Private Sector & Development
PROPARCO'S MAGAZINE

N° 09 / March 2011

What role for the private sector in African railways development?

Infrastructure to renew, new lines to build... Africa's railways must face a whole host of challenges in order to contribute to the continent's rapid development. What role can the private sector play?

EDITORIAL BY ÉTIENNE VIARD CHIEF EXECUTIVE OFFICER OF PROPARCO

"Without the railroad, the Congo is not worth a penny", declared the famous explorer Henry Morton Stanley at the end of the 19th century. More than a century later this quote still resonates with the Africa of today. The continent is experiencing strong growth and the role of the rail sector is greater than ever before. Offering a lower cost alternative to roads, rail networks are also longer lasting and produce a lower carbon footprint. Railways provide an indispensible means of moving mineral wealth and agricultural products to market and are essential for opening up landlocked countries.

And yet by the 1970s the knell was sounding for the golden age of the African railway which had flourished in the wake of colonial conquest. Suffering from to lack of maintenance and new investment as well as increased competition from roads, by the 1990s most of the state-owned sub-Saharan railway companies had been transferred to the private sector.

Although concessions may have had a positive impact, particularly with respect to productivity and traffic volumes, overall the outcome has been mixed. Experience has highlighted difficulties in achieving a balance between State expectations and private sector profitability imperatives.

Today, continued economic growth in Africa will require the addition of new lines to existing rail networks in order to provide greater regional integration. This will involve significant investment, and African governments formerly seeking to privatize the rail sector will once again need to become involved. Fortunately, however, lessons learned in recent years from the active role of the private sector in sub-Saharan railways will make it possible to identify the conditions whereby the rail sector can once again fully contribute to Africa's rapid development. At a time when Africa's rail sector has reached a crossroads, this is precisely the aim of the ninth issue of *Private Sector & Development*. —

Proparco
GROUPE AGENCE FRANÇAISE DE DÉVELOPPEMENT

A balance between public and private sector roles: the key to a successful rail concession

When it comes to transport capacity, cost per kilometer, longevity and safety, railways are preferable to roads. However, concessions have not promoted private investment as much as expected and have not sufficiently improved passenger services. Thanks to World Bank experience, a new concession model has been defined and shares responsibilities for investments in a more balanced manner. In addition, it would appear to be essential to support projects over the long term.

Pierre Pozzo di Borgo

World Bank [1]

Since the first railway concession in Africa in 1996 (Sitarail in Côte d'Ivoire and Burkina Faso), most of formerly state-owned railway companies in sub-Saharan Africa (SSA) outside South Africa have been transferred to private operators under various forms of concession contract. Today, more than 70% of rail activities in this region are in the hands of private operators (World Bank, 2010a).

The World Bank Group has supported most concession processes through its International Development Agency (IDA) and/or its International Finance Corporation (IFC) (Table 1). Since 1996, the IDA alone has provided more than USD 773 million to host governments *via* technical assistance, financing of labour retrenchments,[2] and/or financing of railway infrastructure and rolling stock rehabilitation or maintenance. Additionally, the IDA is examining the potential financial support for restructuring existing rail concessions in West Africa (i.e., Sitarail and Transrail) and planned new concessions (i.e., Nigeria Rail Corporation – NRC, Chemin de fer Congo-Océan - CFCO).

The rationale behind the World Bank's support of Railways in SSA

Well-performing and reliable railway operations are important for Africa's transport systems and economies. In addition to dedicated mining railways, which are used to cheaply and reliably transport large volumes of export cargoes over long distances, general freight and passenger railways also play a key role in supporting economic growth. This is even truer for Africa's land-locked countries, which are especially vulnerable to high transport costs.

Sitarail illustrates the positive impact that a well-run railway can have on a landlocked country's economy. It provides a competitive transport link between Burkina Faso and West Africa's main port of Abidjan, and its estimated direct economic impact, comprising mostly fuel import and truck transport savings, is projected to top USD 280 million between 2008 and 2017 (World Bank, 2009a). More interestingly, 96%[3] of this is likely to accrue to Burkina Faso, with 81% of this figure reflecting transport cost savings, contributing directly to its external trade competitiveness (Table 2). According to the World Bank (2009b; 2010b), the main competitive advantages of rail over road transportation are higher transport capacity per dollar invested (50% lower cost per kilometre of rehabilitated rail track compared with a two-lane road), higher durability (roads need complete rebuilding every 7 to 10 years, vs every 15 to 20 years for rail tracks), lower energy consumption and carbon footprint per ton transported

