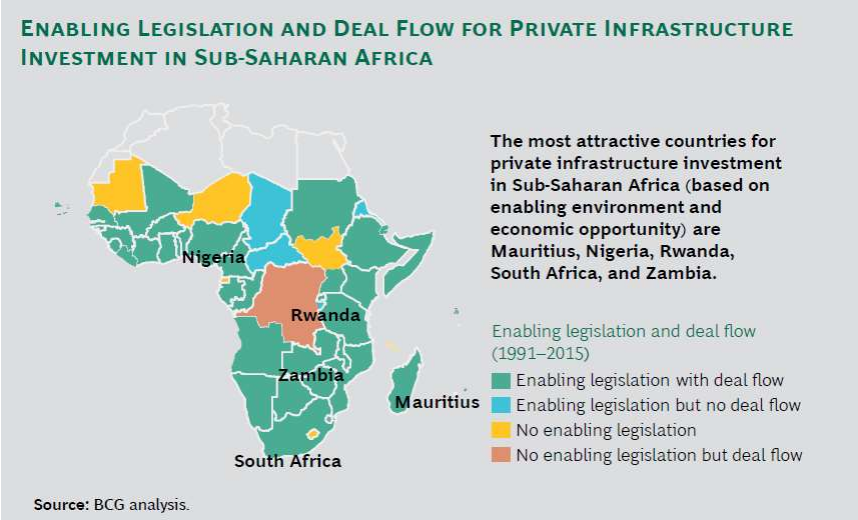


Figure 16 - Enabling Legislation and Deal Flow for Private Infrastructure Investment in SSA [18]

The encouraging initiatives from the governments and multilaterals start to show results when analyzing the evolution of total investment made under PPIs in the last 18 years in the region:

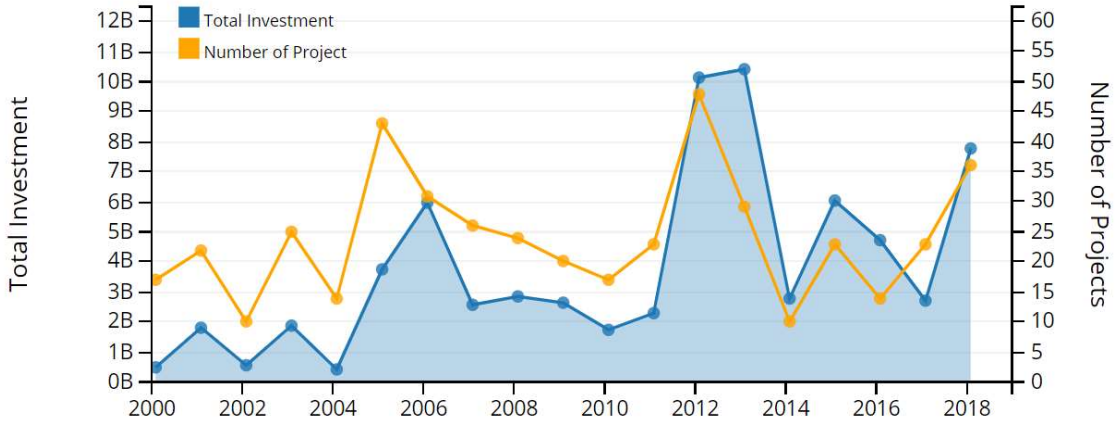


Figure 17 - Private Participation in Infrastructure (USD) in SSA, 2000-2018 [24]

In 2018, SSA has reached USD 7.7 billion in investment in infrastructure, the largest investment since 2014. The growth (triple the amount in 2017) was mainly driven by a renewable-energy projects surge and, geographically, by South Africa and Cameroon (the latter mostly due to a USD 1.4 billion hydropower plant).

The total investment in PPI in SSA from 2000 to 2018 is of USD 79.4 bn (of which, USD 74.1 bn in PPPs), according to the World Bank PPI Database (disregarding cancelled PPI). These investments can be split between sectors of infrastructure as follows:

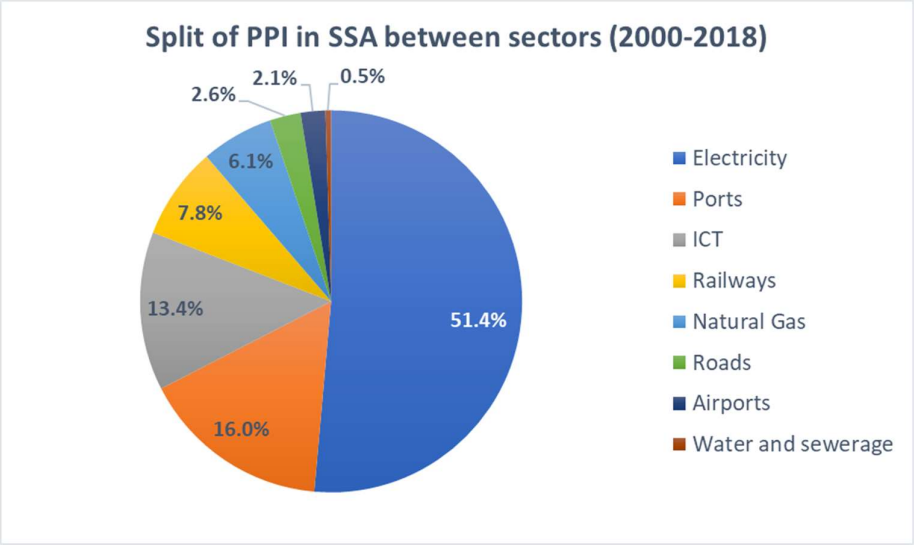


Figure 18 - Split of PPI in SSA between sectors (2000-2018)

The split shows a strong presence of PPI in the electricity (power) sector, which is indeed the sector that's the farther from other regions' levels. The transport sector, whose quality/quantity metrics are following slow or negative trends in the period between 1990 and 2015, has the second biggest share in PPI investments (28.5%, considering all branches).

PPI are taking place in strategic sectors for the region but are still far from closing its infrastructure gap. The estimated potential contribution of PPPs the infrastructure of 40% out of the USD 30 bn yearly gap (thus, USD 12 bn p.a.) made by Foster and Briceño-Garmendia is still far from being attained with a yearly PPP investment that has been oscillating and has only just surpassed USD 7 bn in 2018. The growth in these investments must follow an even faster trend to track the infrastructure demand growth of the region.

The measures taken by governments, DFIs and private institutions in order to ensure the creation of PPIs will be further detailed in the next chapters.

2.3.2 Main Actors of the Region

As shown in Figure 16, of the 49 Sub-Saharan countries, 42 now have enacted legislation to provide a regulatory framework for private investment in infrastructure. South

Africa, Rwanda, Botswana, and Mauritius offer good examples of advanced and robust regulatory contexts.

The environment for private investment in SSA infrastructure is changing. Governments are becoming more receptive to private investment and the private sector has been responding positively to opportunities. The growth in interest from both sides has increased abundantly the number of players in the market:

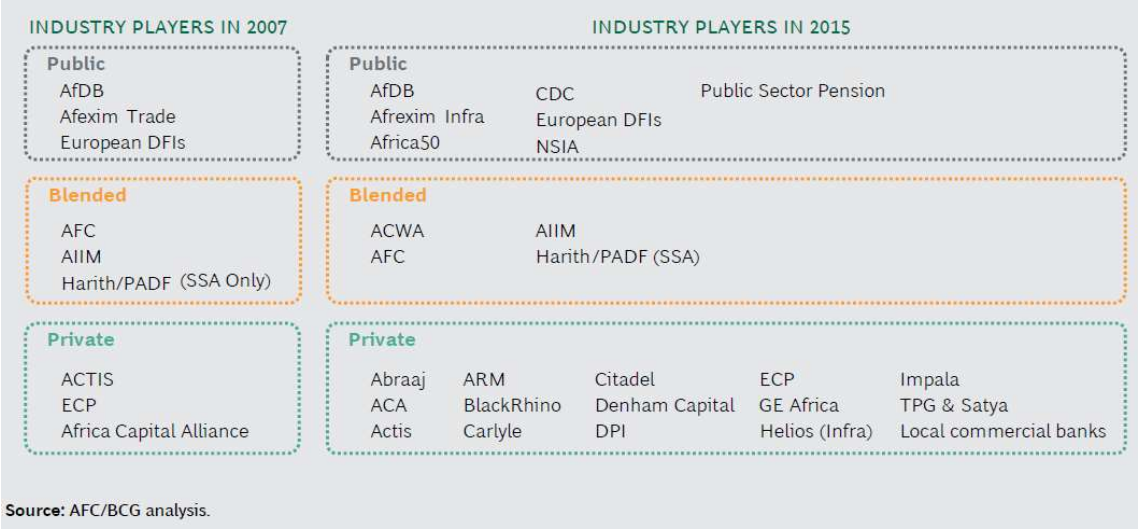


Figure 19 - Main Actors in SSA's Infrastructure Landscape [18]

3 Frameworks and Particular Risks of the Region

The challenges present in the region due to its development stage make it necessary for the investors to use a more integrated approach for each project. The approach must consider project life cycles, assure political buy-in, have local negotiation skills and accept longer maturation periods along with higher uncertainty.

Though the infrastructure development level varies little in the SSA region (as shown in Table 2), the regulatory framework of each country must not be treated as homogeneous. The table below shows the country attractiveness ranking made by BCG and AFC for the SSA region. The ranking uses a mix of enabling environment and economic opportunity metrics.

Table 2 - Country Attractiveness Ranking in SSA [18]

	Rank	Index	Country (%)
Tier 1	1	100,00	South Africa
	2	89,60	Nigeria
	3	78,50	Mauritius
	4	74,88	Rwanda
	5	71,61	Tanzania
Tier 2	6	71,55	Botswana
	7	70,98	Ghana
	8	70,72	Ethiopia
	9	70,57	Kenya
	10	70,11	Zambia
Tier 3	11	69,38	Uganda
	12	69,07	Seychelles
	13	68,66	Mozambique
	14	67,96	Namibia
	15	67,77	Sudan
Tier 4	16	67,05	Côte d'Ivoire
	17	66,73	Sierra Leone
	18	66,66	Burundi
	19	66,45	Senegal
	20	65,02	Burkina Faso
Tier 5	21	64,09	Guinea
	22	63,83	Mali
	23	63,82	Gambia
	24	63,50	Malawi
	25	62,75	Swaziland
	26	62,71	Madagascar
	27	62,66	Angola
	28	62,51	Cape Verde
	29	62,42	Benin
	30	62,21	Togo
	31	61,57	Cameroon
Tier 6	32	61,12	Republic of the Congo
	33	59,86	Gabon
	34	59,66	Chad
	35	58,99	Zimbabwe
	36	58,98	Djibouti
	37	57,57	São Tomé and Príncipe
	38	54,62	Liberia
	39	53,47	C. African Republic
	40	52,87	Guinea-Bissau
	41	50,54	Eritrea
	49	26,63	Somalia
No enabling environment	42	43,08	Lesotho
	43	41,44	Mauritania
	44	40,70	Niger
	45	38,54	Dem. Rep. of the Congo
	46	31,88	Comoros
	47	31,40	Equatorial Guinea
	48	29,56	South Sudan

Countries such as South Africa, Rwanda, Botswana and Mauritius offer a very strong regulatory environment for infrastructure investment; although South Africa is the only that also offers a big market with precedents, financing ability and capacity.

Nigeria, Tanzania and Ethiopia equally offer an attractive environment for investors with a good regulatory framework combined with big economic opportunity. These countries lag behind what's seen in South Africa, for example, in government capacity, policies with a proven track record of good deals and macro-economic stability in Nigeria's case. Zambia, Ghana and Kenya find themselves in a similar situation but, in their case, lack clear procedures and an overall record of successful investments in the infrastructure sector.

On the other end of the spectrum, Comoros, Equatorial Guinea, Lesotho, Mauritania, Niger, South Sudan and the Democratic Republic of the Congo (DRC) currently lack the enabling regulatory framework for private power and transport infrastructure investment. However, the DRC still negotiates one-off deals using some sector ministries own guidelines, notably in the mining, power, and cement sectors.

These disparities are reflected in the number of PPP Projects in each country. Figure 20 depicts that metric between 1990 and 2015 in a map of the region:

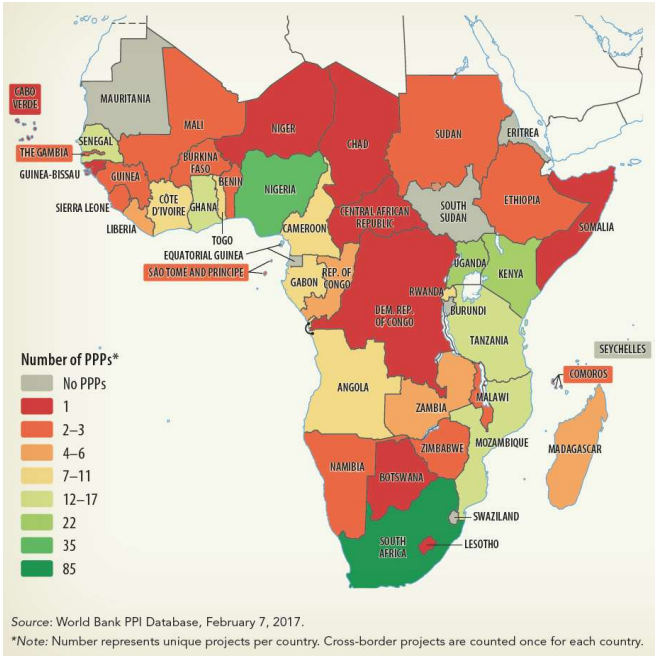


Figure 20 - Map of the Number of PPP Projects by Country (1990-2015) [20]

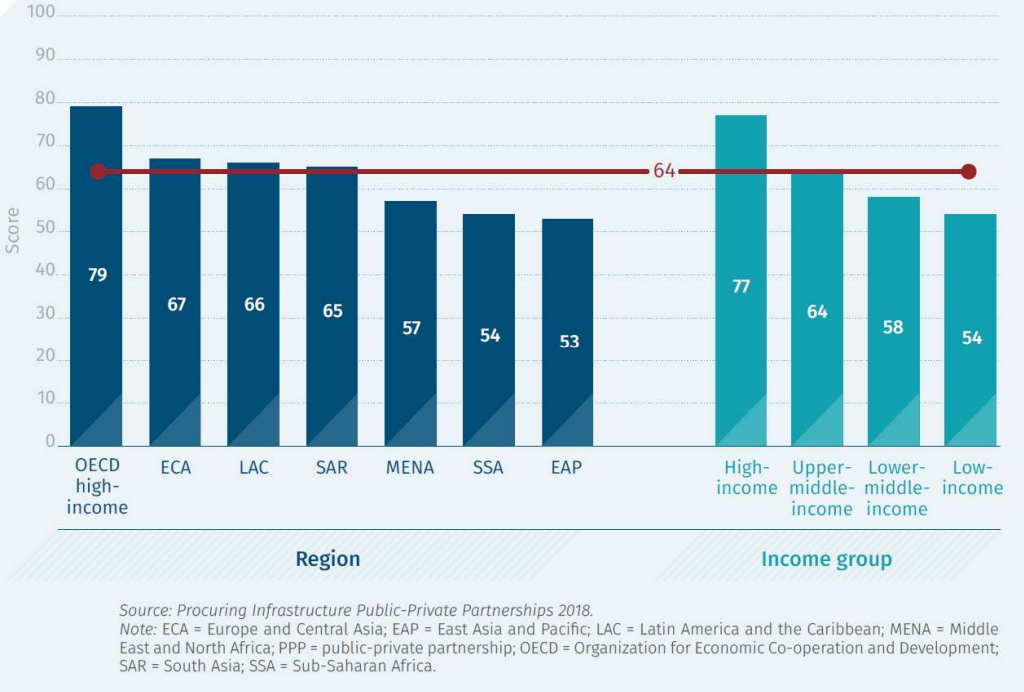
The SSA countries share, otherwise, common difficulties that are very region-specific, such as limited capabilities of the public sector, political uncertainty, shortage of people with relevant technical skills and financial complexities linked to currency risks and longer project durations. These common challenges are going to be further discussed in this chapter.

