

Public-Private Partnership in Telecommunications Infrastructure Projects

Case of the Republic of Congo

TWICT

This paper delineates the role of government in infrastructure PPPs in telecommunication sector in the Republic of Congo. Besides its critical role in promoting universal access at this time of convergence and the edge of information technologies, PPPs offer policy makers an opportunity to improve the delivery of services and the management of facilities and helps to mobilize private capital which in turn speeds up the delivery of public infrastructure. Along with power and transportation infrastructures projects, telecommunication figures among the most growing areas in PPP projects in Africa. It also summarize the achievements and challenges in Congo's ICT economic infrastructure sector, the capital investment needs in the broadband sub-sector (budgetary valuation of transnational and international networks) and risk allocated to the implementation of the project and proposes the World Bank Group risk mitigation instruments.

Table of Contents

Figures.....	3
Tables.....	3
1. Executive summary.....	4
2. Public-Private Partnership (PPP) in the telecommunication industry.....	5
3. The state of Congo’s telecommunications infrastructure.....	6
4. Challenges in the telecommunication sector in the Republic of Congo.....	10
5. Capital investment needs in the broadband sub-sector.....	12
5. Public-Private Partnerships in telecommunication sector in Congo.....	14
5.1. PPPs instruments.....	14
5.2. Open Access Network (OAN) as a Broadband PPP Business Model.....	16
6. Risk allocated to the implementation of the project.....	17
7. The World Bank Group risk mitigation instruments.....	20
IBRD PRG and MIGA PRI products.....	20
a. IBRD/IDA Partial Risk Guarantees (PRGs).....	20
8. Implementation timeline.....	23
Works Cited.....	25
Annex 1. Sample Risk Matrix.....	26

Figures

Figure 1: Mobile Subscribers, 1998-2008	7
Figure 2: Spatial view of Congo's ICT infrastructure networks	8
Figure 3: Internet Users, 1998-2008	9
Figure 4: The major categories of PPP	14
Figure 5: From wholesale to Open access model	16
Figure 6: Risk Sharing	18
Figure 7: Guaranteed Debt structure.....	22
Figure 8: Completion estimated timeline	23

Tables

Table 1: Fixed telephony in Congo.....	6
Table 2: Benchmarking ICT infrastructure	11
Table 3: Budgetary valuation of international networks	12
Table 4: Budgetary valuation and scenarios for the axis Brazzaville - Kinshasa	13

1. Executive summary

Telecommunication is a traditional public sector responsibility that today is more often offered by private sector investors and operators. The scarcity of funding available in public sector, coupled with an increasing demand in the dynamic technology outputs is giving increasing advantage to private firms. Yet the government retains certain critical responsibilities in the sector such as regulation; in some sub-sectors (e.g. broadband), the public sector may continue to have primary investment responsibility due to significant market failures that inhibit private investment. Public-Private Partnership (PPP) projects provide an opportunity for development of telecommunication infrastructure without placing the full burden of the ultimate financial demands on the public balance sheet. They also allow the operator to spread the cost of infrastructure over time, rather than requiring a considerable up-front capital expenditure.

This paper delineates the role of government in infrastructure PPPs in telecommunication sector in the Republic of Congo. Besides its critical role in promoting universal access at this time of convergence and the edge of information technologies, PPPs offer policy makers an opportunity to improve the delivery of services and the management of facilities and helps to mobilize private capital which in turn speeds up the delivery of public infrastructure. Along with power and transportation infrastructures projects, telecommunication figures among the most growing areas in PPP projects in Africa.

Nevertheless, fitting telecommunication projects into a PPP model can be quite challenging, therefore this paper also summarize the achievements and challenges in Congo's ICT economic infrastructure sector, the capital investment needs in the broadband sub-sector (budgetary valuation of transnational and international networks) and risk allocated to the implementation of the project and proposes the World Bank Group risk mitigation instruments.

Numerous forms of PPPs have been developed worldwide to respond to the various fields of application. The Public-Private Infrastructure Advisory Facility (PPIAF) has presented the major categories of PPP in a simplified way in the figure below, in which the extent of private sector participation increases from left to right. The paper suggests the most common PPP instruments and put forward the Open Access Network (OAN). This model represents a very different approach compare to the traditional one because the single network is shared among many different service providers, reducing costs of services for service providers as well as to customers. Important tool for economic development, OAN promotes universal access of technology to the entire population by including citizen into the active participation of their community development.

2. Public-Private Partnership (PPP) in the telecommunication industry

Telecommunication is a traditional public sector responsibility that today is more often offered by private sector investors and operators. The scarcity of funding available in public sector, coupled with an increasing demand in the dynamic technology outputs is giving increasing advantage to private firms. Technologies such as mobile telephony have created new markets. For these reasons, telecom has represented one of the largest areas of private investment in sub-Saharan Africa in recent years. Yet the government retains certain critical responsibilities in the sector such as regulation; in some sub-sectors (e.g. broadband), the public sector may continue to have primary investment responsibility due to significant market failures that inhibit private investment. In these cases, PPP projects provide an opportunity for development of telecommunication infrastructure without placing the full burden of the ultimate financial demands on the public balance sheet. They also allow the operator to spread the cost of infrastructure over time, rather than requiring a considerable up-front capital expenditure.¹

Public and private sectors have a critical role to play in order to ensure that a growing percentage of the population in developing countries can access ICT and modern telecommunications means (supply transmission bandwidth, backbone). PPP offers policy makers an opportunity to improve the delivery of services and the management of facilities and helps to mobilize private capital which in turn speeds up the delivery of public infrastructure.² PPP is also an important instrument to promote universal access at this time of convergence and the edge of information technologies.

Along with power and transportation infrastructures projects, telecommunication figures among the most growing areas in PPP projects in Africa. Many governments are turning to the private sector to design, build, finance, and operate such infrastructure facilities hitherto provided by the public sector, and various PPP models are used to promote the development of national backbones. Nevertheless, fitting telecommunication projects into a PPP model can be quite challenging. Experts in the area suggest that issues specific to this sector play more important role and need to be considered carefully.³ This paper delineates the role a government can play in Public-Private Partnerships in telecommunication sector in Congo. It also summarizes the risk allocated to the implementation of the project and proposes the World Bank Group risk mitigation instruments.

¹ See Delmon J. (2009)

² See Attracting Investors to African Public-Private Partnerships: A Project Preparation Guide (2009)

³ See Delmon J. (2009)

3. The state of Congo's telecommunications infrastructure

The telecommunication infrastructure's expansion in the Republic of Congo tend to follow the country's urbanization patterns, due to the high availability of power and other related infrastructure backbones covering the southwest region and spread upward from there, with the least developed links in the northeast. The spatial view of the country's infrastructure networks developed by the Africa Infrastructure Country Diagnostic (AICD) shows and reflects the fact that the Republic of Congo is a predominantly urban country, with 61 percent of the population living in two urban areas.⁴ The biggest cities are clustered in the south and southwest, around the oil fields and known mining resources. The capital, Brazzaville, in the southeast, and the major port, Pointe-Noire, in the southwest, are by far the largest urban centers. Also, the country's vast areas of dense forests are heavily exploited in the southwest and still under exploited in the northern part of country.

This pattern is visible in the fixed telephony segment where incumbent operator (la Société des Télécommunications du Congo (SOTELCO), recently named Congo Telecom) is a monopoly. Although rudimentary, and victim of destruction perpetrated on these facilities during the two civil wars successive 1997 and 1998, this network only covers the cities of Brazzaville, Pointe Noire and Oyo. The market penetration is very low and valued at less than 0.25%.