PIERRE POZZO DI BORGO

Pierre Pozzo di Borgo has over 18 years of experience in the analysis and management of transport projects. Since 2003, he has participated and led the World Bank's support of public private partnerships (PPP), mainly in the rail, road and airport sectors. He has assisted in the development of second-generation rail concession contracts. Previously, he worked for Booz Allen Hamilton and Louis Berger International. He holds an MBA from Maryland University, College Park, and a MA from the Sorbonne University of Paris. —

[1] *The opinions expressed in this article are those of the author, and not necessarily those of the World Bank.*

[2] *The World Bank finances the cost of laying off or retiring excess workers from public railways ahead of their privatisation. In the most recent case, the Democratic Republic of Congo's SNCC railways, it earmarked USD 45 million for the retirement rights of 4,500 employees as part of the Multimodal Transport Project.*

[3] *With bi-national railways linked to a seaport, it is the landlocked country that benefits the most from the infrastructure as the distances for transporting its goods are longer. In the case of Sitarail, before the crisis in 2002, the Côte d'Ivoire benefited from 25% of the economies permitted. Since then, this percentage has decreased markedly because Sitarail lost its hydrocarbons transportation monopoly in the Côte d'Ivoire, which constituted 75% of internal freight traffic.*

(up to 75% and 85% less, respectively). Accordingly, the World Bank's support of existing railway networks is often justified on economic grounds. Nevertheless, it must always be part of a well-crafted public private partnership to ensure maximum economic impact. Indeed, state-owned railways in SSA have often proven unable to benefit from IDA support because of a combination of poor governance and weak management skills.

Railway concessions: background and performance

The performance of railway concessions varies. On the one hand, concessions have translated into increased labour and asset productivity, higher market share for freight services, lower overall government subsidies, and improved financial viability. On the other hand, they have failed to deliver the level of private investment originally envisioned or the expected improvement in the quality of passenger services. Overall, the expectation that concessions would achieve long-term financial sustainability without the financial support of governments has not been realized. However, this realisation has not deterred the IDA from supporting existing and new concessions, although it has altered the IDA's intervention framework.

The background to this is, first, serviceable freight markets were overestimated by both transaction advisors and governments. In most cases, traffic gains have been much lower than expected because road competition has been fiercer than planned.[4] Host governments mostly did not understand the need to equalise rail/road competition, or were deterred from doing so by the pre- ▶▶▶

[4] In the case of KRC, for example, the concession contract targeted four million tons of traffic between Mombasa and Nairobi, with financial sanctions if this was not achieved. In reality, traffic increased from 2.2 million to 2.5 million tons since the beginning of the concession.

TABLE 1: IDA AND IFC INVOLVEMENT IN PUBLIC PRIVATE PARTNERSHIPS RAIL CONTRACTS IN SUB-SAHARAN AFRICA

Company name	Countries	Year of concessioning	Network length (km)	IDA/IFC participation			Total support in USD millions (1+2+3)	
				1	2	3		
				Technical assistance during concessioning process	Personnel retrenchment	Infrastructure and other investments	IDA	IFC
	Concessioned and/or privately operated railways							
Sitarail	Côte d'Ivoire, Burkina Faso	1996	1,245	IDA	IDA	IDA	21	none
Beitbridge Bulawayo Railway (BBR)	Zimbabwe	1999	317	none	none	none	none	none
Camrail	Cameroon	1999	1,104	IDA	none	IDA	113	none
Central East African Railways Company (CEAR)	Malawi	2000	797	IDA	none	IDA	10	none
Railway Systems of Zambia (RSZ)	Zambia	2002	1,273	IDA	IDA	IDA	35	none
Madarail	Madagascar	2003	681	IDA	IDA	IDA	65	none
Transrail	Senegal, Mali	2003	1,546	IDA	IDA	IDA	45	none
Companhia dos Caminhos de Ferro da Beira (CCFB)	Mozambique	2005	725	IDA	none	IDA	110	none
Transgabonais	Gabon	2005	814	none	none	none	0	none
Nacala railway	Mozambique	2005	600	IDA	IDA	none	20	none
Kenya Railway Corporation (KRC) – Uganda Railways Corporation (URC)	Kenya-Uganda	2006	2,454	IFC	IDA	IFC	74	32
Tanzania Railways Corporation (TRC)	Tanzania	2007	2,722	none	none	IFC / IDA	35	44
Société nationale des chemins de fer du Congo (SNCC)[1]	Democratic Republic of Congo	2011	3,641	IDA	IDA	IDA	243	n.a.
			Planned railway concessions					
CFCO	Congo	2012	885	IDA	n.a.	n.a.	1	possible
NRC	Nigeria	2012	3,505	IDA	possible	possible	1	possible
TOTAL							773	76