3.1 Public and Political Limitations

Both financial and human capacity of SSA countries' public sector are overall limited. This means that public institutions are usually unable or have limited capability to fund and/or develop projects and deals, as well as for enforcing legislation.

This means that investors must take a more proactive role and act as project developers, thus increasing their costs and the length of the project development phase. This is a very different approach from what can be seen in developed countries and other emergent markets, where the governments act as project developers and investors only integrate the project when it's ready for execution.

This is reflected in metrics such as the PPP procurement score, calculated by the World Bank Group in their "Procuring Infrastructure Public-Private Partnership" report (2018):



Source: Procuring Infrastructure Public-Private Partnerships 2018.
Note: ECA = Europe and Central Asia; EAP = East Asia and Pacific; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; PPP = public-private partnership; OECD = Organization for Economic Co-operation and Development; SAR = South Asia; SSA = Sub-Saharan Africa.

Figure 21 - PPP procurement, score by region and income group (score 1-100) [7]

The lengthy life cycle of the projects in the region demands a stable and continuous policy structure from the public sector, which is often undermined, or threatened by changes to government systems and changes of administration. This has unfortunately been the case for some of the infrastructure projects developed in the SSA region previously. In event that the project gets discontinued, Investors can limit risks, and minimize adverse implications by assuring buy-in clauses for their organizations in case of discontinuation of the project.

An active role is also needed to be played by investors in SSA for the development of legal agreements in face of regulatory limitations. These limitations are due to the very young age of the regulatory frameworks that allow private investments in the infrastructure sector. In other words, the framework is still being tested and integrated to the countries' legislations. The first projects in a country will deal with such limitations by developing the first agreements that will serve as templates for the future deals of that sector.

3.2 Technical Skill Shortages

Sub-Saharan Africa is affected by the limited pool of professionals with the right skills and abilities to develop projects in the very complex structure of project financing. This requires professionals in different areas of expertise and diverse skillsets to work together and collaborate, as well as combine their unique strengths in the benefit of the project (including engineers of many backgrounds, lawyers, financiers and construction workers). This problem increases with time due to the usual awarding of contracts to non-African companies, limiting the skill transfer.

This matter can be tackled, at least on the engineering side, through vocational education. This initiative might later generate a new technical training industry and a demographic of competent and skilled professionals.

The Africa Infrastructure Fellowship Program (AIFP) is a good example of a program of that nature. It is dedicated to building capacity in public sector infrastructure procurement and delivery among civil servants in Africa developed by Global Infrastructure Hub, Meridiam and the World Economic Forum.

The AIFP was officially launched in December 2018 and is built on a strong collaboration between governments, the private sector and international organizations in order to increase the continent's technical capacity and openness to business.

It is the first true infrastructure PPP program dedicated to training civil servants, providing practical training on the many aspects that revolve around complex procurement and delivery processes under PPPs in a four to six-months intensive program.

3.3 Financial complexity

Sub-Saharan African nations have (with exception of Nigeria and South Africa) narrow financial markets, fueled mostly by private savings. Tapping into these savings is much more complex than into pension funds and insurance resources, the usual pools for infrastructure investment in other regions of the world. On top of that, most commercial banks in the region lack the muscle and institutional experience to finance major infrastructure deals.

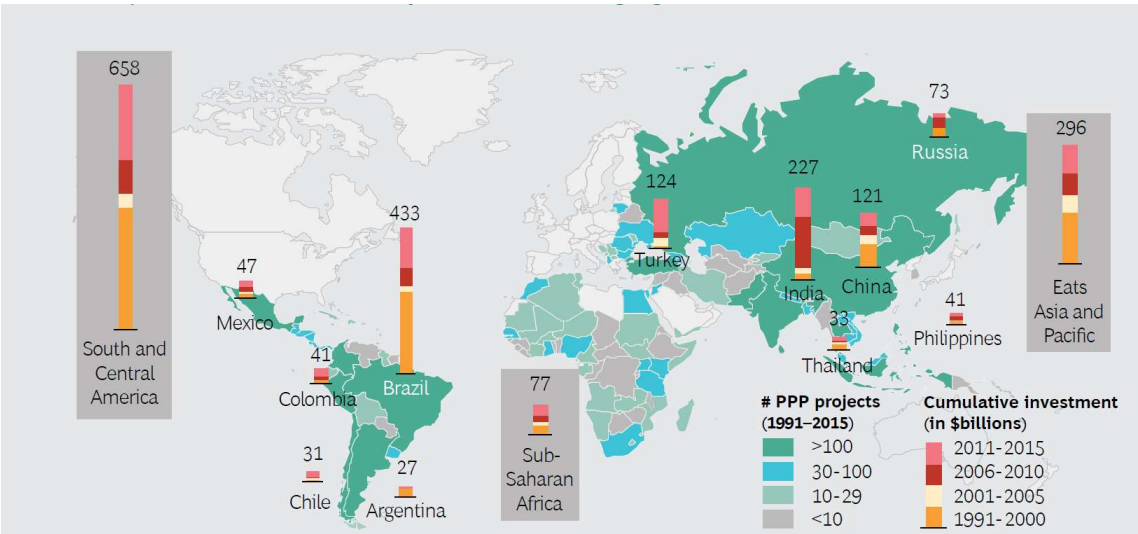
Besides the narrow markets the 40 currencies of the regions, mostly volatile, offer very high risk to investors, who will contract and provide services using foreign currencies while receiving their revenue in local currency, resulting in a big currency mismatch between costs and revenue.

The low current level of infrastructure development in SSA also limits the secondary infrastructure market. As a result, private investors are much likelier to be involved in greenfield projects, which are riskier and less profitable than brownfield or secondary investment. However, this scenario is expected to change with the maturing of the market and the increase of private investment.

All these risks, additional costs and efforts, as well as long time frames for the development of projects in the SSA region are ultimately translated in a higher expected internal rate of return (IRR) for the private investor.

3.4 Comparison with Other Emerging Markets – Case Studies

Among low and middle-income countries, Brazil, India, China and, more recently, Turkey have the greatest cumulative experience of public-private partnership projects and invested capital. (See Figure 22).



Note: Infrastructure efforts counted include electricity, transport, and ICT projects. Subcategories of projects include management and lease contracts, brownfield projects, greenfield projects (excluding merchant contracts) and divestiture.
Source: The World Bank and Public-Private Infrastructure Advisory Facility (PPIAF), Private Participation in Infrastructure Database, 2016, http://ppi.worldbank.org/index.aspx.

Figure 22 - Private Investment Experience in Emerging Economies [18]

Sub-Saharan Africa is still making its first steps in the area, with only USD 77 billion in PPP projects, compared to the USD 124 billion in Turkey alone, or USD 433 billion in Brazil alone. Here's how these countries achieved such a high volume of PPP projects.

3.4.1 Brazil

Brazil has reached more than USD 300 billion since 1995 in transport and electricity infrastructure, being the country that has received the most investment among emerging markets and developing economies (EMDEs).

The surge has origins in measures taken during the 1990s in Brazil. The Brazilian government began reducing public investment in infrastructure giving priority to privatization. In 1995, little after the establishment of the country's new and more stable currency, the Real, a framework for public service concessions was created, opening key sectors of infrastructure to private investment.

A big volume of projects followed due to an aggressive public corporate financing program (the national development bank, BNDES, and other federal banks, such as Banco do Brasil and Caixa Econômica Federal, used to provide up to 90% financing for concessions but have recently scaled back). The initial investments made in Brazil after the instauration of the policies allowing private investment in infrastructure were mostly concentrated in existing

infrastructure (brownfield projects). New projects (greenfield projects) accounted for less than 4 percent of the private investments made in electricity and transportation.

During the beginning of the 2000s, the patterns changed with the increased reliability and experience: the initial flow of brownfield projects got diminished while greenfield projects were on the rise, representing more than two-thirds of the projects. Since 2000, all three levels of government – federal, state and municipal – have had to comply with a fiscal responsibility law imposing spending limits and budget restrictions. As a result, they have since embraced concessions and, later, PPPs as instruments to develop costly infrastructure projects. In 2004, the federal government also passed a PPP law that applied to all levels of government, accelerating the growth of privately financed infrastructures.

3.4.2 Turkey

Turkey's history with private investment in infrastructure projects is a bit more recent than that of Brazil. The country usually received less than USD 1 billion per year in investments in infrastructure up to 2007, that amount exploded in 2008 and the following years.

In Turkey's case, the initiatives towards private investment started with the deregulating of the power sector and the launching of several large-scale privatization projects, some valued at more than USD 5 billion. These measures were followed by an umbrella law to govern public-private partnerships in 2007, which led to the creation of a dedicated PPP department within the Ministry of Development, the same that drafted the law. This made it easier for the government to execute PPP contracts across sectors and ministries, concentrating knowledge and facilitating coordination.

Those changes were followed by the experience and optimizations in the procedures, leading to the signing of more than 124 PPP contracts. This corresponded to USD 43 billion in investments between 2008 and 2013, about nine times greater than the historical values up to that point.

4 Tools and Best Practices for Investors in the SSA Region

Through the many measures to mitigate risks and guarantee investments in the African continent, the infrastructure projects become very much protected. This can be attested by the default rate for projects, which was the lowest among all continents in 2017 (2.7 percent), according to the 2017 Moody's report [12].

This means that once the project is secured (reaches financial closure), there's a very low chance of default. The main risk for investors in Africa is, therefore, the risk of non-deployment. Indeed, the amount of time and effort required to get African projects off the ground is widely acknowledged.

In this chapter, the main tools for risk mitigation and the best practices for the region will be further discussed.

4.1 Development Finance Institutions (DFIs) as Sources of Debt Financing

Debt accounted for 70 percent of the sources of financing for infrastructure investments in EMDEs in 2017, representing USD 43.4 billion. Most of the debt came from international providers, amounting to 78 percent of the total debt, while that metric was at 70 percent in 2016.

International sources usually offer lower interest rates than those charged by local markets for the EMDEs. This is an even more prominent characteristic in Development Finance Institutions (DFIs) debt, given that these financial institutions provide their services on a non-commercial basis.

DFIs include multilateral, bilateral and national development banks, microfinance institutions, community development financial institution and revolving loan funds. In the context of infrastructure PPIs in SSA, DFIs consist mainly of multilateral and bilateral development banks, given their international sources of funding and the sizing of the infrastructure projects.

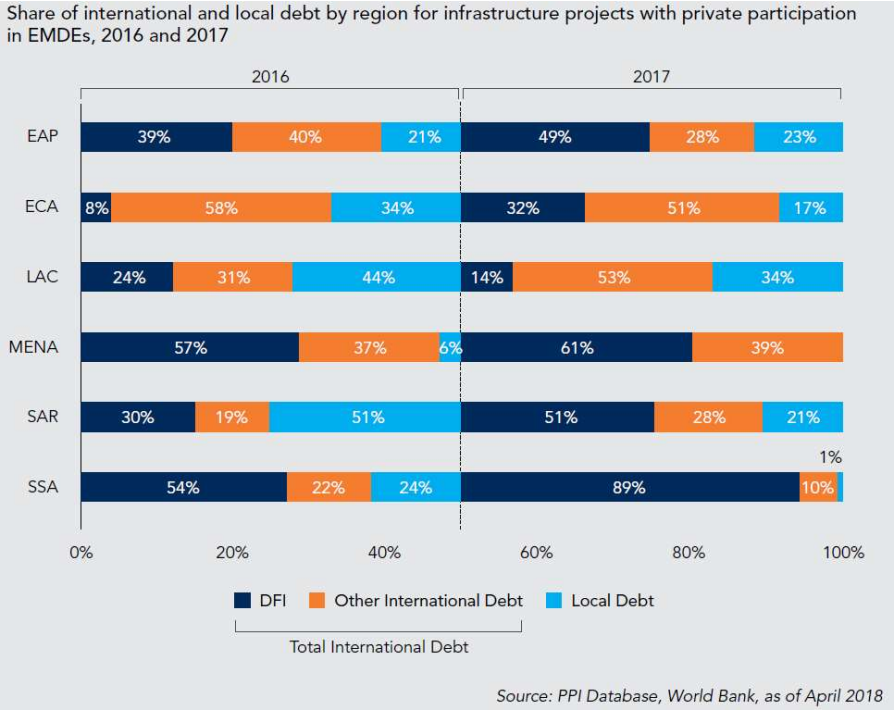


Figure 23 - Share of International and Local Debt by Region for Infrastructure PPIs [15]

DFIs played an instrumental role in financing projects in 2017, especially in SSA. 89 percent of the debt used to finance infrastructure projects with private participation in the region came from multilaterals and bilaterals, in line with previous years for the region.

The main DFIs present in SSA are the World Bank Group, the African Development Bank (AfDB), the CDC Group, the Emerging Africa Infrastructure Fund (EAIF), the New Development Bank, the Islamic Development Bank (IsDB) and other European DFIs, such as the European Bank for Reconstruction and Development (EBRD), AFD, EIB, etc.

4.2 DFI-submitted Guarantees

With so many additional risks coming from geopolitical and social issues, very frequently used products by both private investors and lenders alike are political risk insurance guarantees and credit enhancement. These products are most notably provided in the region by the World Bank Group's Multilateral Investment Guarantee Agency (MIGA), the Overseas Private Investment Corporation (OPIC) – an U.S. Government agency – and the Islamic Corporation for the Insurance of Investment and Export Credit (ICIEC), from the Islamic Development Bank Group.