Table 1: Fixed telephony in Congo

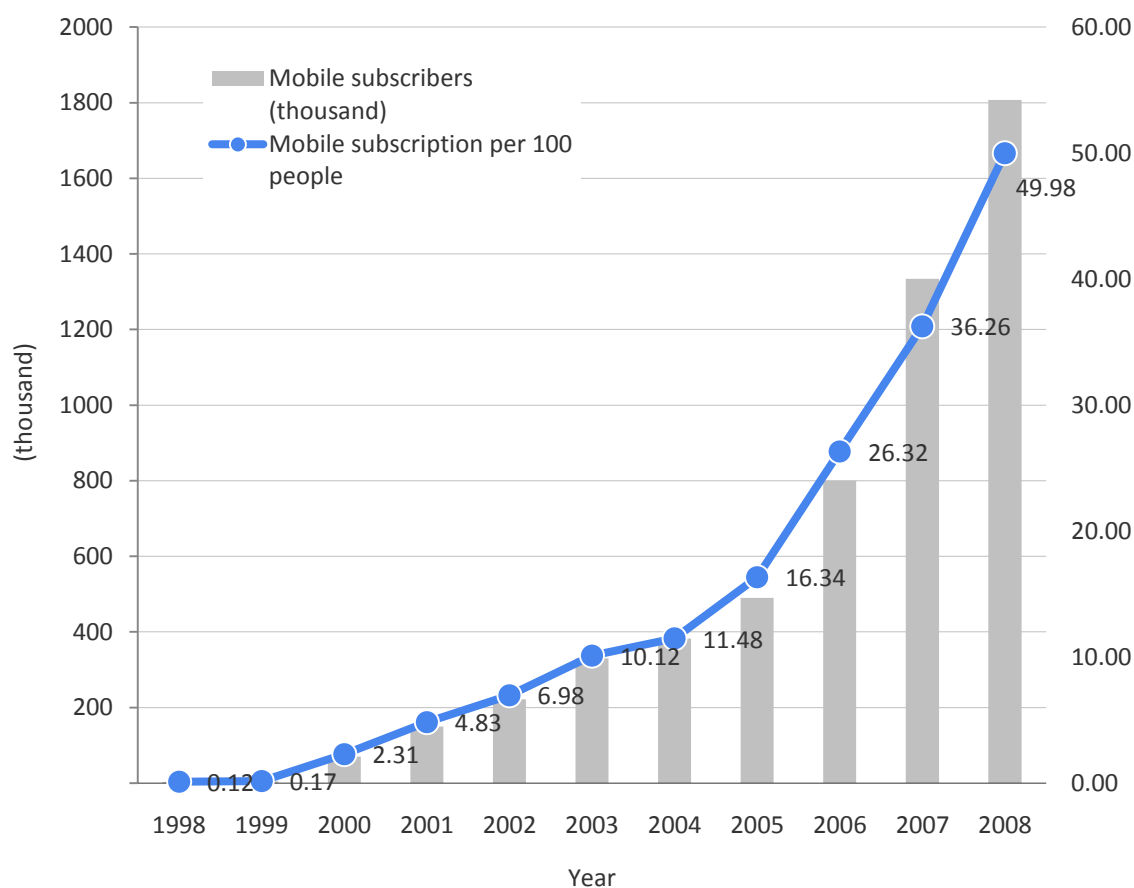
Locality	2003	2004	2005	2006	2007	2008
Brazzaville	7896	7950	8917	8478	8126	8952
Pointe-Noire	6782	4868	5097	5226	5278	450
Oyo	92	92	50	50	0	0
TOTAL	14770	12910	14064	13754	13404	9402
Population	3448650	3529550	3609850	3689300	3769317	3849192
Teledensity	0,43	0,36	0,39	0,37	0,35	0,24

Source: SOTELCO

Mobile telephony penetration is high in the Republic of Congo—35 percent compared with the 24 percent average in comparable African countries (i.e., less developed but resource rich) — and the subscriber base grew by 8.2 percent of the population from 2006–08 compared with 1.7 percent in the typical African country. This greater coverage and faster growth are at least partially due to increasing competition in the mobile market. Three operators (Zain Congo, MTN Congo and WARID Congo) share in this segment throughout the nation.

⁴ See AICD, The Republic of Congo's Infrastructure: A Continental Perspective, forthcoming

Figure 1: Mobile Subscribers, 1998-2008

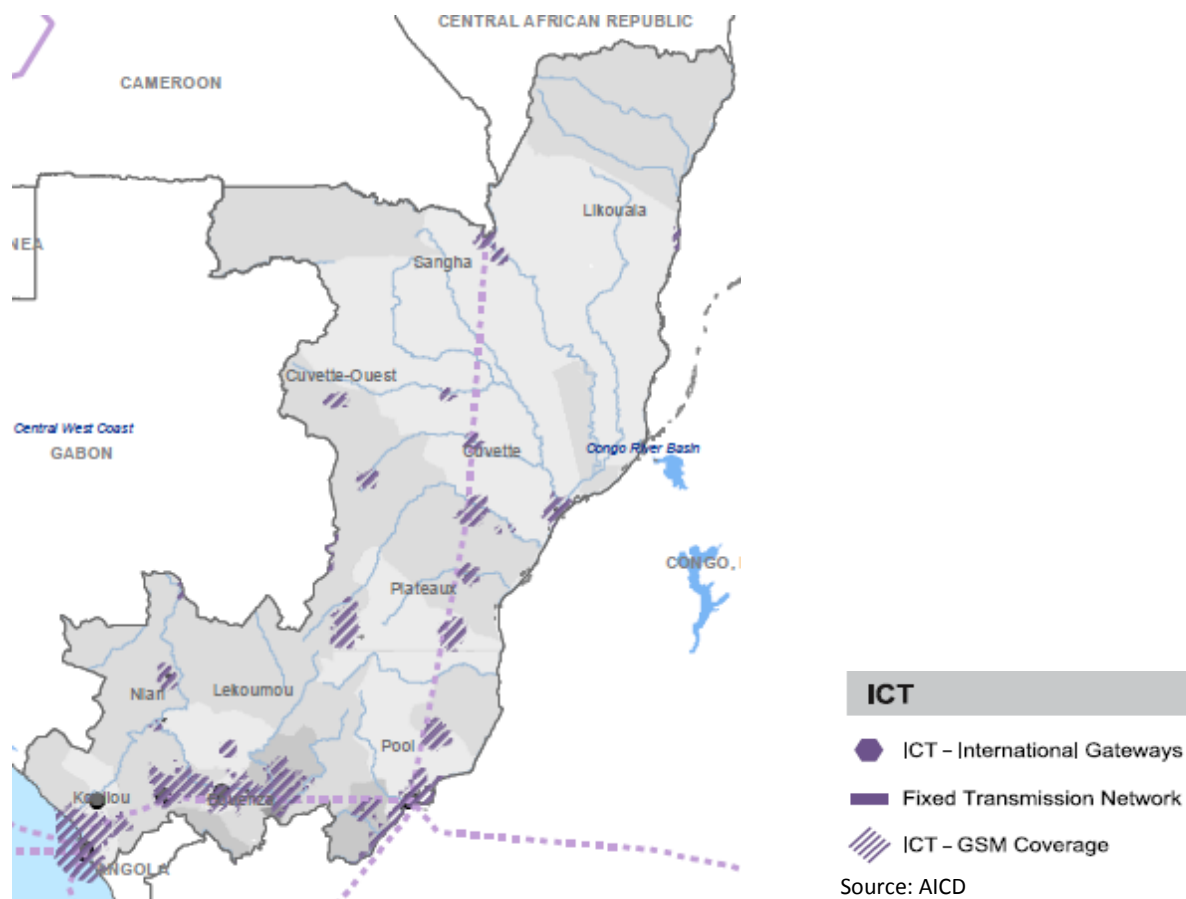


(Source: ITU).