Nota bene: '1' refers to management contract and 'n.a.' means not available.
Source: Pozzo di Borgo, 2010

What role for the private sector in African railways development?

▶▶▶ vailing political economy supporting the trucking sector. In SSA, governments have saddled concessionaires with both the cost of rail maintenance and rehabilitation, while they have not modified road user regulations and taxation, making road users shoulder no more than a mere portion of the cost of road maintenance.

Second, investment needs have been underestimated. Plans for infrastructure rehabilitation have usually focused only on the first five years of the concession, ignoring long-term needs, which have proven to be far greater than anticipated: during bidding, both governments and private operators have downplayed the state of rail infrastructure.

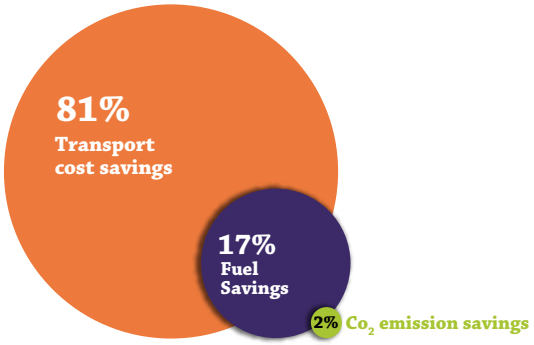
Third, concessions have been undercapitalised. The capital bases of concession companies have been too limited, in part to lower the risk perceptions of private investors. This caused many concessions to rapidly become cash strapped, as projected positive cash flows did not materialise and the long-term debt burden inherited from the on-lending of donors' money became too burdensome.

"Greenfield rail projects mostly remains doubtful in sub-Saharan Africa."

Finally, expectations for passenger services have been unrealistic. In many cases, this has led to misunderstandings between governments, concessionaires and travellers. Since 1996, none of the privately operated passenger services have been financially viable. They have all been either indirectly subsidised by freight operations or directly subsidized by government treasuries. Although subsidisation is not rightfully problematic, the political cost and risk associated with badly crafted schemes cannot be underestimated; for example, the financial impact of unpaid passenger subsidies from the Government of Cameroon to Camrail between 1999 and 2008 and the financial impact of Senegal's and Mali's passenger service arrears on Transrail through to the end of 2010. Rail passenger services, while representing only 5-10% of total revenue, have caused most of the tensions between governments and concessionaires.

It has become clear that the markets served by rail concessions in SSA are too small to ensure the sustainability of rail businesses required to finance both rail infrastructure and rolling stock. As shown in Table 3, the average yearly revenue of most rail concessions in SSA is only USD 35 million, whereas each network is known to require rehabilitation investment far in excess of that amount (e.g. more than USD 200 million for Camrail and Transrail, according to their respective concessionaires) in the next 10 years. Consequently, most donors and policy makers now understand that rail operations, to yield positive economic returns to host governments, need continued financial support from them.

TABLE 2: BREAKDOWN OF SITARAIL'S 2010-2020 ECONOMIC IMPACT, BY CATEGORY



Source: World bank, 2009

A NEW MODEL FOR SUCCESSFUL RAILWAY CONCESSIONS

Concession contracts in Cameroon and Madagascar have been successfully restructured with the World Bank's support to reflect the lessons learned since 1996. The pillars of this restructuring are private operators taking responsibility for financing rolling stock maintenance and renewal, shouldering only the cost of track maintenance; governments agreeing to finance track renewal subject to sharing profits; governments committing to finance infrastructure, partially securitized by an 'infrastructure renewal fee' paid by the concessionaire (which represents anywhere from 1 to 4% of annual revenues) into a secured account managed by it for the government; concession contracts stating upfront the estimated infrastructure amounts payable for at least 15 years, so governments grasp their net commitments (after the infrastructure renewal fee, profit sharing and other concession fees); instituting intermodal competition policies to rebalance road-rail competition (e.g. enforcing axle loading for trucks along competing corridors, road tolls, etc.); and separately accounting for passenger services, to reflect governments' financial obligations to these.