More than just a guarantee or insurance, these agencies offer political aid for the private party to avoid the arising of such situations. These guarantees are very similar between them and offer the same products under slightly different names, here's the list of the five products, as presented by MIGA, the world's biggest player in the sector:

4.2.1 War, Terrorism and Civil Disturbance Guarantee

Provides protection against losses and damages caused by politically motivated acts of war, civil disturbance in the country and terrorism. The guarantees repay the investor for the expenses caused under these circumstances (i) to tangible assets, (ii) due to total business interruption or (iii) due to partial business interruption.

4.2.2 Non-Honoring of Financial Obligations

Protections against losses resulting from a failure of a sovereign, sub-sovereign or state-owned enterprise to honor unconditional payments when due. This guarantee is applicable without the need of arbitration in the absence of payment to allow the private investor to continue its operations while the issue is handled.

4.2.3 Expropriation

Provides protection against losses coming from government actions that may reduce or eliminate ownership, control over or rights to the insured investment. It not only applies to a direct nationalization and confiscation, but also to what's called a "creeping" expropriation – a series of acts that have an expropriatory effect over time. This tranche not only applies to tangible assets, but also to blocked funds, loans and guarantees.

4.2.4 Breach of Contract

The Breach of Contract coverage provides protection against losses linked to a government's breach or repudiation of a contract (for example, a concession or a power purchase agreement) with an investor. It is used to guarantee the private investors the award of what's due from the government in dispute resolution mechanisms under the underlying contract. It might be applied if there's interference from the government or if there's no payment of the award to the private investor as an advance of the amount due plus interests. In either case the compensation is capped by the amount of guarantee stated in the guarantee contract.

4.2.5 Currency Inconvertibility and Transfer Restriction

Protection against losses arising from an investor's inability to legally convert local currency into hard currency (Dollar, Euro or Yen) and/or to transfer hard currency outside the

host country where such a situation results from a government action or failure to act. In the event of a claim, the insurer pays compensation in the hard currency specified in the contract of guarantee.

4.3 Hedging instruments

4.3.1 Offtaker risk

Other than the contracting of insurances that cover political risks, two options are available to mitigate even further the impacts of a default of the offtaker.

4.3.1.1 Partial Loan Guarantees

These guarantees are usually issued by multilaterals, who assume part of the risk of default that would fall on a local financial institution. These guarantees therefore foment the insertion of new funding streams from commercial lenders that would otherwise enter the project with impossibly high interest rates and demands.

Partial loan guarantees are not infallible and usually require the government to reimburse the DFI in case the sponsors of the project are unable to meet their end of the financing agreement and default debt payment. This means that these guarantees rely on the solvency of the government and are, therefore, not applicable to every market in SSA.

4.3.1.2 Sovereign Guarantees

Very common guarantees when investing in the region. Sovereign guarantees are offered by governments to cover the risk of payment if the offtaker of the project is defaulting (for PPAs that is the utility provider, in PPPs the government branch or state-owned company that is responsible for the payments to the concessionaire).

These guarantees, however, don't prevent payments being delayed, thus a project will still feel some impact of the default of the offtaker.

4.3.2 Currency risk

4.3.2.1 Payments made in hard currencies

The simplest solution to avoid the inherent risk of developing countries' currencies, which are prone to face big fluctuations arising from political and economic crises, is to ensure that the payment mechanism won't be based in the local currency, but in hard currencies. However, many governments refuse to make payments in foreign currencies.

4.3.2.2 Currency risk hedging instruments

A common solution to mitigate currency risk is to include derivatives for hedging, such as currency swaps, agreed with a third-party financial institution that offers that service.

Currency swaps work based on notional amounts in the two currencies to be swapped. A party will hand the other a fixed amount of the agreed currency on the trade date, the same fixed amounts shall be swapped back on the maturity date of the agreement. During the swap period, the parties periodically pay each other interest on the currency received (which can be set at a fixed rate, a floating rate or a mix of the two on the agreement).

Because the swapped amounts are fixed during the life of the transaction, an investor is protected against currency devaluations and will only need to pay the interest rates on the other currency.

As its name suggests, derivatives for hedging come in many forms, working as derivatives in capital markets, for example. Currency swap agreements have a vast number of variations, the most notable being the possibility for the owner of the option to use it before the expiry date or not. Including that possibility raises the costs for the option owner with additional premiums.

Despite being a strong weapon to mitigate currency risk, currency swaps and hedging derivatives in general are expensive. A research made by the Stanford Precourt Institute for Energy [16] found that the use of currency swap for PPA agreements in India totaled costs around 7% of the swapped amount per year in premiums and interest rates.

4.4 Subsidies

In order to attract investment to a given sector of infrastructure/power generation, governments might offer subsidies. Subsidies are benefits that often come in cash form in order to help finance and, in many cases, make it possible for a project in a disruptive sector to be bankable.

Despite being very popular in the turn of the century, subsidies for renewable energy in Europe are starting to be phased out with the maturing of the sector's technologies. In Sub-Saharan Africa, government-issued subsidies are less frequent than those issued in Europe due to the limited solvency and capital capacity of the governments in the region.

Subsidies may be distinguished between:

- Direct subsidies: consists in a direct payment of funds toward the investor (in the infrastructure sector, they're usually transferred during the construction phase of the project to finance its initial investment and might be repayable with a low interest rate or not);

- Indirect subsidies: come as a reduction of costs in raw material and/or required goods by the project in order to operate or as an increase in the tariff paid to the concessionaire or IPP for a certain product/service (such as energy produced for strategic sources).

4.5 Innovative financial products for infrastructure

In its African Economic Outlook (2019) [1], the AfDB lists new financing products that are being/can be designed by the countries of the continent to attract new infrastructure investment.

4.5.1 Project puttable bonds

Implementing puttable bonds would attract both institutional investors and sovereign funds for PPPs in SSA. Due to the long-term nature of bonds, they'd be applied to greenfield projects and the financing coming from those funds would not be susceptible to refinancing risk.

To make these bonds even more attractive and facilitate long-term finance, DFIs could provide a put option after the construction period, receiving a guarantee premium. The DFI would, therefore, take the construction and ramp-up period risk, facilitating financing, which could also be complemented by commercial loans after the beginning of operations.

Even with all that financial engineering, the structure offered by these bonds will only be bankable if they're investment graded and DFIs would only take such risks on projects that are economically sound and fit well in the DFI's strategy.

4.5.2 Debenture structure

This solution would be for a DFI to provide short-term, flexible loans for governments to buy debentures or convertible bonds to finance the initial phases of a project. Those

debentures or convertible bonds would be issued by the SPV that's managing the construction and financing the initial phase of the project.

After the construction phase and out of construction risk, the government would sell the debentures in the market and use the proceedings to pay the DFI that has provided the short-term loan. The government could also benefit from any upside in the projects, if bonds are convertible.

This solution has many advantages:

- Minimizing overall financing costs by reducing the private party costs in the initial phase (the most critical to private sector), therefore reducing their need for higher tariffs/revenue from the government during the operation phase to compensate for the initial investment;

- Maximizing the private involvement because of the convertibility of the bonds. In the bottom line of the transaction, the financing would come entirely from the private sector once the market has bought the convertible bonds. More private involvement translates into more incentives for efficiency in operations;

- Supporting the development of the capital market of the host country via the selling of the debentures;

- Minimizes the use of DFI capital due to the short term of the loan to finance the debentures, which would of about the duration of the construction phase (2-4 years) against the normal project loans, which are usually of 15 or more years.

4.5.3 Output-based long-term PPP agreements

Consists of the incorporation of output-based arrangements in the form of output-based aid (OBA). OBA is a financing strategy applied when there's a need in a project to receive public funding to complement end-user fees. By incorporating these instruments, the payment to the SPV will only be made once a preagreed (under the PPP/concession/PPA agreement) output has been reached.

Under this model, a subsidy fund could be financed by a neutral third party, such as an International Financial Institution, in which the OBA will be deposited. Withdrawals from that

fund by the SPV would occur once the outputs have been reached, incentivizing the project company to reach those goals as early as possible.

The Incentive is not the only advantage of this scheme. Having outputs such as paying a specific bill to recover its amount in the subsidy fund reduces the burden of the developer to recover all its costs through the end-user tariffs, which have a timing mismatch. Part of the return on the investment could also come from the subsidy fund.

Applying this strategy, the developer can demand lower tariffs to reach its goals while relying more on the subsidy fund. Bonuses and onuses can also be implemented with parallel goals, such as reducing unbilled water or energy losses during transmission.

Finally, this model increases the transparency of the developer to lenders, end-users and public authority.

The OBA concession model should be used where developers cannot set tariffs to achieve full cost recovery for political or social reasons and where the political and regulatory risks do not threaten the project and can be comfortably managed. An independent verification agent ensures that the predefined output has been achieved, to provide certainty of revenue to the developer and thus enhance the bankability of the scheme overall, and to avoid disputes between the grantor and developer. Even so, it may be necessary to allow for provisions for contract adaptations and renegotiations to take into account unforeseen changes to the initial assumptions underpinning the PPP agreement, including tariff indexations and periodic and emergency reviews. [1]

4.6 Best Practices

4.6.1 An integrated project life-cycle approach

Given the complexity and particularities in SSA, which demands an integrated approach from the investors (from proactively developing the project to preparing talks and negotiating with the government, closing the financing with the lenders and finally supervising and controlling the execution), sponsors must have a deep understanding of the dynamics of the local environment of the country in which they're implementing their project.

There must be persistence and resilience from the sponsors, especially during the development phase. The profile of the investors in SSA must be one of pioneering, of starting

from scratch and setting the environment for the next opportunities. They must also be willing to go on site, to follow engineering details and to be ready for unforeseen difficulties, tackling them with an entrepreneur approach.

4.6.2 Prioritizing community engagement

Though being an important subject in any geography, community engagement plays an even bigger role in the SSA region. That is due to the need to address the gaps in the political capacity of the local governments. This means that investors must engage the community early on the development of the project, preparing marketing campaigns, having a locally influential promoter, researching and preparing Q&A sessions with the local communities and emphasizing the public benefits that the projects will bring.

4.6.3 Best practices for project development

Being the riskier phase for sponsors, aggravated by their lengthy nature in SSA, the development stage must be addressed very carefully in the region:

4.6.3.1 Accommodating schedule overruns

Flexibility in the timing is key in SSA. During the preparation of contracts and agreements, the sponsors should bear in mind the likely shifts in the project schedule and draft timetables and penalties with "time contingencies" so the project doesn't become unviable.

4.6.3.2 Finding support in the government

Having a senior representative in the government who's willing to defend and champion the project can be a decisive factor in the initial phases of development by accelerating the first exchanges and helping orientate the team through the public procedures.

4.6.3.3 Sharing development costs

When starting a project from scratch, as it's usually the case in SSA, sponsors will need to address many costly studies and assessments (e.g. prefeasibility and feasibility studies, environmental and social impact assessment, tax and accounting studies, lawyer support, etc.). Preparing collaborative financing structures during this phase mitigates the risk and reduce the needed margins/tariffs to compensate the initial investment and that's the edge of negotiation with public authorities and local leaders to engage in early co-funding/subsidies.

4.6.3.4 Teaming up with partners with diverse competences

Not only does a diverse team allow dividing technical tasks (feasibility studies and environmental and social assessment for example) but having each one playing a

complementary political/financing role during the development phase might be decisive for the timing and duration of this stage.

The team should include skilled professionals with technical expertise in specific fields as well as finance and investment experts. Diverse, technically competent teams bring the contacts and localized technical knowledge that are crucial in Africa, particularly in navigating the public sector.

4.6.3.5 Clear communication, precise documentation and balanced deals

Investors should avoid drafting agreements for too long and adding too many risk mitigating stipulations. The early stage in which SSA is regarding private investments requires clear communication and compromising. Adding too many protective clauses has proven to be a counterproductive measure in some of the past deals in the region (case studies 5 and 9 of the BCG-AFC report), leading to delays or to a feeling that the investors are asking for too much.

4.6.3.6 Secure financial closure within one political administration

The moment to start a project might need to be timed with the political lifecycle of the country, depending on the government's structure and political robustness, so that the sponsors can eliminate the risks associated with changes of government during development phase. This way there will be no surprises in the political will or capacity while the project is not yet secured.

5 Putting the Theory into Practice: Kinguele Aval Dam, Gabon

The Kinguele Aval Dam, one of the first HPPs to be developed in Gabon by IPPs, along with Ngoulmendjim and Dibwangui, offers an example of how to play a pioneering role when developing infrastructure projects in SSA. It is also a very complete project in development tools employed to de-risk the transaction and is an example regarding best practices employed in the region, especially considering its ESG studies and assessments, which will be further discussed in a separate case study.

Gabon is very rich in natural resources (i.e. minerals, oil, natural gas), but its economy is still heavily oil dependent, causing frequent economic crises following decreases in the oil price. In that context, the Government of Gabon (GoG) has proposed in 2009, in the context of GoG's commitments in the COP 21, the Plan Stratégique Gabon Emergent (PSGE), which focuses on diversifying the country's economy by fostering investments in energy, mining, wood and agribusiness sectors.

In the energy sector, most of the country's generation comes from natural gas and gasoil power plants (around 54%, being hydropower responsible for the other 46% of the generation).