By 2008, more than half of the Congolese population subscribed to mobile services. The International Telecommunication Union data indicates that the total coverage is about 90% of the population, or 100% of the urban population and 72% of the rural population is covered.⁵ A fourth operator was announced in January 2009, Bintel entered into strategic partnerships with Huawei and ZTE.

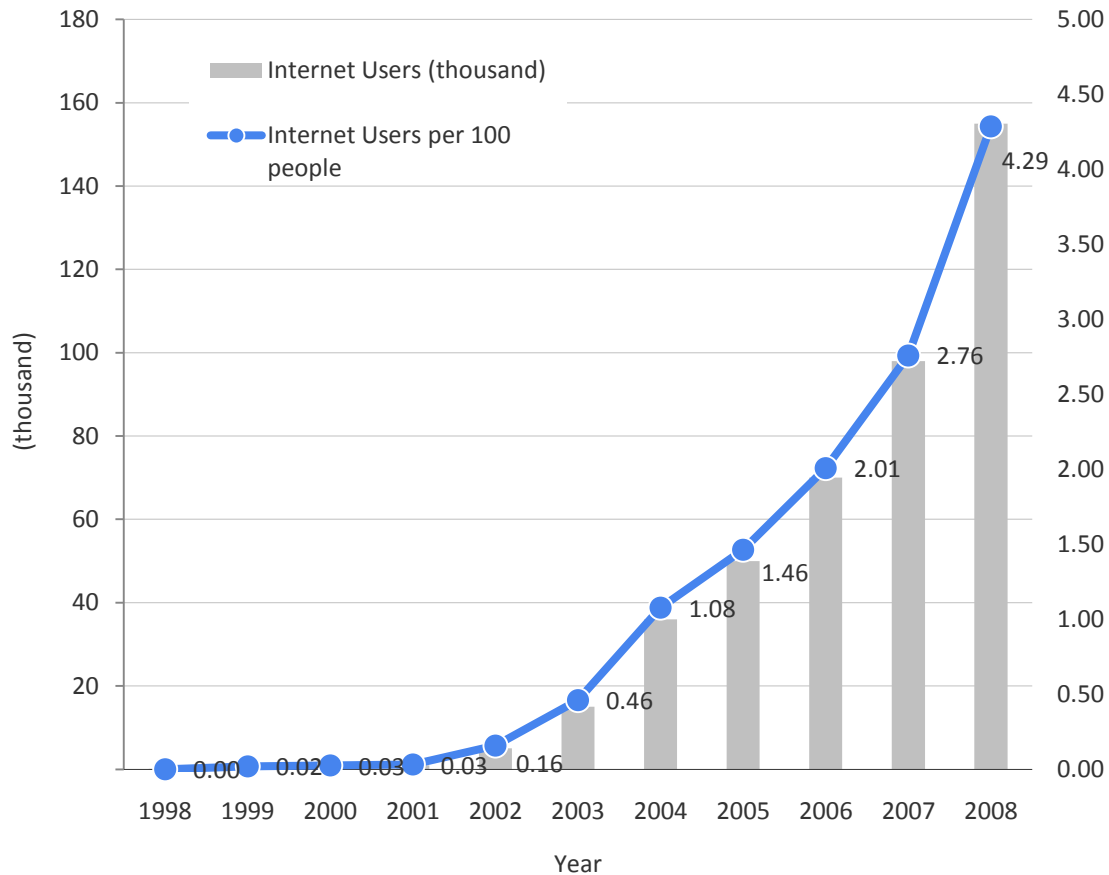
⁵ Bezzina and Katembo, Impacts économiques du déploiement d'infrastructure large bande: Le cas de la République du Congo, forthcoming, 2010

Figure 2: Spatial view of Congo's ICT infrastructure networks



Despite the fact that the internet segment has experienced a significant growth in recent years, it remains very low due to lack of an adequate broadband infrastructure. In 2008, there were 155,000 Internet users in the Congo and the Internet penetration was estimated at 4.29%.

Figure 3: Internet Users, 1998-2008



(Source: ITU).

The Republic of Congo has committed to undertaking three transformational ICT projects:

- (1) The optical connectivity underneath the river Brazzaville – Kinshasa aims to extend broadband access to remote areas (through the *projet de couverture nationale*); In 2009, the Ministry of Posts, Telephones and Telecommunications of the DRC has informed us of the impending execution of the laying of submarine Fiber optic cable between Kinshasa and Brazzaville interconnecting the two countries.
- (2) The Project West Africa System Cable (WACS) was initiated and financed by a partnership of five South African operators (MTN, Neotel, Telkom s.a., Infraco and Vodacom), involves the implementation of the international submarine optical connectivity between South Africa and Europe with landfall in countries located along the west coast Africa. This project is designed to connect the country to the West Africa fiber optic cable system.

(3) The Central African Backbone (CAB) was designed to implement an effective connectivity strategy and increased government efficiency through the use of this connectivity (World Bank financed Project CAB2—Central African Backbone). The CAB2 project will (1) provide technical assistance to promote further sector liberalization and resolve market efficiency gaps, (2) leverage private investment on the basis of Public Private Partnership (PPP) arrangements in the coordinated deployment of regional and national backbones and rural telecommunications networks, with a focus on missing links and avoiding development of redundant infrastructure; and (3) increase government efficiency and transparency through the selective deployment of key e-government services and applications.⁶

4. Challenges in the telecommunication sector in the Republic of Congo

The Republic of Congo has experienced achievements and challenges in the ICT infrastructure sector (Table 1). In February 2003, the government of Congo decided to restructure the incumbent fixed line operator Société des Télécommunications du Congo (SOTELCO) following the adoption of the law passed on 1 July 2001. This separated post and telecoms arms from the Office National des Postes et Télécommunications (ONPT), creating SOTELCO on the one hand, and the Société nationale des postes et d'épargne du Congo (SOPECO) on the other. In August 2009, the incumbent SOTELCO was renamed Congo telecom.

An important number of the telecommunications network, including the national microwave transmission backbone, was destroyed during the brief civil war in 1997. Telephone exchanges were damaged in Brazzaville and elsewhere, with the exception of Pointe-Noire. The increased competition in the Republic of Congo's mobile market has led to relatively widespread coverage of the country by this technology.

Table 1: Achievements and challenges in Congo's ICT economic infrastructure sector

Achievements	Challenges
Two thirds of population is covered by GSM. Mobile penetration is on par with comparator countries. Some competition exists in the mobile sector.	Restructure SOTELCO, the SOE providing fixed telephony services, and open to private participation. Improve broadband quality, currently limited by existing infrastructure. Increase competitiveness of telecom prices, which are high, particularly for broadband services.

Source: ICT component extracted from AICD

⁶ See AICD (2010)

The cost of monthly Internet connection is enormous in the Republic of Congo. For instance, the cost of (Satellite broadband) for a 512 kbps bandwidth was FCFA137,000 (US\$334.37), and FCFA380,000 (US\$927.45) for a 1 mbps bandwidth. Both pricing for mobile Internet and broadband is still based on “low volume, high price” and therefore growth has not yet really started. The price of a three minute phone call to the United States through the fixed line network is twice as high as in regional peer countries. But prospects are promising. On average, African countries that have introduced the submarine cable have slashed prices in half (table 2) as long as access to the international gateway is competitively provided.