While this approach is likely to ensure the success of railways in SSA, the success of concessions will ultimately be determined by governments offering private operators enticing financial prospects. However, the financial fundamentals that have driven private investment towards the railway sector are not likely to change soon.

BASIS FOR WORLD BANK SUPPORT OF GREENFIELD PROJECTS

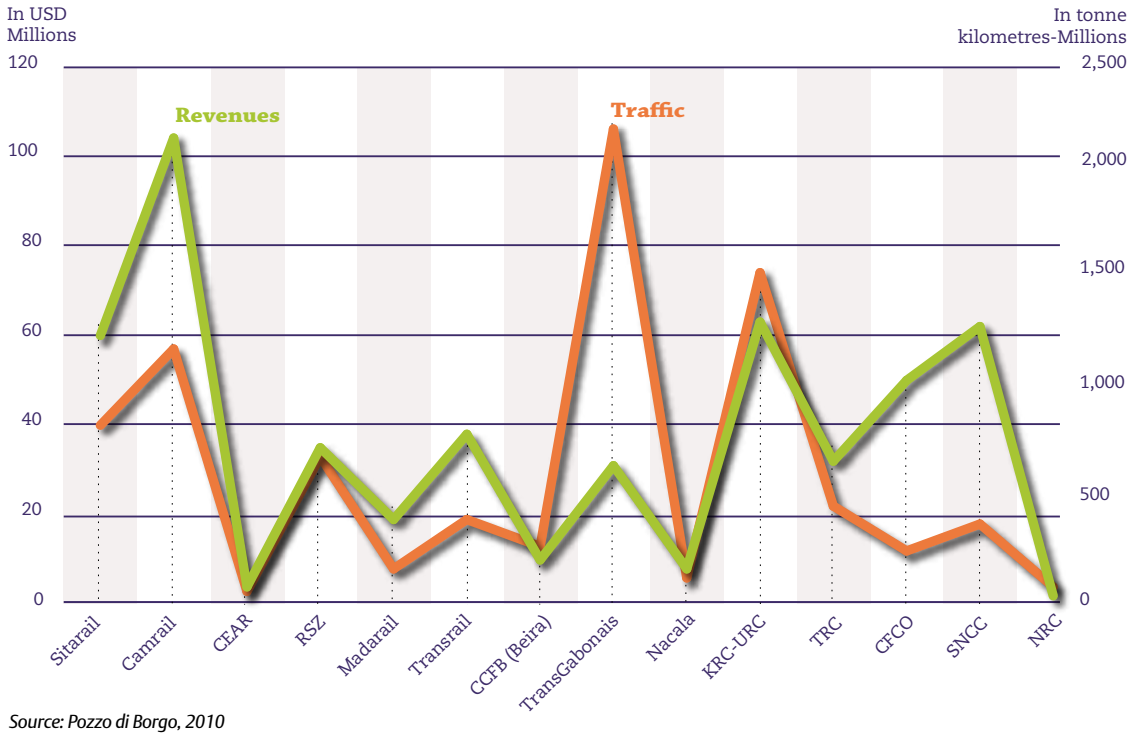
While restructured, well-organised railways impact economically positively on national economies, the viability of non-mining Greenfield rail projects mostly remains doubtful in SSA. These projects are expensive - at least USD 2 million per kilometre of new track - (CIMA International, 2008) and take years to implement, with significant upfront financ-

ing and no return for many years. Accordingly, the private sector's appetite for them is low, leaving public treasuries to finance them. Also, their returns tend to be inflated by over-optimistic volume projections, designed to compensate for the limited size of the markets to be served. These projections are usually based on a shift from road freight to rail that does not recognise road haulers' competitive ability (as experienced by rail concessions over the last 13 years) and the political economy created by well-established and well-financed truck lobbies. Consequently, most non-mining Greenfield projects examined by the IDA do not meet the economic and financial criteria for support. This holds true for the proposed widening of existing rail lines from meter to standard gauge (1,435 meter), as less than 30% of the capacity of meter lines is currently used. Nevertheless, the World Bank is determined to continue to review proposed Greenfield projects, if only to share lessons learned with its clients and to reduce their risk for public finances.