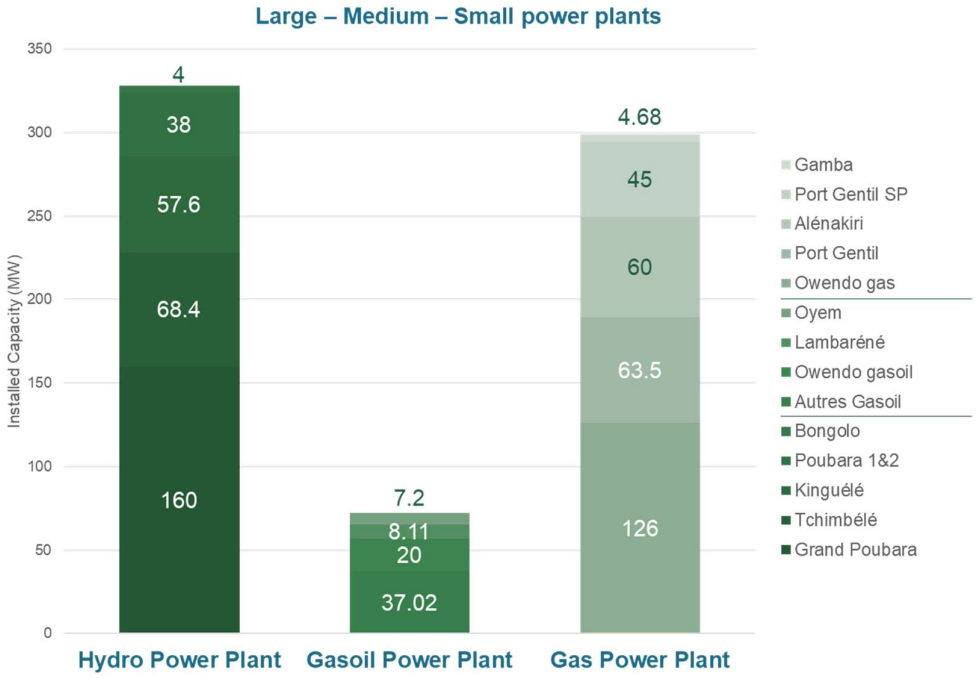


Figure 24 - Breakdown of Gabon's Energy Production by Source

With the PSGE, Gabon endeavors to restructure its energy supply strategy by making hydro power the principal mean of energy, with the objective to reach 80% total national installed capacity from hydro by 2025. The plan also aims at increasing installed capacity by 1,280 MW to respond to the increase in demand by fostering private sector participation via IPPs and to reach an electrification rate of 100% as well as the integration of the 4 inter-independent regional electricity networks. It is not an unreasonable or extreme plan, the country offers a 6,000 MW hydropower potential, according to the USA's energy information administration (EIA), while today's total HPP installed capacity amounts to only 350 MW.

In that context, the GoG has created the Fonds Gabonais d'Investissements Stratégiques (FGIS) in 2012 to help develop new industry sectors along with private investors.

In 2015, Meridiam and FGIS entered into a bilateral strategic partnership under which both companies agreed to share eligible investment opportunities to be developed jointly in Gabon and other African countries of common interest. Kinguele Aval Dam is the first fruit of this relationship.

Two technical feasibility studies conducted by EDF in 1992 and 2005 confirmed the hydro potential of the site. In 2017, because of the still unexplored potential, Meridiam and FGIS mandated EDF to conduct advanced feasibility studies, which provided a reliable design for construction.

The consortium composed by Meridiam and FGIS signed in March 2017 a development agreement with the State of Gabon to increase the energy production capacity in the Mbei valley, which already has 126 MW of hydro installed, and created a dedicated SPV for the project, Asonha.

A 34-year concession agreement (allowing up to 46 months of construction) was signed with the Ministry of Economy, the Ministry of Budget and the Ministry of Water and Energy in October 2018.

The Project consists in the design, build, finance, operation and maintenance of a 34 MW run-of-the-river hydropower plant. The energy produced will be procured by the state through a 30-year Power Purchase Agreement (PPA). Its scope includes the construction of a gravity concrete weir, a power plant, a stilling basin and a substation. The power plant will be connected to an existing transmission line (225 kV) located less than 200 m away.

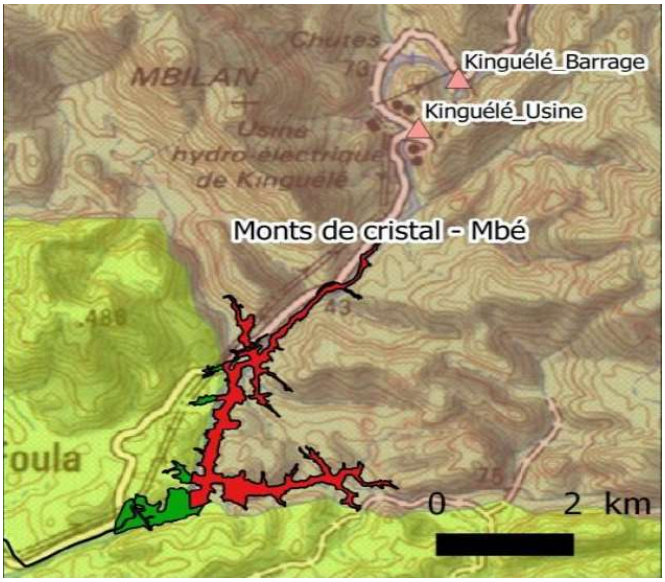


Figure 25 - Kinguele Aval Project Overview

5.1 Scope

The Kinguele Aval Hydropower Project will be located on the Mbei River, 100 km East from Libreville, downstream of the existing Kinguélé and Tchimbele hydropower plants, which have a combined capacity of 126 MW.

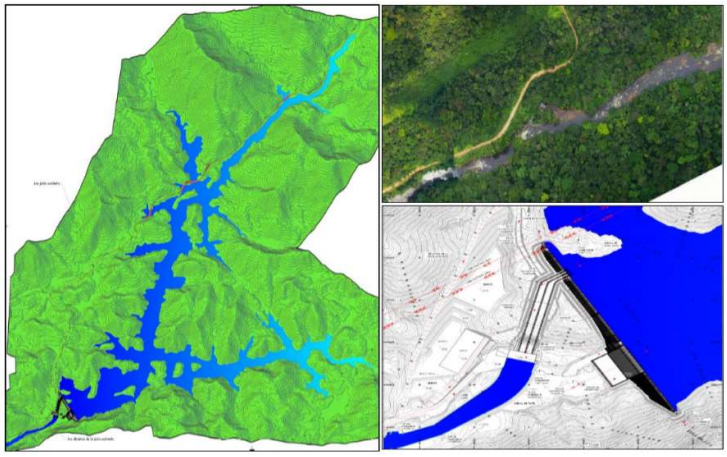


Figure 26 - Kinguele Aval Dam Master Plan

The construction scope includes civil works, a Roller Compacted Concrete (RCC) weir building and a power plant. The weir includes a concrete piano key weir (PKWeir) spill way, designed to evacuate the maximum discharge during floods. Additionally, the PKWeir (i)

allows for a self water regulation, (ii) reduces significantly maintenance costs and (iii) improves safety.

The Project also comprises the construction of a substation and a 200 m transmission line. These two facilities are developed on built-and-transfer basis and will be operated and maintained by the off taker.

The weir will create a reservoir of 2.67 km² (this includes an impact on 0.3% of the Monts de Cristal Park, a nearby national park. This impact is further assessed in the ESG section). Water will go through a downstream power plant comprising two to four turbines, depending on the retained EPC offer. The energy will be delivered to Libreville through the existing transmission line (225 kV) connecting Kinguele and Tchimbele to Bissegue in a lead-through scheme ("*Coup d'artère*"):

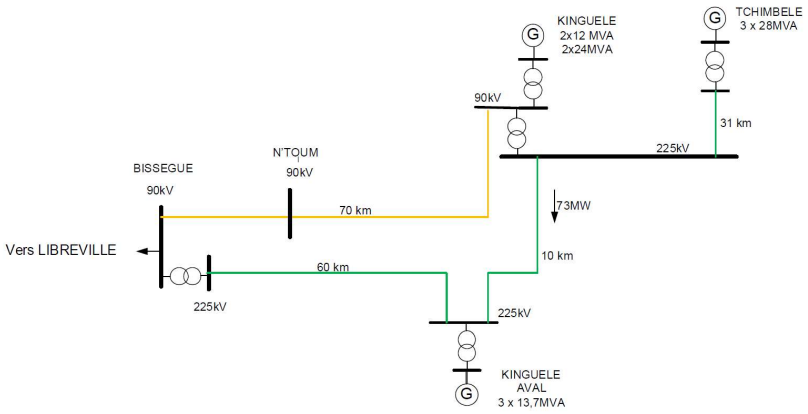


Figure 27 - Scheme of the Electrical Connection Envisaged for Kinguele Aval

Network studies conducted by EDF-CIST in 2013 showed that the 225-kV line is very lightly charged. Due to the current lack of spinning reserve to compensate for voltage fluctuations and primary voltage/frequency control, adding extra power in the connection to Libreville will also help improve network stability and maintain voltage in the line.

The current peak margin of the line is of 73 MW according to EDF, adding the maximum capacity of Kinguele Aval, the total charge on the line will still be far from the maximum supported by it.

5.2 Energy Sector's Stakeholders

5.2.1 Ministry of Water and Energy (MEE)

The energy sector in Gabon is jointly controlled by the Ministry of Water and Energy (MEE) and the Ministry of Economy (MECO). In fact, the MEE monitors electricity demand and defines responsive supply plans that often sway between renting generators and increasing production capacity with micro to medium size fuel or gas thermal power plants.

Other projects beside Kinguele Aval are being developed with an increased participation of the private sector via IPPs (Independent Power Producers), which includes, other than Kinguele Aval:

- Ngoulmendjim, 73 MW hydro on the Komo river, PPA signed in October 2018;
- Dibwangui, 15 MW waterside hydro on the Louesti river, PPA signed in October 2018.

Along with the IPPs, other public-funded projects are underway: Fe II (35 MW), Impératrice (84 MW), Grand Poubara 2 (70 MW) and Diangui 1 & 2 (30 MW).

5.2.2 Ministry of Economy (MECO)

The MECO is the financial authority controlling the sector. It defines the tariffs, the payment mechanisms, the tariff revision mechanisms, the fiscal regime and guarantees and approval of project costs. When contracts involve considerable financial obligations for the Gabonese Government, the MECO is supplemented by the Ministry of Budget, which approves and includes the obligation in the financial law.

5.2.3 Société d'Energie et d'Eau du Gabon (SEEG)

Since 1950, the Société d'Energie et d'Eau du Gabon (SEEG) has been Gabon's sole utility provider. Until recently, it was 51% owned by Veolia (a French utility company) and it is now undergoing a 1-year transition period for dispute settlement and selection of a new international private shareholder. SEEG operates and maintains 5,123 km of transmission lines and more than 45 power plants including micro, small and medium power plants (6 hydro, 4 gas and 37 fuel plants). Altogether they account for 64% of Gabon's total installed capacity (i.e. 462 MW).

5.2.4 Société de Patrimoine and Agence de Régulation du Secteur de l'Eau Potable et de l'Energie (ARSEE)

The remaining 36% installed capacity are managed by the Société de Patrimoine, a company created by the MEE to manage all state-owned power plants not under the SEEG concessions. In the long run, the Société de Patrimoine shall control more of the energy sector by managing on State's behalf all new power plants and overtaking others currently controlled by SEEG.

The MEE's regulatory branch, on the other hand, is embodied by the Agence de Régulation du Secteur de l'Eau Potable et de l'Energie (ARSEE). Its scope includes auditing concessions and providing operating licenses.

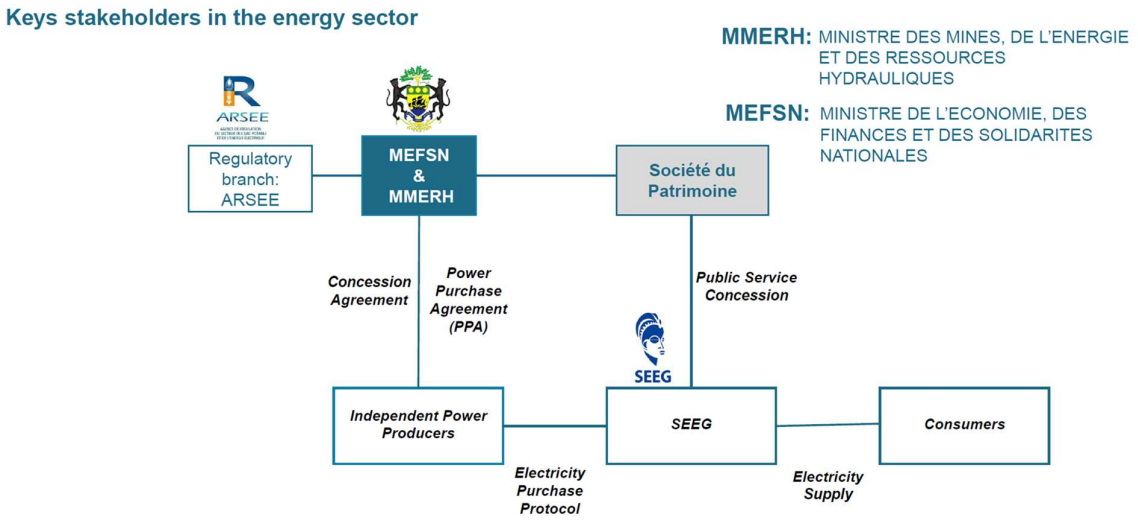


Figure 28 - Sector organization

5.3 Procurement and Grantor

This Project is procured through an unsolicited bid process secured by a MoU signed in March 2017 with the State of Gabon (represented by the Ministry of Water and Energy, the Ministry of Economy, Prospective and Sustainable Development Programming and the Ministry of Budget and Public Accounts, together "GoG" or the "Grantor") in anticipation of a concession agreement, provided that all necessary economic and technical feasibility studies carried out by Sponsors were satisfactory. The said feasibility studies proved to be satisfactory and the parties agreed to move forward and sign the concession agreement in conjunction with a PPA in Q4 2018, though the latter was delayed and is expected to be signed in Q3 2019.

5.4 Project Timeline

The Project development timeline follows the displayed in the following table:

Table 3 - Kinguele Aval Dam Project Timeline

Main milestones	Date	Status
Pre-Feasibility studies (incl. technical and E&S studies)	May 17 – Apr 19	All completed
Concession Agreement	Oct 18	Signed
Power Purchase Agreement	Q3 2019	Contract drafted and under discussion
EPC tender process	Jan 18 – Q3 19	BAFO (Best and Final Offer) phase
Lenders due diligences	Jul 19 – Sep 19	Initiated
Financial Close	Q4 2019	Pending
Construction Start	Q1 2020	Pending
Operation Start	Q1 2023	Pending

5.5 ESG

The project is developed next to the Mont de Cristal National Park, a national park established on September 4th, 2002, known for its exceptional biodiversity, and one of Gabon's touristic hot spots. An Environmental and Social Impact Assessment (in line with IFC performance standards) was carried out by Artelia (along with Biotope and EDF) and includes a year of in-situ investigation covering all seasons. The ESIA report confirmed the absence of any population to resettle; yet due to the sensitive biodiversity the project risk profile is assessed as high. Therefore, Sponsors have prepared a set of detailed actions plan including a Biodiversity Action Plan which involves all key stakeholders (SPV, GoG, subcontractors and local authorities).

A high-risk profile, as per IFC performance standards, does not impede the project development; however, the lack of proper compensation measure could be a hindrance to the Project's financial close.

The ESG studies and the ESIA findings are further assessed in the separate case study in the next chapter.

Figure 29 - Fauna, Flora and public consultation

5.6 Consortium Members and Contractual Structure

The Consortium comprises Meridiam (60%) and the Fonds Gabonais d'Investissements Stratégiques (FGIS) (40%) through its energy assets branch, Gabon Power Company (GPC).