Political will and institutional strengthening will be required for success in the implementation of the new legal and regulatory framework, new ICT projects, and the submarine cable agreement. Under the Heavily Indebted Poor Countries process in which the Republic of Congo was engaged from 2006 to January, 2010, the trigger for the so-called floating completion point was the adoption of a regulatory framework for the telecommunications sector that established competition at the level of international gateways and the wireless local loop (WLL). Two actions were undertaken to meet the HIPC requirement: (i) repeal of a 2004 decree that restored the monopoly on international gateways and granted exclusivity in the WLL market to Sotelco, the incumbent operator, and (ii) adoption of new legislation to set up an independent telecommunications regulatory authority (ARPCE) and ensure clear and transparent regulatory regimes, particularly in frequency management.

Table 2: Benchmarking ICT infrastructure

	Unit	Republic of Congo		Resource rich
GSM coverage	% population	75.0		47.7
Interment bandwidth	Mbps/capita	0.29		2.7
Internet	subscribers/100 people	0.03		0.3
Landline	subscribers/100 people	0.41		1.1
Mobile phone	subscribers/100 people	35.4		23.7
Prices (US\$)	Republic of Congo	Without submarine cable	With submarine cable	Other developing regions
Price of monthly mobile basket	18.8	11.1	13.6	9.9
Price of monthly fixed line basket	—	13.6	16.7	—
Price of 20-hour Internet package	84.5	68.0	47.3	11.0
Price of a 3-minute call to United States	5.4	2.6	1.4	2.0
Price of inter-Africa telephone calls, mean	—	0.72	0.44	n.a.

Source: Ampah and others 2009.
 — = data not available; n.a. = not applicable

5. Capital investment needs in the broadband sub-sector

The infrastructure sector's contribution to the Republic of Congo's annual per capita growth over the past decade, at one half of one percentage point, was considerably lower than in other countries in the region—0.87 for Nigeria, 0.91 percent for the Democratic Republic of Congo, 0.89 percent for the Central African Republic, and 0.99 for the regional average. Growth in the Republic of Congo was generated primarily by increased access to mobile telephony, but the poor quality and inadequacy of power supply acted as a brake to the economy. Infrastructure's historically small contribution to growth suggests that the Republic of Congo can achieve significant gains from improvements in these sectors.

AICD simulations suggest that if the country's infrastructure platform were improved to the level of the African leader, Mauritius, annual per capita growth rates could increase by 3.7 percentage points. This compares with an average of 2.3 percentage points for the continent as a whole.⁷ In order to get to the required level, an adequate investment in telecommunication is needed. Despite the fact that all required infrastructures and facilities are set up for the interconnection between the Gabonese national network and the DRC Network, the installation of optic fiber (CGFO) at the axis "Brazzaville - Pointe Noire" and "Brazzaville - Ouessou" is underway and will require that more transmission equipment (Terminals and SDH) to be added in order to start operating as shown in Table 2.

Table 3: Budgetary valuation of international networks

Axis	Station	Equipment	Estimated cost ^{*8}
Brazzaville - Pointe Noire	Loango (Station WACS)	1 terminal and 1 SDH	US \$ 10,000,000
	Pointe Noire	2 terminals and 1 SDH	
	Mboulou	2 terminals and 1 SDH	
	Dolisie	2 terminals and 1 SDH	
	Loudima	2 terminals and 1 SDH	
	Madingou	2 terminals and 1 SDH	
	Mindouli	2 terminals and 1 SDH	
	Kinkala	2 terminals and 1 SDH	
	Brazzaville	1 terminal and 1 SDH	
Axe Brazzaville – Ouessou	Brazzaville	1 terminal and 1 SDH	US \$ 9,500,000
	Odziba	2 terminals and 1 SDH	
	Ngo	2 terminals and 1 SDH	
	Gamboma	2 terminals and 1 SDH	
	Ollombo	2 terminals and 1 SDH	

⁷ See AICD

⁸ *Estimated cost for provision and installation

	Owando	2 terminals and 1 SDH	
	Makoua	2 terminals and 1 SDH	
	Liouesso	2 terminals and 1 SDH	
	Ouesso	1 terminal and 1 SDH	
Axe Dolisie – Mbinda	Dolisie	1 terminal and 1 SDH	US \$ 4,600,000
	Makabana	1 repeater container with solar energy	
	Mossendjo	1 repeater container with solar energy	
	Mbinda	1 terminal and 1 SDH	
	Dolisie	1 terminal and 1 SDH	

Source : Bezzina and Katembo, 2010 For the axis Brazzaville – Kinshasa, there are 2 scenarios broken down as follow:

Table 4: Budgetary valuation and scenarios for the axis Brazzaville - Kinshasa

Technology	Equipment	Estimated cost
Wired Solutions	Terminals and SDH	US \$ 1,700,000
	Supply and installation of cable	US \$ 800,000
Microwave solution	Terminals and SDH	US \$ 1,700,000
	Supply and construction of microwave towers	US \$ 300,000

Source : Bezzina and Katembo. (2010)

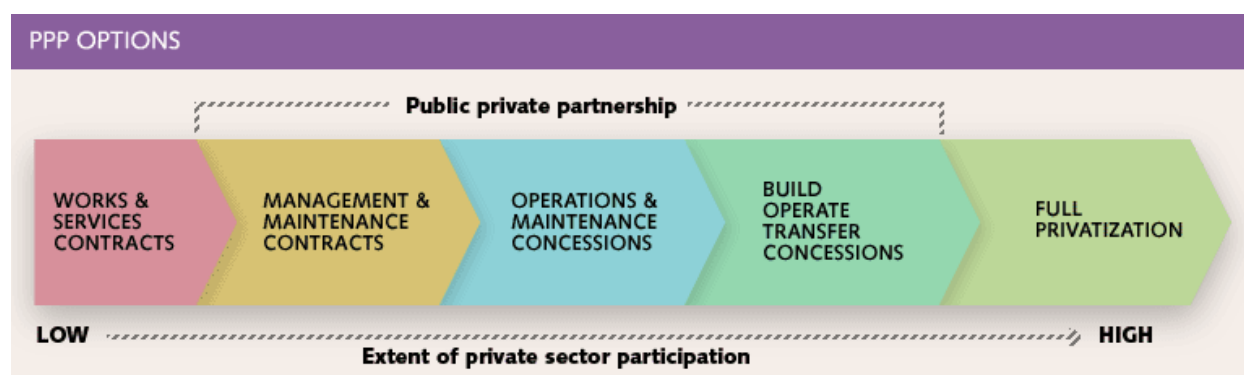
AICD developed the spending needs models uniformly for each African country. In the Republic of Congo, Indicative infrastructure targets over the period 2005–15 include achieving transport and ICT connectivity as well as increasing power generation capacity to meet projected demand based on the quantity and quality of its existing infrastructure. According to these relatively modest targets, the country would need to install 1,689 MW of new capacity for hydropower generation and 498 MW of new cross-border transmission each year to keep pace with demand. This would raise access to electrification to 53 percent of the population by upgrading and improving over 3,000 kilometers of regional and national roads and linking with fiber optics to neighboring countries and submarine cables. Meeting the country's infrastructure needs would cost \$946 million per year for the next decade. Spending needs are highest in the power sector, where the Republic of Congo would require an estimated \$483 million per year to cope with increasing demand. Spending needs in the ICT sector are comparatively modest, as the private sector plays and will continue to play a pivotal role. Capital expenditure accounts for 77 percent of spending requirements, while operations and maintenance account for one third of needs in the aggregate but represent more than 40 percent of spending needs in the transport sector.