Each Party contributes in the following manner:

- **FGIS:** co-develops the Project, provides equity environment knowledge, access to public authorities and communicate in an intelligible manner Grantor's interests.

- **Meridiam:** co-develops the Project, provides equity and expertise in structuring contracts and project financing.

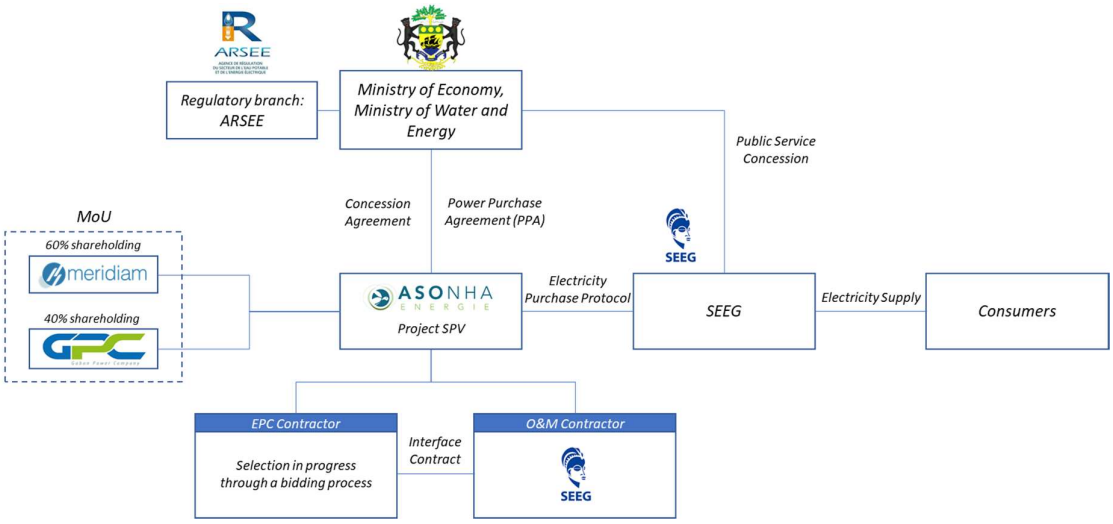


Figure 30 - Contractual Structure for Kinguele Aval Dam

The Engineering, Procurement and Construction (EPC) contractor will be selected following the on-going international tender process. Some technical specifications (i.e. discharge design, planning, capacity and number of turbines) will be proposed by the EPC contractor provided that they respect the minimum requirement stated in the Request for Proposal (RFP).

Operation and Maintenance (O&M) activities will be performed by the Société d'Energie et d'Eau du Gabon (SEEG), Gabon's main utility provider, and supervised by EDF through a Technical Service Agreement (TSA).

5.7 Risk Assessment and Strategies Applied

5.7.1 Construction Risk

Usual construction risks (incl. cost overrun, delay, etc.) are expected in this transaction. The Project design is quite straightforward (over ground facilities, existing access road and transmission line, run-of-the-river type power plant, etc.) and related risks are medium to low due to the limited capacity of the power plant.

5.7.1.1 Mitigations and employed development tools

Construction risk will be mainly addressed by employing an Engineering, Procurement and Construction (EPC) contract. This kind of contract, unlike regular construction contracts, makes the contractor responsible for all the activities up to and including the handover of the project to the end-user (design, procurement, construction, commissioning and handover).

This type of contract demands the contractor to execute and deliver the project within an agreed time and budget (lump sum turnkey contract), therefore the construction risk is passed from the SPV to the contractor. The EPC contract will also be made on a back-to-back basis, meaning that the penalties and payment delays listed on the EPC contract are going to "mirror" those applied to the concessionaire (the SPV) under the PPA agreement, transferring the penalties directly to the contractor (a zero sum operation for the SPV).

In addition to the form of contract, these risks will also be mitigated through the EPC tender process (winning bid selection scheduled for Q3 2019), which allows sponsors to select the best technical offer. The contractor's obligations will also be backed by a robust security package including a 100% liability cap, 10-year guarantee, completion guarantee, highly liquid construction guarantee to convert liquidated damages, delays, capacity defects, etc. (approximately 30% of EPC) and advance payment guarantee.

Regarding permitting, the main risk is borne by the Grantor in accordance with the concession agreement and residual risks are passed onto the EPC provider. Contractor's management risks will be mitigated through (i) EPC selection criteria, (ii) appointment of an Owner's Engineer, (iii) an expert panel and (iv) the involvement of both an LTA and independent engineer.

5.7.2 Operating Risks

There is no major operating risk anticipated in this transaction. The hydrological risks being borne by the Grantor, only performance risks remain on SPV side. Performance risks and overcosts will be linked to the technology proposed by the selected EPC contractor and to the handover.

5.7.2.1 Mitigations and employed development tools

As per the back-to-back principle, all performance risk will be passed on to the O&M contractor. The O&M contract will also include adequate security package including but not limited to performance bonds (a surety bond issued by an insurance company or a bank to guarantee satisfactory completion of a project by a contractor).

The SPV will be assisted by EDF (through a technical service agreement) to oversee O&M activities. O&M and life cycle costs will be reviewed prior to financial close to take into account the technology proposed by the selected EPC provider.

An interface agreement will also be set in place between the EPC provider and O&M to ensure a satisfactory handing over.

5.7.3 Demand and Revenue Risk

With relentless demand for energy and little investment in the energy sector, Gabon lacks capacity to adequately respond the national demand. For instance, SEEG produced, 1,557 GWh in 2016 for c. 192,000 users, while in the previous year, it produced 1,471 GWh for 178,000 users. This suggest an annual increase of 8% subscribers against 6% for energy production. Demand is clearly growing at a faster pace than energy production and that's reflected on the national strategy plan, which specifically includes an increase in power capacity of 1,280 MW (of which 80% are to be generated by HPPs).

The project targets to provide additional capacity to alleviate the energy stress and a viable solution to replace polluting energy, falling precisely on the national strategy plan and having low to no demand risk.

Revenue risk might arise from delayed payments on the public authority side and from FX risks. Though Central African CFA franc (XAF) is pegged to the Euro (the conversion rate is maintained fixed), there's a currency availability risk.

5.7.3.1 Mitigations and employed development tools

The PPA set with the Government of Gabon will be on a take-or-pay basis, in which an agreed amount of energy is to be produced each period under the contract and, whether the utility provider or the public authority has the demand for the agreed amount or not, they should pay for it, given the seller has produced and left it available. The demand risk is, therefore, almost nullified.

Though the PPA will be signed with the Government of Gabon, monthly payments will be made by SEEG who collects payments from end-users. This mechanism ensure fluency for payment and allow for additional security like escrow accounts or dedicated accounts with irrevocable payment instructions. Government of Gabon remains fully committed to make any outstanding payment (monthly payments, penalties or termination payments).

In addition, SEEG payments will be backed by a first demand guarantee to cover 6 months of revenue. The PPA will include indexation and protections mechanism against FX

risks. Meridiam will also take a political risk insurance (i.e. MIGA) to insure both the concession agreement and the PPA against breach of contract and currency availability risk.

5.7.4 Public Limitation and Political Risk

Kinguele Aval is one of the first IPPs developed in the energy sector in Gabon. Though the current administration is actively fostering private investment in the sector and, therefore, there's strong political will to pursue the project, risks may arise from the public limitation (low experience with the private sector and untested institutional frameworks) and political changes (i.e. change of administration).

Indeed, changes in political will have affected the timing of the project. Between the end of 2018 and April 2019, Gabon's president, Ali Bongo Ondimba, has fallen ill (cause yet undisclosed) and had to undergo medical procedures outside of the country. The concession agreement was signed by all concerned ministers of the administration except for the minister of economy, who decided to sign the agreement once the president was recovered. By the time Ondimba recovered from his condition, a change of administration took place in April 2019. The new minister has added new revisions to the proposition, extending the delay for the signature of the contract, thus affecting the timing of the project.

5.7.4.1 Mitigations and employed development tools

The consortium includes FGIS, a sovereign wealth fund that holds good political influence given its context in the national strategic development plan (PSGE).

DFI financing is sought for the project. Many DFIs have shown interest in the project and on-site advanced due diligence is taking place from July 8th to July 11th, 2019. Interested DFIs include IFC, AfDB and DBSA. MIGA is also going to participate in the due diligence in order to assess the project for the budgeting of the political insurance.

The sponsors have adopted many of the best practices listed on this document:

- An integrated project lifecycle approach: Meridiam and FGIS have been developing the project since 2015, totaling a 4-year development phase so far. During this time, technical, environmental, social and contractual aspects of the project were all developed from scratch and include a 30-year long vision for the project, which has shown to be an coordination and integration factor within the sponsors and advisors, as well as a lever with the public authority.

- Prioritizing community engagement: The project includes an exceptionally thorough ESG study and Environmental and Social Impact Assessment (ESIA). Many social and environmental mitigations have been included in the action plan. Further information on these measures and assessments are presented in the separate case study for the ESG studies and ESIA for Kinguele Aval.

- Finding support in the government: Having a hybrid player in the consortium (FGIS) has proved to be an important asset, not only in navigating public procedures and the bureaucracy in general but also in the discussions with the public authority, by easing them and anticipating new meetings.

- Clear communication, precise documentation and balanced deals: During the development of the project, the consortium has kept an open doors communication channel. There have been presentations of the financial aspects of the project, of the tariff estimation, of the maintenance of reserve accounts, etc. to the public authority so that there's clear communication and a cooperative environment between the two parties. All those communications and presentations have been eased in with the help of FGIS.

5.7.5 Overall risk allocation table

Employing all the measures described in this subchapter, the allocation of risks can be resumed on Table 4:

Table 4 - Risk Allocation Table for Kinguele Aval Dam

Risks	Grantor	SPV	EPC	O&M
▪ Project Development	**PR**	**PM***		
▪ Financing		**T**		
▪ Environmental and Social	PR	**PM***	PR	PR
▪ Permitting	**PM***	PR		
▪ Construction (Budget & Time)			**T**	
▪ Operation and Maintenance				**T**
▪ Hydrologic Risk	**PM***	PR		
▪ Revenues (Take-or-Pay)	**T**			
▪ FX Risks	**PM***	PR		
▪ Political Risks	**T**			
▪ Force Majeure Risks	**PM**	PR		
▪ Archeological Risks	**T**			
▪ Inflation	PR	**PM***		
▪ Ground			**T**	

6 Case Study: ESG Studies and ESIA for Kinguele Aval Dam

As a showcase of the development measures that must be proactively taken by infrastructure project sponsors in SSA, this chapter will explore the studies and measures that were taken in order to have the environmental plan for Kinguele Aval approved by the Government of Gabon by following IFC standards and the Gabonese law.

6.1 IFC Performance Standards on Environmental and Social Sustainability

Because of its non-commercial nature, funding coming from DFIs integrate criteria other than commercial ones to be approved. In order to receive financing from such institutions, a project should meet these criteria, which are linked to sustainable development in emerging markets.

IFC's Sustainability Framework, which includes policies, procedures and performance standards, is widely adopted as market standards by both the private and public sectors for projects all around the world. These policies help most notably emerging markets raise their ESG standards. Other DFIs have developed their own policies for investment in infrastructure but these policies mostly follow the lead of IFC's.

The Sustainability Framework's Performance Standards are divided in eight categories, which establish standards that the sponsors of a project are to meet throughout the life of an investment by IFC:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts.
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

- Performance Standard 7: Indigenous Peoples

- Performance Standard 8: Cultural Heritage

The Performance Standard 1 establishes the importance of (i) integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project.

Performance Standards 2 through 8 establish objectives and requirements to avoid, minimize, and where residual impacts remain, to compensate/offset for risks and impacts to workers, Affected Communities, and the environment. While all relevant environmental and social risks and potential impacts should be considered as part of the assessment, Performance Standards 2 through 8 describe potential environmental and social risks and impacts that require particular attention. [8]

6.2 Kinguele Aval Dam ESIA

It is usually the role of a project authority such as an asset owner or government agency to produce an ESIA before delivery partners are appointed. But, as pointed out in this document, private investors must lead the way in promoting and developing a project due to the lack of experience and capacity of the local governments in the SSA region. It is, therefore, Meridiam, as a principal investor and in partnership with the Gabonese sovereign fund FGIS, that has conducted the ESIA.

Because the project of Kinguele Aval is going to be developed next to a national park, the ESG studies and the ESIA developed were very thorough. Meridiam and FGIS have conducted these studies with the aid of their advisors EDF (technical) and Artelia and Biotope (environmental). The ESIA was conducted in accordance with the Gabonese law and meeting IFC's Sustainable Development Framework performance standards.

Initial findings on the ESIA on the catchment area and its effects on the endangered species and critical habitats made it clear that the project's initially projected size (60 MW) would need to be reduced in order to minimize the impacts. Technical studies along with the

environmental assessment found that a 35 MW dam would be an economically viable alternative solution that would not implicate such big impacts on the region.

In order to draft the full scope of the ESIA and reach out to every stakeholder, the teams spent more than 3 months on the ground. The following key milestones followed up to the approval of the ESIA by the Government of Gabon in June 2019:

Table 5 - Kinguele Aval Dam ESIA's Key Milestones

1	ESIA Scoping and first consultations : May-Jul.17
2	Biophysical survey (low and high water seasons and main flowering seasons) : Jul.17-Mar.18
3	Socioeconomic survey: Oct.-Nov.17
4	Public Consultation: (1) Information: Oct.17, (2) Restitution: Jul.18
5	Project optimization with Conception team: May.-Nov.17
6	Project description and impacts assessment: Jan.-May.18
7	Mitigation Measures (A-R-O): Mar.-May.18
8	ESMP and BAP finalization (incl. ANPN/DGEPN comments): May.18-May.19
9	ESIA validation (incl. ESMP and PAB): Jun.19

6.2.1 Biophysical survey

Studies of the area's wildlife were the most critical in this project (due to the absence of villages in the immediate vicinity of the project). A total of 2,557 different tree species were identified in the study area – which at 1,550 hectares, went well beyond the project's physical footprint of less than 300 hectares – along with 116 species of Dragonflies and Damselflies (including four newly discovered). 62 species of fish were observed in the study area of the Mbé River and 115 bird species in the Crystal Mountains. Also roaming through the forests of the park is a population of around 1,200 Forest Elephants.

6.2.2 Socioeconomic Survey and Public Consultations

Public Consultations included interviews with authorities, economic actors, NGOs, village chiefs, inhabitants and administrators. There were also public information meetings in the Andock Foula and Alen Komo villages (which are the closest to the dam's footprint).

The raised concerns were the reduction of the Andock Foula's territory, the impact on the usages and lifestyles of the inhabitants of the region and the quality if the river downstream of the project.

Issues not related to the project were also raised and included: lack of electricity in the villages (even though there are already 2 HPPs upstream) as a main concern; lack of basic infrastructure, equipment and staff to provide for education and healthcare; lack of job opportunities and training, as well as commercial opportunities for agricultural products; damages caused by elephants.

6.2.3 Mitigation Measures

6.2.3.1 Technical Mitigation

The project sizing reduction was not the only technical mitigation made in the scope of Kinguele Aval. The least impacting alternative was picked, which included:

- Placing the dam in a region where the river's watershed is already equipped and accessible
- Reduced footprint of the works for the adaption to the dam
- No major road works
- Smaller reservoir (by picking the section of the river that would offer the minimal catchment area)
- Short transmission line (200 m) by using Kinguele and Tchimbele's existing lines
- Implementation of a *Plan d'Action de Biodiversité* (PAB), a specific biodiversity action plan.

6.2.3.2 Social Impact Mitigation

No big social issues are raised by the project's implementation. There's no inhabitants or indigenous population in the project footprint, no loss of valorized lad or houses and the first village is 37-people big and located 3 to 4 km away from the project site. A well designed Environmental and Social Management Plan (ESMP) is going to reduce any nuisance arising from road traffic, pollution and noise during the construction phase.

To reduce impacts on public health, avoidance measures and treatment of epidemics and diseases will be offered via a dispensary on construction site, which will be open to residents at certain times and through a partnership with Kango Hospital Center for prevention actions in the villages, such as vaccination, HIV conscientization, malaria avoidance measures, etc.

To avoid social influx and manage the influx of workers and migrants, the recruitment will be done away from the project site, the recruitment will prioritize local residents by giving them information and support and a community watch committee will be established for the villages of Andock Foula and Alen Komo.

To better the villages' infrastructures, 2 boreholes with pumps will be installed in Andock Foula and a school bus to Alen Komo will be placed for children of workers residing in Andock Foula.

The project is not going to directly impact fishing and navigation on the river, since the dam's site is upstream to these areas. Although there will be a small change on the river's stream, it's going to be limited to the confluence with the river Komo. The project sponsors are going to also renovate the equipment of the sole fisherman of the area (engine, canoe, nets) and grant priority to supply the camp.

In order to attend the other issues raised by the population, the project will establish CLP (Contribution to Local Development) actions. Its scope will consist of:

- Job creation: prioritizing employment from the project area;
- Rural electrification: proving access to electricity to the Andock Foula population once the construction is finalized; and
- Local support: by setting a fund to contribute to local development by promoting projects beneficial to people and biodiversity.

Finally, a communication channel will be open through a grievance mechanism during both the construction and operation phase.

7 Putting the Theory into Practice: New Donsin International Airport, Burkina Faso

The New Donsin International Airport is a best-practice example of how to play a pioneering role in a risky and complex sector using a proven track record in disruptive contexts as a benchmark. It is also an example in the optimization of the delays by integrating advisors and specialists on the early stages of the development and good coordination of the teams.

Ouagadougou International Airport (Thomas Sankara International Airport, OUA) has seen an increasing volume of passengers in last few years with a Compound Annual Growth Rate (CAGR) of around 6%, going from less than 200,000 passengers to more than 470,000 between 2001 and 2018. Due to its lack of capacity (already operating above its capacity constraints) and the fact that its footprint is now surrounded by the city, OUA won't be viable to sustain the fast-growing volume of passengers, both for the operational limitations and for the safety of the population surrounding the airport.

Figure 31 - Aerial view of Ouagadougou International Airport (OUA)

In that context, the Government of Burkina Faso (GoBF) has, in accordance with its Transport Sector Development Strategy Plan and civil sector aviation's reform, decided to develop a new international airport in Donsin, located 35 km north from Ouagadougou. The

new airport will substitute OUA, which will be deactivated after the beginning of operations in Donsin.

Therefore, in 2009, the government has created the Maîtrise d'Ouvrage de l'Aéroport de Donsin (MOAD), a public entity that's under the direct authority of the Prime Minister and that's in charge of all the actions linked to the realization of the projects that integrate the program of construction of the New Donsin International Airport.

Other than the increase in capacity, the objectives set out by the MOAD for the new airport are to:

- Enhance operational efficiencies and provide an airport which respects the latest international norms;
- Offer sufficient space for future airport extensions under an extension plan that will follow the estimated traffic curve, being forecasted to reach 1M PAX by 2030 and 2M PAX by 2050; and
- Boost the country's economic growth through the development of a regional airport hub by offering a service that outstands from that of the few concurrent airports in the region.

Between the creation of the MOAD and the launching of the first tender for the New Airport, significant work has been undertaken by the Government, establishing a detailed technical and financial case for the proposed development. The GoBF has already mobilized financing related to runways, control tower and related investments (access road, etc.).

The project of the new airport was initially published by the Government of Burkina Faso under a tender launched in 2015. However, the discussions between the preferred bidder and the Government were unsuccessful and the procedure was declared unfruitful in 2017.

A simplified procedure was launched in June 2018 to identify a potential new candidate for this project. Contrary to the 2015 procedure, an "operator" and "CAPEX optimization" approach was adopted this time. The Project's main objectives are to meet the increase of passenger traffic and to ensure the safety of the population through the closure of the existing international airport of Ouagadougou located within the capital city very close to urban populations.

Meridiam led a consortium along with Aéroport Marseille Provence and SETEC International for the submission of an Expression of Interest in July 2018.

On October 3rd, 2018, the consortium received a formal invitation to enter into exclusive discussions with the Government of Burkina Faso and reached an agreement on an MoU signed on the 6th of December, 2018 in order to develop the project under exclusivity until the signature of a Concession Contract, targeted for the end of July 2019.

7.1 Scope

The Project will be developed under a PPP on a greenfield and traffic-risk revenue basis and consists in the Design, Construction, Financing, Operation and Maintenance of the New International Airport of Donsin-Ouagadougou.

The engineering-construction is estimated to last 2.5 years, starting in mid-2020. From the end of construction, a 3 months transition period will begin. The full operation of the New Airport is scheduled to start by beginning of 2023, lasting up to the 30-year concession period ends.

The site for the New Airport covers a total area of 4,400 hectares and is connected to two national roads (RN 22 and RN 3) via an access road recently built by the MOAD. The overview of Ouagadougou existing International Airport and of the New Airport:

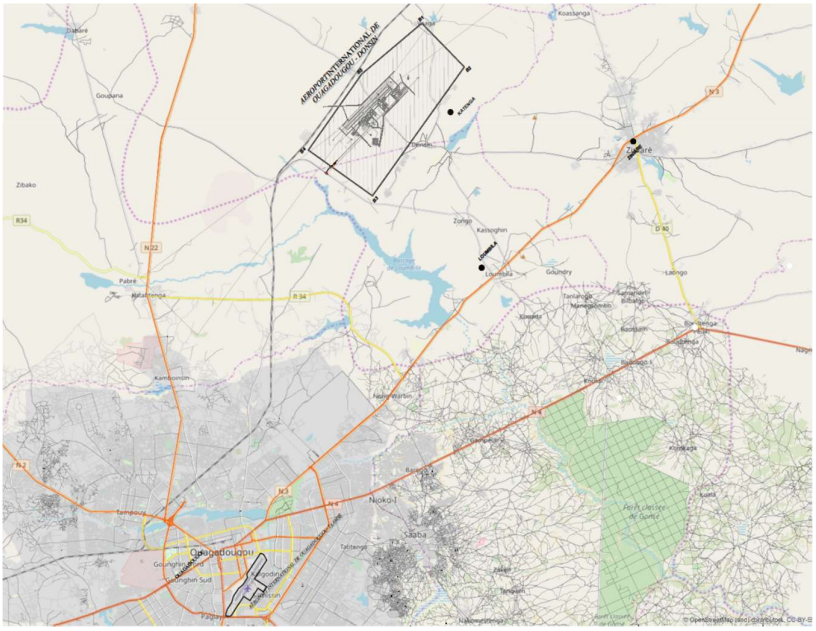


Figure 32 - Plan and position of the new Donsin International Airport

The consortium intends to develop the project in two distinct phases:

Phase 1 – Initial Investment: construction of all airport infrastructures enabling the transfer of all the existing aeronautical activities towards the new site designed for an initial capacity of minimum 1 million annual passengers. Design and Build of phase 1 is scheduled to take place between mid-2020 and early 2023.

Phase 2 – Additional Investment: extension of airport facilities to meet traffic demand. Design and Build of phase 2 is scheduled to take place between 2034 and 2044.

The State of Burkina Faso will finance and build the aeronautical infrastructures (runways and control tower) and some public facilities through the national budget or multilateral and bilateral institutions.

7.2 Institutional Framework

The Institutional framework of Civil Aviation is organized around the 3 following entities each with its own attributions:

- The Civil Aviation Agency - ANAC (Agence Nationale de l'Aviation Civile) and the Department of Meteorology - DGM (Direction Générale de la Météorologie);
- The Agency for Safety of Air Navigation in Africa and Madagascar - ASECNA;
- The Delegation to National Aeronautical Activities – DAAN

The following sub-sections describe the main institutions playing a role in Burkina Faso Civil Aviation sector.

7.2.1 ANAC

The Civil Aviation Agency – ANAC is responsible for formulating and implementing the national aviation policy. Aviation policy covers issues such as access of foreign carriers to the air transport market as well as access of local carriers to foreign markets (typically set through the negotiation of air service agreements), economic issues with respect to costs of air transportation, service providers access, safety and security, environmental issues, etc.

Technical regulation is also conducted by ANAC, which also oversees all technical aspects of the civil aviation sector according to standards and recommendations of the Chicago Convention of 1944 and its Annexes.

7.2.2 ASECNA

ASECNA is an international public institution, established on December 12, 1959 in Saint Louis, Senegal. ASECNA has a legal identity and is financially independent. The Agency for the Safety of Air Navigation in Africa and Madagascar (ASECNA) is governed by the 2010 revised Dakar Convention.

ASECNA is an accomplished model of collaborative management of different national airspaces. ASECNA covers an airspace surface area of about 16 100 000 km2 (1.5 times the surface area of Europe) that is divided into 6 flight information regions (F.I.R.) as defined by the International Civil Aviation Organization (ICAO).

7.2.3 DAAN

The DAAN (Délégation aux Activités Aéronautiques Nationales) is the specific national department created in 1993 for activities listed in Article 10 of ASECNA's Dakar Convention. According to the delegation contract signed between ASECNA and the State of Burkina Faso, the DAAN is the country's airport operator for the two main airports (Ouagadougou and Bobo-Dioulasso), 13 secondary aerodromes and 8 meteorological stations.

DAAN is currently responsible for:

- Airport management and operations;
- Commercial development of the airports;
- Maintenance of building, infrastructures and equipment of the existing airports and facilities under its delegation;
- Safety and security of existing airports.

7.2.4 Other institutions: RACGAE and Air Burkina

7.2.4.1 RACGAE

The RACGAE (Régie Administrative Chargée de la Gestion de l'Assistance en Escale) is the unique ground handling and line maintenance service provider at Ouagadougou International Airport.

Air Burkina performs its own ground handling and line maintenance services, all other airlines should contract with the RACGAE for airport assistance.

7.2.4.2 Air Burkina

Air Burkina is Burkina Faso's national airline of with shareholding majority owned by the State and the remaining part (1%) by a local entrepreneur.

Air Burkina has operated since 1967, becoming one of the longest operating airlines in the sub-region. Until mid-2010s, Air Burkina served Paris and Marseille from Ouagadougou. Currently, the fleet is made of 4 regional jets from Embraer (E-jets) and serves 7 foreign destinations in West Africa as well as Bobo-Dioulasso from Ouagadougou.

7.3 Project Timeline

The Project development timeline follows the displayed in the following table:

Table 6 - New Donsin International Airport Project Timeline

Main Milestones	Dates
Signing of the MoU with the Government of Burkina Faso	December 2018
Data collection	January 2019
Validation of Traffic Forecasts and Technical Sizing of the Project	February 2019
Presentation of the detailed functional program	March 2019
Presentation of the architectural intention project	April 2019
Transmission by the Burkina Faso authorities of a Concession Agreement draft	April 2019
Business plan presentation	April 2019
Launch of the EPC prequalification process	May 2019
Signing of the Concession Agreement	July 2019
Launch of the EPC consultation process	July 2019
Financial Close	Q2 2020
Beginning of Construction	Q2 2020
Beginning of Operation	Q2 2023

7.4 ESG

Land reclamation and overall construction activities are the key issues. An ESG Due Diligence with strict action plan will be implemented for the future airport in order to ensure compliance with the IFC performance standards.

Transfer of staff is another key social challenge. We'll have to ensure a permanent dialogue with relevant unions and authorities and use Madagascar best practices in order to define the right approach.

A first ESIA report has been conducted for the airport platform by the MOAD and included a detailed evaluation of environmental impacts (EEI), a Resettlement Action Plan of the populations (RAP), an Environmental Management Plan (EMP) and an emergency summary plan.

ESG Due Diligence with strict action plan to be followed for the future airport in order to ensure compliance with the IFC performance standards.

7.5 Consortium Members and Contractual Structure

The Consortium comprises Meridiam (90%), and Aéroports de Marseille Provence (AMP) (10%).

Each Party contributes in the following manner:

- **AMP:** co-develops the Project, provides airport experience and O&M services.
- **Meridiam:** co-develops the Project, provides equity and expertise in structuring contracts and project financing.