5. Public-Private Partnerships in telecommunication sector in Congo

5.1. PPPs instruments

Numerous forms of PPPs have been developed worldwide to respond to the various fields of application. The Public-Private Infrastructure Advisory Facility (PPIAF) has presented the major categories of PPP in a simplified way in the figure below, in which the extent of private sector participation increases from left to right.

Figure 4: The major categories of PPP⁹



Among many different forms of Public Private Partnerships (PPPs), the most common ones discussed in this paper are management contracts, operation and maintenance concessions (service concessions), and Build/Operate/transfer BOT-type of concessions (works concessions).

Management contracts: A management contract is an arrangement by which a private company is entrusted with various types of tasks usually performed by the public authority, relating to the organization of road maintenance operations. Usually, the function of the private firm is to respond to day-to-day routine maintenance requirements by contracting private companies, on behalf of the public entity, to perform the works. Management contracts can also (or only) focus on operation management. In this case, typical tasks entrusted to the private sector are: traffic counting, axle-load weighing and providing traffic information, traffic management including surveillance, stand-by services for accidents, traffic regulation, toll collection (usually not remunerated on the basis of the amounts collected but rather on a fixed rate basis).

Operation and maintenance concessions (service concessions): The host country's objectives may be for the private sector to operate and maintain an already existing road, and therefore the government may grant a concession to the private participants to charge user tolls to help finance the improved operation and maintenance of the road. Such a concession shifts the

⁹ PPIF Toolkit: <http://www.ppiaf.org/ppiaf/sites/ppiaf.org/files/documents/toolkits/highwaystoolkit/1/1-13.html>

financial burden of operation and maintenance to the road user and at the same time should increase the efficiency of the road's operation and maintenance. Besides the issues inherent in a concession agreement, an operation and maintenance concession is similar in scope and approach to what is required and negotiated in a typical operation and maintenance agreement between private parties under a BOT-type arrangement (see below). This type of concession is also referred to as franchise, lease; "affermage" (French term) or "concession" under the PPI database.

Operation and maintenance concessions enable the public sector in developing countries to transfer commercial risk to the private sector and to create incentives for the private sector to ensure efficient revenue collection and to undertake regular maintenance to increase the reliability of facilities and postpone their renewal.

BOT-type of concessions (works concessions): Under a BOT, the responsibility of the concessionaire is not limited to operation and maintenance of the infrastructure but also comprises an initial construction, upgrading or major road rehabilitation component. Massive investment and consequent mobilization of private funding sources is therefore required from this company and is to be repaid from the revenue collected from road users (usually tolls). BOT (Build Operate Transfer) stresses the responsibility of the private entity during construction and operation of the road and the handing over (transfer) of the assets to the public entity at the end of the operation period. The high initial investment required from the private sector and the consequent long concession period make the distribution of risk between the parties a key element of success in such schemes. Many variations on this type of contract have been implemented with a consequently growing number of acronyms used to label them (DBFO, BOOT, BTO), refer to the Glossary. This PPP type is also referred to as "greenfield" in the PPI database.

BOT-type of concessions offer further advantages of increased value for money through efficiencies in construction costs as well as plant and labor management and to escape public budget constraints and to mobilize investment funds rapidly through project finance non-recourse funding. However, tendering and contracting may initially be lengthy procedures if there is little previous experience in the country.

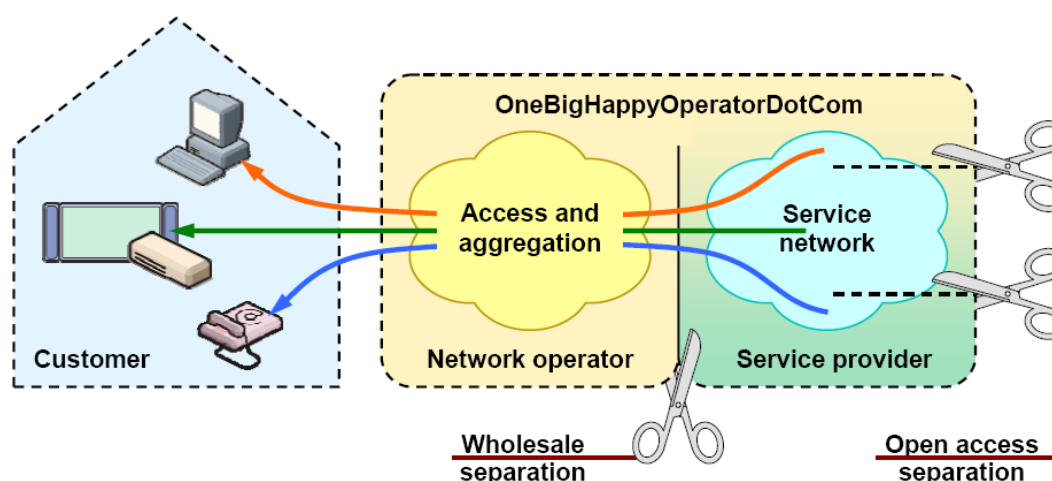
In the BOT-type concession, private sector participants typically establish a project company and, after securing an exclusive license from the host government or contracting authority (concession agreement), construct, control, operate and maintain a project for a determined

length of time (concession period). The private sector participants then transfer the project company assets back to the host government after the period has elapsed.¹⁰

5.2. Open Access Network (OAN) as a Broadband PPP Business Model

Open access model provides broadband-access customers with fair access to service, provided by different – and usually competing – service providers (SPs). The strength of OAN is that many services providers share the same infrastructure, networks resources and equipments of a single network provider. This causes a tremendous change in costs, revenue potential as well as in income potential of the network. On the customer side, the open access gives a free choice of service providers, to individual service providers it guarantees equal terms for offering their services (internet, voice, video, and others) to customers.¹¹

Figure 5: From wholesale to Open access model



Source: Iskratel (2009)

The open access model represents a very different approach compare to the traditional one. The fact that the single network is shared among many different service providers reduces costs of services for service providers as well as to customers. For customers, open access present a golden opportunity for freedom of choice with regard to choice they are willing to take.

Open access model is a perfect choice for broadband PPP infrastructure, not only because it put customer needs at the spotlight, but also it can be an important tool for economic development as it promotes universal access of technology to the entire population no matter the

¹⁰ See PPIF Toolkit

¹¹ See Bogataj (2009)

geographical origin, includes citizen into the active participation of their community development.

6. Risk allocated to the implementation of the project

There are various risks that the project company may not be able to manage. Mostly those risks are political risks such as events related to war, rebellion, default or failure of public sector entities, change in law and delays by authorities, or other contentious issue. There is a risk related to public perception, this happens when the grantor is a political entity. The public may not understand that the grantor is removed from the day-to-day operations of the public service which is the subject of the project company may be imputed to the grantor. Figure 5 shows the risks shared by project participants in a hypothetical BOT-type PPP, assuming the project company, therefore the lenders, will bear a portion of each of these risks.

Environmental risks have become far more central consideration over recent years. Developing countries are now pushed to follow suit applied by their counterparts in the industrialized countries. Social risk has a very important impact but infrastructure projects do not pay much attention on such issues. Reactions and interaction between the project and the society is important. Social aspects of investments service make PPP more vulnerable to social risks. But managing social risks in a proper way can provide a positive benefit for the project.

In telecommunication PPP projects, issues such as property right are mostly related to such projects when fiber optic cables must be laid on land. Terrestrial optic fiber projects involve digging land and install cables. Sometimes this operation can be difficult if local authorities are not involved in the facilitation of this operation. Property owners can also be very demanding once cables pass they land. Hence, they are able to hold an ongoing project and require important payment before accessing the land. Even if access to land is obtained, the question of whether or not to maintain property right in the optic fiber cable once installed must be considered.¹² When the site is selected, a major part of the risk that should be addresses is relating to rights of way and the access to land. Optic fiber networks are less employee-intensive when we compare to other projects such as construction of roads, airports or other similar infrastructures but involve a lot of operations and maintenance.

¹² See Delmon (2009)

Figure 6: Risk Sharing¹³

	Political	Cost increase	Environmental	Market	Development	Operation	Performance	Completion
Project Company	X	X	X	X	X	X	X	X
Grantor	X		X		X			
Construction Contractor		X	X	X	X	X		X
Operator		X	X	X	X	X	X	
Offtake Purchaser				X			X	X
Input Supplier			X	X		X	X	X

Source: Delmon (2009)

¹³ Also known as “risk matrix”, project participants will use far more complex and sophisticated versions of this matrix to chart risk allocation and establish project strategy (see Delmon (2009). Annex 1 provide a more exhaustive and exclusive risk matrix.

The government's role in any specific PPP will depend upon the type of contract and other project-specific factors. But regardless of what form of PPP is employed; the government will have a critical role. Certain responsibilities will remain in the public sector, while in some cases the government may have to retain risks that cannot be borne by the private sector. In general, the main areas of public sector responsibility in a PPP are:

- Regulation – the government remains responsible for overall oversight of the sector. With regard to any given PPP, the government must continue to comply with aspects of the regulatory regime that are committed to the developer, or otherwise necessary to make the project feasible. These may include tariff-setting mechanisms, competition policy, safety standards etc.
- Force Majeure – in all PPPs, the government will retain responsibility for risks that are beyond the control of the private sector. These include natural disasters, acts of war, and actions of the government itself (e.g., expropriation or breach of regulatory responsibility). In many cases, the government can obtain third-party guarantees to backstop its obligations in this regard (see section 7.a).
- Social and Environmental – the government must strictly comply with all social and environmental commitments made at the time of project development and construction throughout the life of the project. This is an absolute prerequisite for building up a long-term partnership with the local population and NGOs, which is the basis for a sustainable positive climate around the project as well as for making sure that financing from multilateral / bilateral institutions can be accessed.
- Financing – Ideally, the private sector will be responsible for all financing and financing-related risks in a PPP. However, in many cases the government may need to participate in the financing or provide guarantees to ensure their participation.

Government intervention in the operations of the project is needed to safeguard the national interest and well-being of the population it represents. Incremental development of construction and use and health and safety regulations, particularly in case where technology involved is still rapidly evolving, may pose considerable problems for developers if the regulations are not initially sufficiently well developed for the proposed service provided to accurately factor the relevant risks into his overall development equation. The government's role is also representing its citizen by overseeing the operations of the facility, and also protecting of the environment and the interest of minority groups in the society. National security is an obvious primary concern of all governments and the maintenance of key public services in the event of conflict must form an essential plank in the government defense strategy. But this need for national security may be at odd with the philosophy of infrastructure

privatization, particularly when the company that provides services is owned or controlled by overseas interests.¹⁴ Furthermore, government's role is to coordinate and mobilize resources of the society it represent in order to avoid social chaos. In addition, it must facilitate the accomplishment of tasks for the people of the society as a whole which individual alone cannot accomplish.

7. The World Bank Group risk mitigation instruments

The World Bank Group, particularly the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) provide a set of guarantee products for PPPs. These products are partial risk guarantees (PRGs) and Multilateral Investment Guarantee Agency (MIGA) Political Risk Insurance (PRI). Given its experience in developing countries, the World Bank covers government performance risks that the market is not able to absorb or mitigate. The guarantee mobilizes new sources of financing at reduced financing costs and extended maturities, thereby enabling commercial/private lenders to invest and support PPP projects in developing countries. Guarantees can mitigate a variety of critical sovereign risks and effectively attract long-term commercial financing in sectors such as power, water, transport, telecom, oil and gas, and mining. Guarantees can enhance private sector interest in participating in privatizations and public private partnerships. It can also help sovereign governments access the financial market.¹⁵

Investors want to be protected from any type of risks. These risks can be political such as convertibility, devaluation, expropriation, and violence, regulatory or legal. Risks can also be market risks related to foreign exchange, commodity price, interest rate change, demand or access to finance or default risks. There are also risks related to breach or repudiation of contracts. Although related to political decisions, such risks can result from a number of influence, and often by neglect or lack of resource. Because of the ambiguous nature of those risks, governments need to protect investors' risks in order to attract more private capital, at a lower cost. The bank's instruments will allow investors to be protected against uncertainties.

IBRD PRG and MIGA PRI products

- a. **IBRD/IDA Partial Risk Guarantees (PRGs)** are typically termed Political Risk Guarantees or Insurance or Political Risk Insurance (PRI) depending on the provider, cover private lenders against the risk of a government-owned entity failing to perform its obligations with respect

¹⁴ See Smith A. J. (1999)

¹⁵ You can read more on the World Bank guarantee products on the www.worldbank.org/guarantees

to a private project. PRGs have been usefully deployed in markets where available commercial financing is scarce, often substantially increasing maturities and reducing bank margins. PRGs can cover a range of risks relating to government performance including:

- changes in law
- failure to meet contractual payment obligations
- obstruction of an arbitration process
- expropriation and nationalization
- foreign currency availability and convertibility
- nonpayment of a termination amount or an arbitration award following a covered default
- failure to issue licenses, approvals, and consents in a timely manner
- failure to follow published regulatory methodology

Bank guarantees are intended to be catalytic instruments and therefore are offered as partial guarantees only. Eligible investments include commercial bank loans, bank letters of credit, “deemed loans” (contingent obligations which become payable upon specific actions), and other forms of debt financing. The risks are shared between the private lender, the private project sponsor (in a PRG), the government, and the Bank.

IBRD/IDA PRGs are available for all countries eligible for IBRD/IDA credits. The World Bank also offers enclave guarantees, which are partial risk guarantees structured for export oriented commercial projects generating foreign exchange in IDA-only countries (including “red light” countries that receive only IDA grants). The amount of Bank country allocation required by a PRG is determined largely by the country’s WB status. For IDA countries, PRGs are generally charged 25% of the face amount of the guarantee. For IBRD countries, PRGs are charged the present value of the Bank’s exposure, which for a straightforward guaranteed bank loan would be 100% of the face amount.