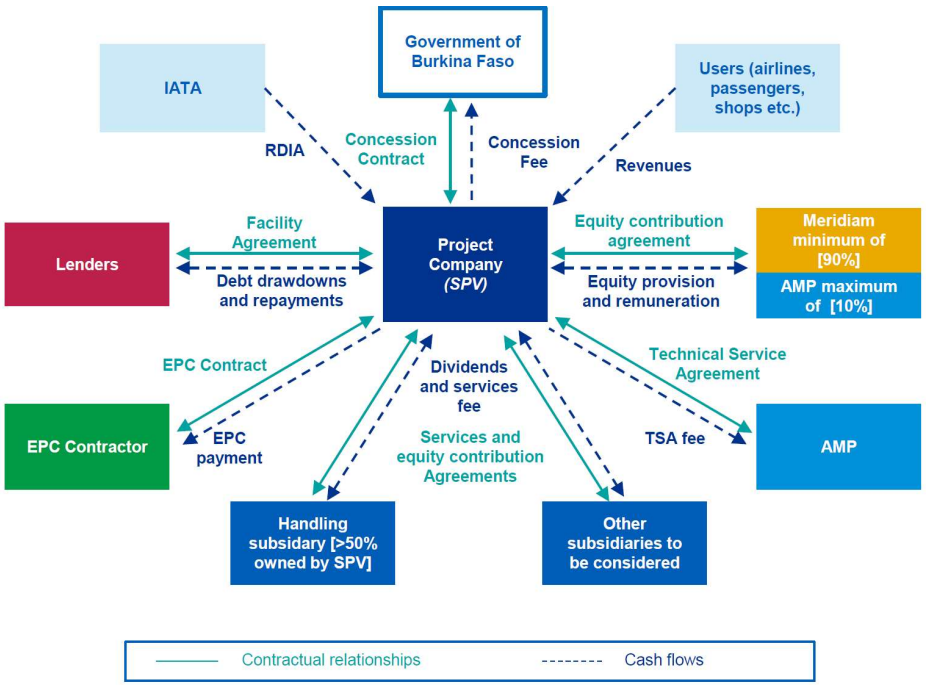


Figure 33 - Contractual Structure for the New Donsin International Airport

The contractual structure of the project is complex and brings solutions to some revenue risks:

7.5.1 Concession contract

A concession contract is being drafted and expected to be signed by the end of July 2019 between the SPV and the GoBF. The contract will define the concession fee that the project company will pay the public authority; the Redevance de Développement des Infrastructures Aéroportuaires (RDIA) to be paid by the International Air Transport Association (IATA) to the SPV; the tariffs to be paid by the end-users to the SPV in order to compose the direct revenues for the project; and the terms for the creation of subsidiaries for the operation, for the handling services and others (duty-free shops, lounges, food & beverages, etc.).

7.5.2 Services and Equity Contribution Agreements

Define the structuring of the subsidiaries and the payment mechanisms to be implemented. These contracts will be responsible for the optimization of the dividend distribution because of the withholding taxes that are applied to those. Under the services terms, direct fees are sought to be paid to the SPV (no withholding taxes) in order to avoid double taxation (from the subsidiaries to the SPV and from the SPV to the shareholders).

7.5.3 EPC contract

A back-to-back EPC contract will be drafted, thus transferring the construction risk to the contractor.

The EPC contractor will be selected following an international tender process. Roadshows have been prepared to prospect the best international players for the project and took place in June in Istanbul, Abidjan and Paris.

7.5.4 Technical Service Agreement

A Technical Service Agreement will be executed between the SPV and AMP for the operation and maintenance services of the airport following a back-to-back principle.

7.5.5 Facility and Shareholding Agreements

For the financing of the project, a facility agreement with the lenders will be prepared for the financial close (expected by June 2020). However, prospection of potential lenders has started with the first contacts and the emission of Letters of Interest (LoIs).

Meridiam and AMP will sign a shareholding agreement to establish the SPV and define its governance terms and staff, which will be allocated in accordance with the skills and abilities of each of the shareholders.

7.6 Risk Assessment and Strategies Applied

7.6.1 Traffic Risk

Over the 2001-2018 period, 18 years, the average annual growth has been quite strong at 6%.

However, on a shorter range, the 2009-2018 period, the CAGR is only at 3.9%, again due to the political crisis of 2012-2014, compensated by a strong growth in 2016 and 2017. The 2016-2018 CAGR includes the decline in passenger observed in 2018.

The most relevant traffic risk, which is the potential bankruptcy of Air Burkina, the company holding the biggest market share, is low. Indeed, Air Burkina is not dominant on international routes and only accounts for 24% of the passenger traffic market.

There are no competing airports in the vicinity, only one other airport in the country is open to commercial and international traffic (Bobo-Dioulasso) but is of a totally different standard and ambition.

Traffic risk is by far the most critical for this project. Even though there's a positive trend in the historical series of the existing airport, it oscillates often and is not very consistent.

At this stage, revenue is roughly composed in two-thirds by aeronautical revenues (exposed to traffic risk) and one-third of non-aeronautical revenues (of which more than 80% comes from handling services and are, therefore, exposed to traffic risk).

7.6.1.1 Mitigations and employed development tools

There's hardly any mitigation to the traffic risk due to the nature of the project, which intrinsically bores traffic risk. An airport concession in Burkina Faso has few mitigants to that risk even though there are mitigations on the revenue side. However, the project is still in early stages and new solutions might arise.

Without mitigations to the traffic risk, very detailed and conservative traffic scenarios are being considered. In addition to the 3 traffic scenarios modelled (Propensity to fly scenario, Trend scenario and Traffic flow scenario), the possibility of new political crises is accounted for as punctual drops in traffic, included in the financial analysis.

7.6.2 Construction & Operations Risks

The risk profile of a greenfield airport project of this size (1M PAX) is very low as design and construction activities are straightforward. Related O&M activities are standard and do not carry any particular complexity. O&M will be carried out by AMP, an experienced actor.

7.6.2.1 Mitigations and employed development tools

Construction risk will be mainly addressed by employing a back-to-back EPC contract, transferring construction risk from the SPV to the contractor.

In addition to the form of contract, these risks will also be mitigated through the EPC tender process, which allows sponsors to select the best technical offer. In order to have as many quality bidders as possible, the sponsors decided to prepare roadshows (which took place in June in Istanbul, Abidjan and Paris). The events attracted strong potential bidders with a proven track record in the region and coming from both local and international markets.

All performance risk will be passed on to the O&M contractor via a back-to-back O&M contract. The O&M contract will also include adequate security package including but not limited to performance bonds.

7.6.3 Political and Security Risk

Burkina Faso has a relatively high degree of ethnic diversity (more than 60 ethnic groups, with the Mossi constituting almost half of the population). Nevertheless, ethnicity is not a politically relevant category with respect to state identity. Ethnic, religious or other identity groups are rarely systematically discriminated against by legal or state institutions. Ethnic and religious confrontations within the country are, therefore, very unlikely. The state is defined as secular. Religious dogmas have no relevant influence on politics or legal order.

However, like other countries in the subregion, Burkina Faso is experiencing increasingly challenging security conditions. Several army, gendarmerie and police bases were repeatedly attacked between 2015 and 2016 by non-state armed groups most likely, linked to al-Qaeda Maghreb/AQM, at different locations across the remote north and west areas of the country.

In an effort to pool resources and combat terrorism, from February 18th to March 1st, 2019, Burkina Faso hosted Flintlock 2019, a multinational military exercise involving over 2,000 service members from more than 30 African and western partner nations. In addition,

The President of the Republic, Roch Kaboré, assumed the role of rotating president of the G5 Sahel in February 2019.

7.6.3.1 Mitigations and employed development tools

Mitigants to the political risks are:

- Establishment of close relationships with Client and its advisers;
- Dedicated security measures to be implemented for the development, construction and operation of the airport.

The project is prospecting DFI financing. Many DFIs have already shown interest in the project and LoIs are being emitted at this stage. Interested DFIs include IFC, AfDB and IsDB.

A DFI-submitted guarantee is also going to be employed in the project. MIGA and ICIEC have been contacted and demonstrated great interest in investing in Burkina Faso through political insurances.

The sponsors are already adopting many of the best practices listed on this document:

- An integrated project lifecycle approach: Meridiam and AMD are centralizing discussions from all fronts with SETEC as technical consultant and through their advisors (financial, legal, tax and accounting, economical, insurance and ESG advisors), all contracted in a very early stage of the project so that a complete "package" is prepared to accelerate discussions. Up to now, technical, financial and contractual aspects were developed, as well as a thorough traffic study, made by SETEC. ESG studies are going to take place in Q3 2019. A long-term vision is being employed by preparing detailed terms for handout (at the end of construction phase) and by including an extension plan to account for the forecasted increase in traffic.
- Prioritizing community engagement: The project will include a very detailed ESG study, focused on social impacts (construction nuisances, impacts of transfer of staff and land reclamation). Adequate social and environmental mitigations will also be included in the action plan.

- Finding support in the government: There's an exceptional political will for this project.

  The unfruitful tender in 2015 has delayed its delivery and increased the duration of operation above capacity in the current Ouagadougou International Airport. Therefore, all procedures are being accelerated under the exclusive discussions with the consortium, resulting in a possible commercial close (signing of the concession contract) in the end of July 2019, only one year after the submission of the expression of interest by the consortium.

  The GoBF has also agreed to offer extensive fiscal exonerations and advantages for the project, given its economic importance and impact on the region.

- Clear communication, precise documentation and balanced deals: The consortium has been keeping a close relation with the public authority (MOAD and the prime minister) on this project. Discussions on payment structuring, possible subsidiaries, end-user tariffs and fiscal and legal assumptions and exonerations are on a very advanced stage. This has been achieved by having meetings and visits carried in Ouagadougou almost every other week since the beginning of the development of the project.

7.6.4 FX Risk

Revenue risk might arise from delayed payments on the public authority side and from FX risks. Though West African CFA franc (FCFA) is pegged to the Euro (the conversion rate is maintained fixed), there's currency availability risk.

7.6.4.1 Mitigations and employed development tools

Revenues of the project are expected to be received in both EUR and FCFA. A payment mechanism with most of the payment in EUR will be sought.

Revenue risk is mitigated by indexation and protections mechanism against FX risks. Meridiam will also take a political risk insurance (i.e. MIGA) to insure the concession agreement against breach of contract and currency availability risk.

7.6.5 ESG Risk

Land reclamation, construction activities' nuisance and transfer of staff are the key issues in this project.

7.6.5.1 Mitigations and employed development tools

An ESG Due Diligence with strict action plan will be implemented for the future airport in order to ensure compliance with the IFC performance standards.

Permanent dialogue with relevant unions and authorities will be ensured, using Meridiam's previous Airport Projects in Madagascar as a benchmark for best practices in order to define the right approach.

8 Revenue Studies – Decomposition and Tariff Analysis

8.1 Introduction to the Financial Modelling and Financial Optimization

Besides providing assistance in developing the projects' contracts, the work I've developed in Meridiam during the 6-month period of the PFE was mainly focused on developing, adjusting and optimizing the financial model through its main assumptions and structure. In this chapter that work will be explained through the example of the work done in Kinguele Aval, as well as its objectives and results obtained through the analyses presented.

8.1.1 The Contracting of Financial and Tax and Accounting Advisors

In the development phase of Meridiam's projects, in order to have an outsider view to double-check the financial assumptions and calculations, a financial advisor (FA) and a tax and accounting (T&A) advisor are contracted (sometimes a firm is contracted to carry both responsibilities).

For Kinguele Aval, our FA is Finergreen, a French financial advisor focused on renewable energies and energy efficiency projects, and our T&A advisor is Ernst & Young (EY), one of the "big four" accounting firms, through its Gabonese office.

When I was assigned to this project, the tax and accounting assumptions were already made and a financial model was already in place, but neither had been updated in many months due to the postponing of the signature of the concession agreement caused by the illness of the president of Gabon (as mentioned in Kinguele Aval's chapter).

8.1.2 The Region's New Accounting System

Once I've started working on the T&A assumptions, it became clear that we would have to change the financial model entirely.

On February 15th, 2017, SYSCOHADA, the accounting system adopted or recommended under the OHADA (Organisation pour l'Harmonisation en Afrique du Droit des Affaires), the Organization for the Harmonization of Business Law in Africa, was updated.

The revised form of the SYSCOHADA uses the International Financial Reporting Standards (IFRS) as its new reporting standard, representing a big change from the previous system, which was much closer to the French accounting, regulated by the ANC (Autorité des Normes Comptables).

The adoption of the new SYSCOHADA by the OHADA countries (shown on Figure 34) became mandatory on January 1st, 2019, weeks before my arrival at Meridiam.

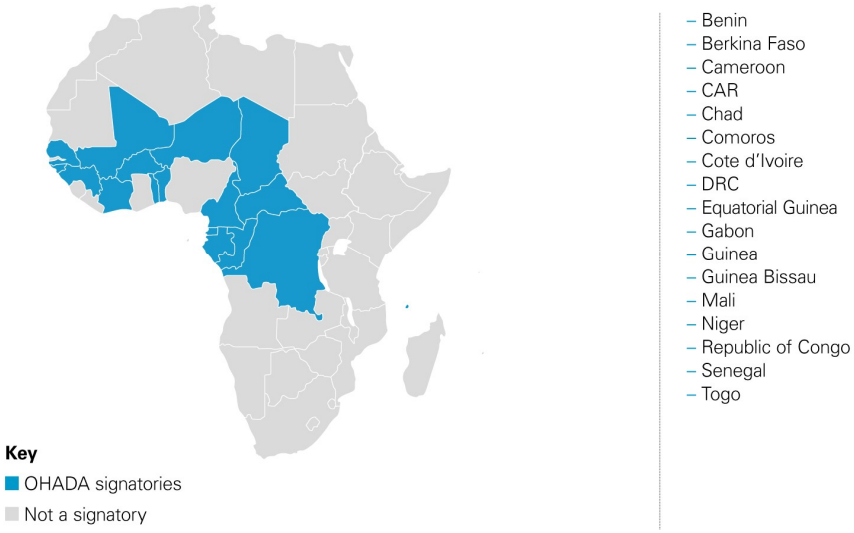


Figure 34 - OHADA Signatories

This meant that the entire financial model had to be redesigned by using completely new accounting methods. The most significant change between the two methods was the amortization and depreciation methods. An asset that generates revenues with no demand/traffic risk, such as through an availability payment or Take-or-Pay PPA agreement (Kinguele Aval's case), would be considered a financial asset whereas it was considered an intangible asset under ANC standards.

This change represents a fundamental shift in the Profit and Losses (P&L) Statement. Instead of declaring usually negative or very low net results during the first years of operation and a steep increase in those results during the operation period, as it would be the case with an intangible asset, a financial asset's amortization has a profile that flattens out the net results of the project during its entire life.

That's due to the fact that a financial asset, instead of having a constant amortization, has no amortization and calculates, instead, debt obligations (*créances*) from the public authority towards the concessionaire. The logic behind it is that the construction of the asset is considered a service the SPV is providing to the state to receive its availability payments or PPA tariffs.

The new profile of net results has an impact on the curve of distribution of dividends and, therefore, the strategy behind it, impacting the assumptions and analyses made.

8.1.3 Changing the Assumptions

Once the structure was made and all financial statements were balanced and checked, most of my work in financial modelling, along with Finergreen, was related to the changes in assumptions in order to optimize the return on investment and prepare study scenarios by:

- Optimizing the CAPEX costs and curve by delaying capital injections (thus reducing their present value);
- Study of the impacts of the gearing (ratio between debt and equity in the financing of the project);
- Introducing shareholder loans, preparing different sub-gearing scenarios (ratio between shareholder loan and pure equity) and calculating their interests' deductibility limits according to the tax regime of Gabon;
- Changing the tariff revision rate;
- Analyzing the impacts of changing the parameters of the debt (maturity, interest rates, commission fees, cover ratios, reserve accounts);
- Analyzing the impact of applying tax exonerations and fiscal advantages to the project;
- Analyzing the timing impacts (delays to reach financial close, to start operations, etc.)