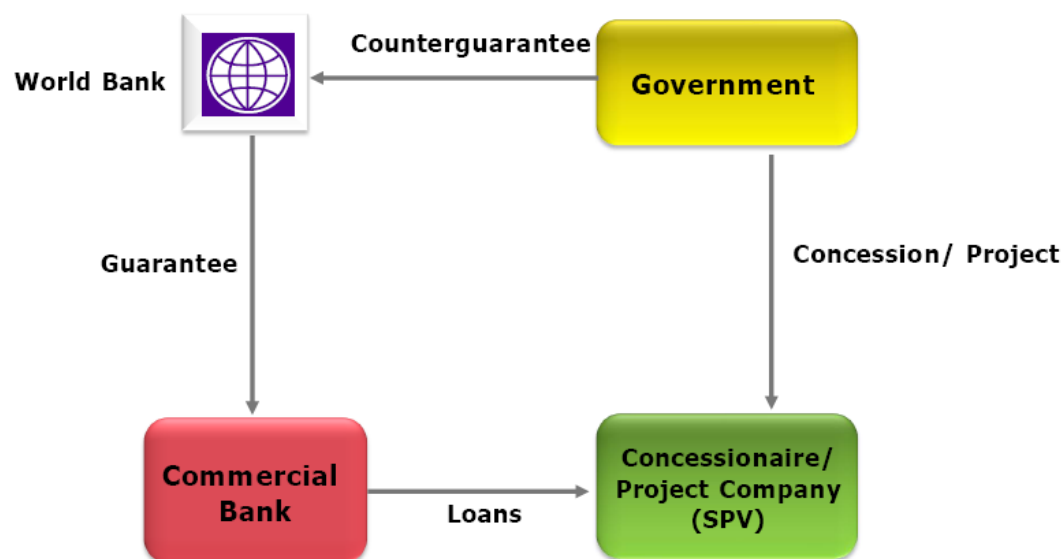
- b.** MIGA Political Risk Insurance (PRI) is a tool for businesses to mitigate and manage risks arising from the adverse actions - or inactions - of governments. As a risk mitigation tool, PRI helps provide a more stable environment for investments into developing countries, and to unlock better access to finance.¹⁶ MIGA’s PRI product insures eligible projects against losses relating to:
- Currency transfer restrictions
 - Expropriation
 - War and civil disturbance
 - Breach of contract

Eligible projects include new cross-border investments originating in any MIGA member country, destined for any developing member country; investments must be for greenfield projects, expansion/modernization/financial restructuring of existing projects, or privatization

¹⁶ More information about PRI at <http://www.pri-center.com/directories/priessentials.cfm#what>

of state-owned enterprises. In most cases, the investors cannot be nationals of the country where the investment is being made. Eligible investments include equity, shareholder loans, and shareholder loan guaranties (minimum maturity three years). Loans to unrelated borrowers can be insured, provided a shareholder investment in the project is insured concurrently or has already been insured. Other forms of investment, such as technical assistance and management contracts, and franchising and licensing agreements, may also be eligible.

Figure 7: Guaranteed Debt structure



Source: World Bank Guarantee Program

These instruments can cover a range of sovereign or parastatal risks, subject to specific obligations contractually agreed to by the government for a specific project. The types of risks covered may vary, including:

- currency inconvertibility/nontransferability: losses arising from the inability to convert local currency into foreign exchange, or to transfer funds outside the host country;
- political force majeure risks such as expropriation: losses as a result of actions taken by the host government that may reduce or eliminate ownership of, control over, or rights to the insured investment
- war and civil disturbance; material adverse government action: losses from damage to, or the destruction or disappearance of, tangible assets caused by politically motivated acts of war or civil disturbance in the host country
- government (or government entity) contractual payment obligations (e.g., periodic or termination payments; agreed subsidy payments; minimum revenue guarantees);

- regulatory risk; change of law and regulations; negation or cancellation of license and approval; non-allowance for agreed tariff adjustment formula or regime;
- contractual performance of public counterparties (e.g., state-owned entities under an off-take agreement, an input supply agreement);
- frustration of arbitration; and
- certain uninsurable force majeure events.

Unlike IBRD / IDA PRGs, IBRD Enclave PRGs will not cover the performance and payment obligations of the output purchaser or foreign exchange convertibility/transferability.

8. Implementation timeline

The Brazzaville-Matombi infrastructure (Station WACS) is about 590 km, will include nine sections that will serve cities located on the main route.¹⁷ The project was assigned to ETDE (Bouygues) and ENI and should be completed in February 2011, shortly before the commissioning of WACS. ETDE has confirmed that he was installing fiber "Single Mode G.652.

Congo Telecom has signed a contract with Alcatel-Lucent to build its own terrestrial fiber optic network. Even if the contract was not yet in force in June 2010, following funding uncertainties, Alcatel-Lucent has already begun working on the groundwork of the project. This work is expected to be completed by the end of 2012.

Figure 8: Completion estimated timeline



Extension of the national network of Brazzaville to the north of the Congo is composed with an optical infrastructure of 850 km from Brazzaville to Ouessou.

This is the second major route that will complete the national coverage of broadband.

Although it is almost 50% longer than the link between Brazzaville and Pointe Noire, the route will be serving much smaller populations.

The Brazzaville-Ouessou extension will have 8 sections serving major cities along the section. The Congolese state has already starts to work on Brazzaville-Oyo section, also designed by EDTE for the benefits of SNE with the terrestrial fiber optic cables (CGFO). The construction is planned to be completed in July 2011,

coinciding with the introduction operation of WACS.

¹⁷ See Table 4 for the list of cities and required equipments

The missing section of SNE, Oyo-Ouesso, is planned to be launched around 2015. Indeed, the extension north of Oyo is related to the construction of large electricity dam of Liouesso. Once this construction is completed in 2015, high-voltage line between the dam and Oyo will be put in place to achieve electrical and optical interconnection.

Works Cited

- A.J, Smith. *Privatized Infrastructure: The Role of Government*. London: Thomas Telford, 1999.
- Africa Infrastructure Country Diagnostic, AICD. "The Republic of Congo's Infrastructure: A Continental Perspective." *Country Report*, Forthcoming, 2010: 43.
- Akintoye A., Beck M. and Hardcastle C. *Public-Private Partnerships: Managing Risks and opportunities*. Glasgow: Blackwell Science, 2003.
- Andrew, Cohill. *Broadband for America: The Third Way*. Report, Andrew Collin, 2010.
- Bogataj, Tomo. *Towards a customer-friendly Open Broadband Access: Bringing free service Selection to Closer Customer*. Technology Whitepaper, Iskratel, 2009.
- C., Brook P. J. and Irwin T. *Infrastructure for Poor People: Public Policy for Private Provision*. Washington, D.C: The World bank , PPIAF, 2003.
- Delmon, Jeffrey. *Private Sector Investment in Infrastructure: Project Finance, PPP Projects and Risk*. The Netherlands: Kluwer Law International, 2009.
- The World Bank. *World Bank Guarantees*. <http://www.worldbank.org/guarantees> (accessed August 07, 2010).
- Lewis, Darrin Grimsey and Mervyn. *Pubil-Private Partnerships: The worldwide Revolution in Infrastructure Provision and Project Finance*. UK: Edward Elgar, 2004.
- Odo, Habeck and Tomoko Matsukawa . *Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Developments*. Washington D.C: The International Bank for Reconstruction and Development / The World Bank, 2007.

Annex 1. Sample Risk Matrix

Risk	Description	Possible Mitigation	Possible Allocation
Availability risk	The possibility that the services to be provided by the private party do not meet the output specifications of the Relevant Government Institution.	<p>Clear output specifications.</p> <p>Performance monitoring.</p> <p>Penalty Deductions against service payments or subsidies.</p>	Private Party.
Completion risk	The possibility that the completion of the project facilities may be delayed so that the delivery of the services cannot commence at the scheduled date.	<p>Special insurance (project delay insurance).</p> <p>Liquidated damages, construction bonds and other appropriate security from the Private Party to achieve completion, unless caused by the Relevant Government Institution.</p>	Private Party, unless delay caused by Relevant Government Institution
Cost over-run risk	The possibility that during the design and construction phase, the actual costs will exceed tendered costs.	<p>Fixed price construction contracts.</p> <p>Contingency provisions.</p> <p>Standby debt facilities / additional equity commitments</p>	Private Party.

Risk	Description	Possible Mitigation	Possible Allocation
Design risk	The possibility that the private party's design may not achieve the required output specifications.	<p>Clear output specifications by Relevant Government Institution.</p> <p>Design warranty by private party.</p> <p>Patent and latent defect liability.</p> <p>Approval by Relevant Government Institution (but review must not lead to input specifications by Relevant Government Institution).</p> <p>Independent Expert appointment to resolve disputes on expedited basis.</p>	Private Party.
Environmental risk	The possibility of liability for losses caused by environmental damage arising from construction or operating activities, or from activities not attributable to the activities of the private party.	<p>Thorough due diligence by the bidders of the project site conditions.</p> <p>Independent surveys of the project site commissioned by the Relevant Government Institution at its cost.</p> <p>Works to remedy identified pre-transfer environmental contamination.</p>	The Private Party unless not caused by them then the Relevant Government Institution, but Relevant Government Institution's liability should be capped

Risk	Description	Possible Mitigation	Possible Allocation
Exchange rate risk	The possibility that exchange rate fluctuations will impact on the envisaged costs of imported inputs required for the construction or operations phase of the project.	Hedging instruments (e.g. swaps).	Private Party unless deemed not to be value for money in which case the Relevant Government Institution
Force Majeure risk	The possibility of the occurrence of certain unexpected events that are beyond the control of the parties.	Define "Force Majeure" narrowly to exclude risks that can be insured against and that are dealt with more adequately by other mechanisms.	Shared
Inflation risk	The possibility that the actual inflation rate will exceed the projected inflation rate. This risk is more apparent during the operations phase of the project.	Index-linked adjustment to service payments or user charges.	Shared.

Risk	Description	Possible Mitigation	Possible Allocation
Insolvency risk	The possibility of the insolvency of the private party.	<p>SPV structure to ring-fence the Project cash flows.</p> <p>Security over necessary Project Assets by Relevant Government Institution.</p> <p>Limitations on debt and funding commitments of the private party.</p> <p>Reporting obligations in respect of financial information and any litigation or disputes with creditors.</p> <p>Relevant Government Institution has right to terminate the PPP Agreement.</p> <p>Substitution of private party in terms of the direct agreement with Lenders.</p>	Private Party.
Insurance risk	The possibility that any risks that are insurable become uninsurable or of substantial increases in the rates at which insurance premiums are calculated.	Self-insurance by the Relevant Government Institution	Shared
Interest rate risk	These are factors affecting the availability and cost of funds.	<p>Hedging instruments (e.g. swaps).</p> <p>Fixed rate loans</p>	Private Party.

Risk	Description	Possible Mitigation	Possible Allocation
Latent defect risk	The possibility of loss or damage arising from latent defects in the object included in the Project Assets (compare, the treatment of latent pre-transfer environmental contamination, see environmental risk).	Wherever possible, the design and construction of the Facilities must be performed or procured by the private party. The bidders must undertake a thorough due diligence of facilities to uncover defects.	If the Private Party designs and constructs, then Private Party risk. If not, then Relevant Government Institution.
Maintenance risk	The possibility that the cost of maintaining assets in the required condition may vary from the projected maintenance costs, or maintenance is not carried out.	Clear output specifications. Penalty regime and performance monitoring. Special insurance and special security in the form of final maintenance bonds.	Private Party.
Market, demand or volume risk	The possibility that the demand for the services generated by a project may be less than projected		For a user-fee project, the Private Party or shared if there is a revenue guarantee from the Relevant Government Institution

Risk	Description	Possible Mitigation	Possible Allocation
Operating risk	Any factors (other than Force Majeure) impacting on the operating requirements of the Project.	<p>Clear output specifications.</p> <p>Penalty regime and performance monitoring.</p> <p>Special insurance.</p>	Private Party.
Planning risk	The possibility that the proposed use of the project site in terms of the PPP Agreement and, in particular, the construction of the Facilities on the project site will fail to comply with any applicable laws.	<p>The Relevant Government Institution must identify at the feasibility phase any macro-level planning consents such as, any land-use and zoning Consents. These Consents must be obtained before the project is put to tender.</p> <p>The Private Party must identify all planning consents that are required for the project having regard to its design and construction proposal. It must make adequate provision in its programme for such consents to be obtained.</p>	<p>In relation to any land-use and zoning consent, the Relevant Government Institution, unless project site selection is the private party's responsibility.</p> <p>In relation to any building consent or other design or construction specific planning consent, the private Party</p>

Risk	Description	Possible Mitigation	Possible Allocation
Political risk	The possibility of unforeseeable conduct by the Relevant Government Institution that materially and adversely affects the private party.	Limit risk to those circumstances where there is no other relief in the PPP Agreement and to expropriating actions.	In relation to discriminatory conduct and expropriating actions, the Relevant Government Institution.
Regulatory risk	The possibility that consents required from other government authorities will not be obtained or, if obtained, can only be implemented at a greater cost than originally projected	<p>During the feasibility phase of the project, a legal scan is undertaken by the Relevant Government Institution to identify all such consents, licenses and permits.</p> <p>Implementation by the Relevant Government Institution of a liaison process with the responsible government authorities before the tender documents are issued.</p> <p>Due Diligence by private party to identify the consents required for its operating requirements.</p>	<p>If any such Consents can be obtained before the PPP Agreement is signed, the Relevant Government Institution.</p> <p>In relation to the Private Party's operating requirements, the Private Party.</p>

Risk	Description	Possible Mitigation	Possible Allocation
Residual value risk	The risk that the project assets at termination or expiry of the PPP Agreement will not be in the prescribed condition for transfer to the Relevant Government Institution.	<p>Obligations on private party to maintain and repair.</p> <p>Audit of project assets towards the end of project term.</p> <p>Security by the private party in favor of the Relevant Government Institution, e.g. final maintenance bond or deduction from service payment.</p> <p>Reinstatement obligations on Private Party.</p>	Private Party.
Resource or input risk	The possibility of a failure or shortage in the supply of the inputs or resources (for example, oil or other fuels) required for the operation of a project including deficiencies in the quality of available supplies.	<p>Supply contracts for supply of total project requirements, such as take and pay contracts.</p> <p>Relief Events but only if failure or shortage not attributable to the Private Party.</p>	Private Party, unless the inputs are supplied by the Relevant Government Institution.
Subcontractor risk	The risk of subcontractor (first-tier and below) defaults or insolvency. This risk may arise at the construction and/or operations phases of the Project.	<p>Subcontractors must have expertise, experience and contractual responsibility for their performance obligations.</p> <p>Replacement subcontractors to be pre-approved by the Relevant Government Institution.</p> <p>Due diligence by the Relevant Government Institution must include review of subcontracts to confirm the pass through of risks down to the subcontractors.</p>	Private Party.

Risk	Description	Possible Mitigation	Possible Allocation
Tax rate change risk	The possibility that changes in applicable tax rates or new taxes may decrease the anticipated return on equity.		The Private Party's unless unforeseen adverse action by the Relevant Government Institution that discriminates only against the PPP.
Technology risk	The possibility that the technology inputs for the outsourced function may fail to deliver the required output specifications, or technological improvements may render these technology inputs out-of-date.	Obligation on Private Party to refresh technology as required from time to time to meet the output specifications. Penalty deductions for failure to meet output specifications.	Private Party.
Utilities risk	The possibility that the utilities (e.g. water, electricity or gas) required for the construction and/or operation of a project may not be available.	Emergency back-up facilities or contracts Special insurance (project delay or other business interruption insurance).	Private Party unless the Relevant Government Institution is the responsible Utility provider