Examples of these studies will be shown in the next sub-chapter through the analyses made.

8.2 Tariff Decomposition and Studies

During my time in the development of the Kinguele Aval Dam Project, many discussions took place with the public authority to ascertain the fairness of the tariff calculation and to assess the determining factors to reduce it to levels deemed acceptable by the off-taker (SEEG) when compared to those of the natural gas power plants.

The assessments made on the tariff were also a way to create leverage with the government with clear communication on all the efforts done in the sponsor's side of the transaction. By showing the effects of applying tax exonerations and fiscal advantages during

the beginning of operations, the consortium is showing that it is the government, via its taxes and fiscal regime, that's increasing the tariff that the state itself will pay.

For the sake of the confidentiality of these studies, the values were hidden, and the analysis will be solely exposed in relative terms (percentual points).

8.2.1 Tariff's structure

The tariff is composed of four main components namely the infrastructure component, the operation component, the financing component and the tax component. Figure 35 below represents the rates without taking into consideration the "value of time". This tariff is calculated by making an algebraic average of the costs to be incurred by the Partner to fulfill all his obligations during the operation of the plant, regardless of the moment when they are engaged. In addition, Figure 36 describes the rate in CFA Francs by including the value of time. Thus, the tariff of Figure 36 is constructed by updating all costs at the beginning of the operation. Each component is discounted according to the corresponding cost of capital. As a result, all cash flows to lenders are discounted at all-in interest rates, those intended for Shareholders at the internal rate of return (IRR), those intended for the State (taxes) at the rate of issued Gabon bonds, estimated at 6% and any other operating cost at a weighted average capital rate (WACC).

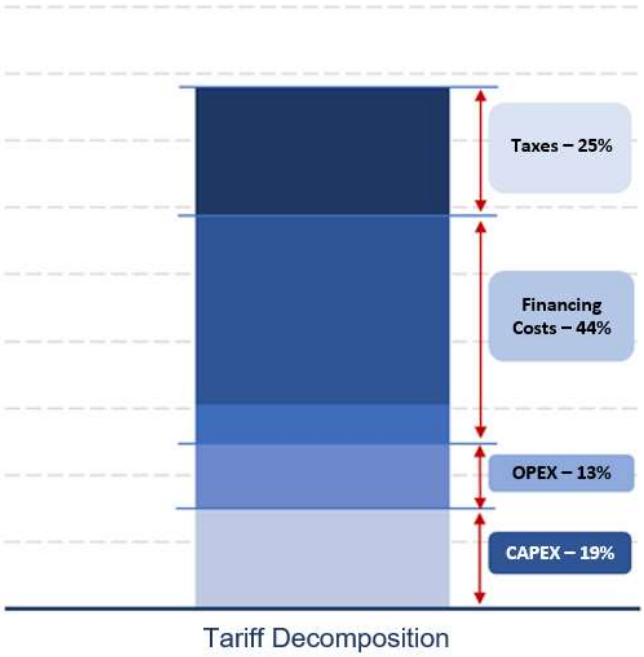


Figure 35 – Tariff Decomposition (simple arithmetic mean of all operation years)

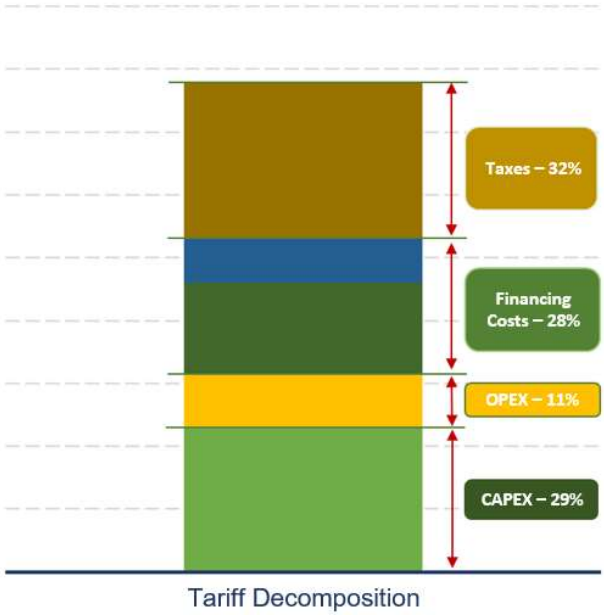


Figure 36 - Tariff Decomposition (taking time value into account)

8.2.1.1 Infrastructure component (CAPEX)

It is used to cover all the costs financed during construction for the realization of the infrastructure (the Hydroelectric Development) including the costs of the structure, the environmental and social costs and compensation, the operating costs of the project. project company and other costs during construction. The total of these costs corresponds to the principal of senior debt and equity disbursed during the construction period. They represent 19% of the tariff. Note that considering the value of time, CAPEX is the second largest component representing 29% of the tariff.

8.2.1.2 Operating component (OPEX)

It is used to cover all operating costs of the Hydroelectric Development including fixed costs and variable costs. These mainly include salaries, maintenance costs, major maintenance and renewal costs as well as the costs of implementing the environmental and social management plan. The operation component represents 13% of the tariff regardless of the value of time.

8.2.1.3 Financing component

The financing component includes financing costs (interest and dividends). These represent 44% of the tariff and are used to remunerate the capital committed for the financing

of the Project. Taking into account the time value of capital, they represent only 28% of the total tariff. This rate is in line with the preliminary conditions received from the financial institutions consulted and having expressed an interest in financing the Project. In addition, the return on equity is set at an internal rate of return based on the technical, economic and environmental parameters of the Project. Financial costs associated with equity include interest on the shareholder loan and dividends, together accounting for 36% of the tariff. Moreover, considering the value of time, the Shareholders' remuneration represents only 9% of the tariff.

8.2.1.4 Tax component

This component aims to cover all the tax obligations of the project company, including the payment of VAT, corporation tax (calculated on the net profit before taxes), the withholding tax of non-residents , the patent, the tax on wages, the land tax of built properties, land tax of undeveloped properties, the Special Solidarity contribution (CSS) (calculated on the turnover), the Tax on Equipment (TSE) , registration fees (calculated on the value of financing contracts), import customs duties, dividend tax and shareholder loan interest tax. Taxes represent 25% of the tariff without taking into account the value of time and 32% by updating them.

8.2.2 Tariff Optimizations

An analysis of the impacts of optimizations was made by the consortium to the public authority in order to incentivize the application of fiscal advantages and tax exonerations by showing compromises on the private party end and asking for the same on the public side.

The optimizations can be seen in the overall optimization tariff bridge (Figure 37).

8.2.2.1 Partner Optimizations

Following the request from the Granting Authority, the Partner worked to optimize the Project on the technical and economic level. Regarding the technical optimization, the Partner has identified a dozen tracks that could reduce the total cost of the Project by almost 4.0% and thus lowering the tariff by 2.56%. These optimizations have been defined so as to preserve the overall performance of the development. Among others, they include the elimination of certain features that are not essential to the proper functioning of the power plant, such as black start.

Beyond the proposed technical changes, the Partner agrees to take the risk on a portion of its remuneration by integrating the sales revenue of carbon credits in the total turnover. Indeed, the environmental and social impact study revealed that the project saved an annual total of nearly 150,000 tons of CO_2 compared to a petroleum-fired power station or 190,000 tons of

CO_2 for a thermal power station operating at the same time. coal. Thus, by adding the sale of carbon credits in the Partner's revenue base, this saves the buyer 1.40% of the tariff. In addition, the Partnership Agreement provides for the payment by the Partner of a water withdrawal fee. The removal of this could also lower the rate by 0.73%. In addition, the financial model considers a maturity of the debt of 18 years for the total repayment of it, in accordance with the first return of the lenders. The extension of the maturity to 19 years would reduce the rate by 1.37%.

8.2.2.2 Optimizations of the Public Authority

Given the large volume of taxes on the overall tariff, the Partner has made an assessment of tax exemptions to significantly optimize the overall tariff. It is important to make a distinction between short-term exemptions during the construction period and medium-term exemptions for part of the operating life.

Among the exemptions proposed during the construction period, customs duties, registration taxes and the CSS have been identified. For the period of operation, it is proposed an exemption from corporation tax, non-resident withholding tax, income tax on movable capital (IRCM) and withholding tax and withholding tax on the interest of shareholder loans for a maximum of 10 years from the commissioning of the Kinguele Aval hydroelectric facility. All of these exemptions to save 16.42% and lower the remuneration payable to the Partner of at least double (around 2.21 times) the amount the partner would transfer to the government in the form of taxes. Each FCFA of taxes that would not be paid by the Partner is converted into FCFA that is not paid by the Granting Authority to the Partner. The exemptions that are requested do not improve the profitability of the Partner and are completely transferred to discounts on the tariff.

8.2.2.3 Optimization of the Tariff Indexation

The Partner's business plan provides for an annual review of the rate at a rate of 1.3%. This rate has been defined in particular in view of SEEG's tariff evolution in recent years. Indeed, the cost of electricity in Gabon increased by +75.23% in 19 years between 1998 and 2017, which corresponds to an average annual growth rate of 3.0%. In addition, ARSEE estimated electricity rate growth between 2018 and 2019 at 4.72%.

The Kinguele Aval project is currently proposing rate escalation of 1.3% per year, which is significantly lower than SEEG's current tariff and historical rate evolution. Since the increase in the indexing rate, any other parameter being equal, significantly reduces the level of the

initial tariff. We suggested increasing the annual indexing rate to 2.5%, which is still significantly lower than the current and historical SEEG rate inflation. Figure 37 below shows that an increase in the indexing rate to 2.50% would reduce target tariff 2 (After tax exemptions) by 6.49%.

In addition, the advantage of indexing the tariff of a hydroelectric structure is that it allows a more equitable distribution of its costs over the long term. It is indeed unfair that the most significant efforts are borne by current consumers even though this infrastructure will benefit several generations. This indexation mechanism thus makes it possible to better distribute the amortization of this structure over the long term.

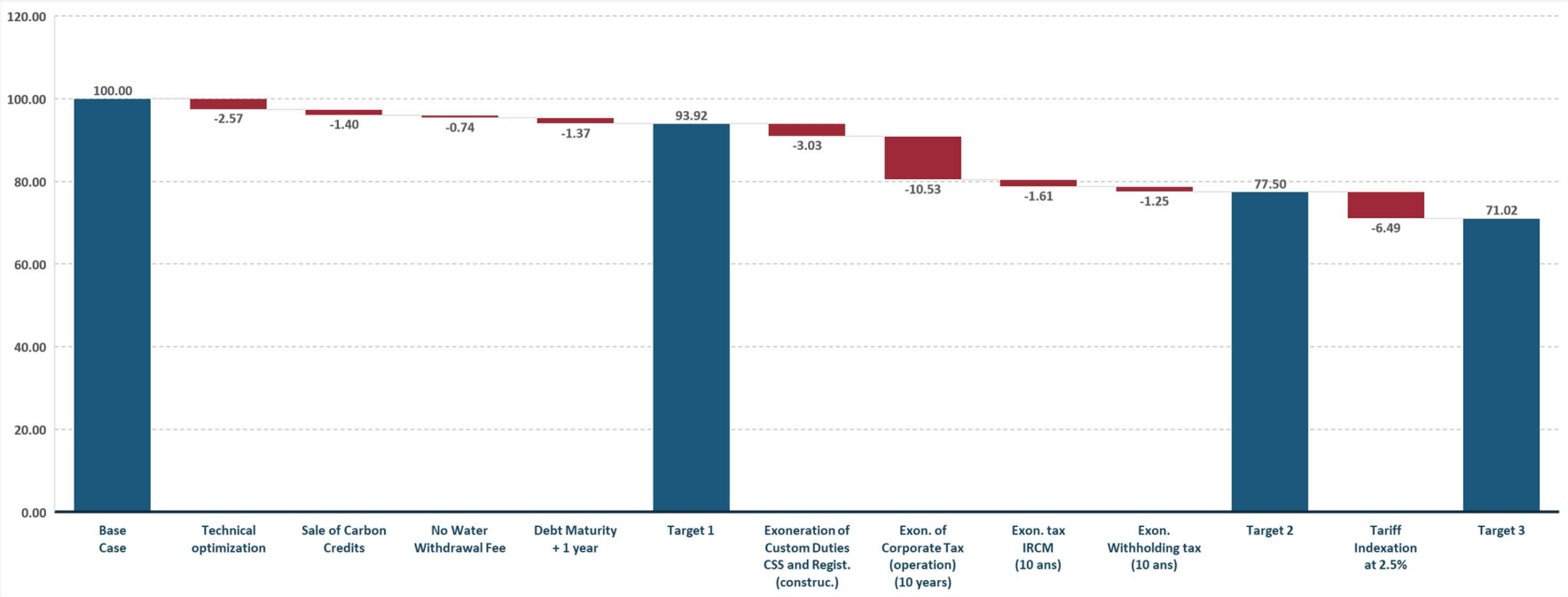


Figure 37 – Cumulative Optimization Tariff Bridge (in %)

9 Conclusion

Sub-Saharan Africa faces a huge need for essential infrastructure (transport, port, energy, digital, health, etc.) in order to meet the development needs of a strongly growing population, particularly in urban areas. This need is estimated to represent an investment of 15% of the region's GDP, of which only half is being provided, leaving a gap of approximately 8% of the region's GDP per year to be filled.

More recently, SSA countries have been enacting legislation to provide frameworks that are progressively allowing and increasing private investment. Of the 49 Sub-Saharan countries, 42 now have enacted such sort of legislation for the infrastructure sector. Nevertheless, these nations are divided in many different maturity stages.

Private investors in infrastructure must, above all, define an effective strategy when joining the region's market. One that not only accounts for the common difficulties faced in investing in SSA but also ranks and picks the countries that offer the best opportunities.

A deep local knowledge of the target markets is a must. Knowing the specific structure and dynamics of each country might be a defining factor in reducing delays and increasing political will for the project, which might be decisive in its success.

Acting with a multi-disciplinary team and an end-to-end approach have been the most successful strategies in the region. Investors must employ a more hands-on outlook and monitor/work in every stage of the project, especially during its development.

Overarching every other consideration is the need to grasp African realities, and to have this understanding inform expectations. Armed with such understanding, a smart, patient investor can expect to be involved in profitable deals that have a transformational impact on the communities and countries in which they are located.

Although Sub-Saharan Africa is rich in opportunities, it cannot fully unlock its potential unless it closes its significant infrastructure gap.

The region has nearly a billion people and by 2030 will have the world's largest and youngest labor force. Investors that take part in the development of the infrastructure that will be the next generation's foundations will not only enjoy a high-return new market but will also

be invested in a region that, with their initial investments, will prosper and offer many new investments.

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