The future role of the World Bank in SSA rail concessions

The restructuring model for rail concessions developed in 2005 with IDA assistance has paved the way for future World Bank interventions in the rail sector, as it offers proven solutions to the structural problems experienced by today's general freight and passenger rail concessions. However, even this cannot compensate for the lack of proficient private operators with long-term commitment and industrial vision for African railways, and governance issues on the part of governments. Therefore, IDA assistance must support developing and implementing a long-term vision for the investment and policy balance required to achieve growth of countries' transport subsectors. Also, since IDA lending is not the best instrument for long-term financial support (IDA projects usually last between five and seven years), substitution of its presence by the IFC, European Investment Bank, Development Financial Institution and/or private financing arms of bilateral or multilateral institutions – using limited shareholdings – should be explored. This is currently being done for the Kenya-Uganda railway concession, where the IFC acts both as a minority shareholder and as a financier. Finally, the IDA can assist host governments to leverage bilateral investments from China or India by promoting institutional reforms that favour private operators becoming involved in designing, supervising and implementing these investments, thereby ensuring that best-value approaches are implemented. •

TABLE 3: TRAFFIC VOLUMES AND REVENUES FOR A SAMPLE OF SSA RAILWAYS IN 2008



Source: Pozzo di Borgo, 2010

REFERENCES / **CIMA International, 2008.** Étude de faisabilité des interconnections des réseaux ferroviaires des pays membres de la CEDEAO, Working Paper, March. // **Pozzo di Borgo, P.,** 2010. Railways Concession in Sub Saharan Africa. Lessons Learned, Extract from Presentation to East Africa Community, Dar Es Salam, Tanzania, March. // **World Bank, 2009a.** Economic Impact of Railways Systems in sub-Saharan Africa: Estimation Model for the Projection of the Overall Economic Impact on African Economies, Africa Technical Transport Unit, Working Paper. // **World Bank, 2009b.** Empirical Observations from Biding Documents, Working Papers. // **World Bank, 2010a.** World Data Bank, Database. // **World Bank, 2010b.** Off Track: sub-Saharan African Railways, Africa Infrastructure Country Diagnostic, Background Paper n°17.

Railway concessions in Africa: difficulties encountered and possible solutions

Although railway lines may offer a great economic interest for certain African States, private players such as Bolloré Group, which manages Sitarail and Camrail under concessions, have to face a whole host of challenges. The investment burden, technical difficulties and fees that have to be paid to the conceding authority all add to companies' debts. A more balanced partnership and a sustained pace of investments would allow the true potential of railway development in Africa to be exploited.

Édouard de Vergeron

Deputy Director for West, Central and Southern Africa, Bolloré Africa Logistics

Bolloré Africa Logistics became involved in public-private partnerships in the rail sector as early as in the mid-1990s: in 1995 in Côte d'Ivoire and Burkina Faso via the Sitarail concession, then in 1999 in Cameroon with Camrail. Bolloré Africa Logistics consequently took over and reorganized the management of these rail networks, which were on the decline at that time. These State-run networks suffered from a lack of infrastructure renewal due to insufficient financial resources and were losing traffic to roads.

Bolloré Group is a long-term economic operator and investor in transport and logistics in Africa. It managed to convince international banks and donors to follow it in the launch of these two concessions. These partnership contracts, which run until 2030 for Sitarail and 2034 for Camrail, should allow these two rail networks to regain a good level of development.

ÉDOUARD DE VERGERON

Édouard de Vergeron graduated from the Marseille-Provence ESC business school and went on to join Bolloré Africa Logistics in 1996. He was appointed Deputy Director for West, Central and Southern Africa in 2009, after having held different financial positions in Africa where he was involved in the first concession processes. Today, Édouard de Vergeron contributes to the operational and commercial development of these regions, as well as to supervising existing rail, port and river concessions. —

Observed and expected benefits

An efficient railway network brings a whole host of economic benefits. This means of transport has a positive impact on the level of port activities. It strengthens the role of Africa's ports, which constitute a real economic powerhouse for the continent and a hub for goods transported by rail. Railways are essential for remote regions in order to reduce the energy bill: rail transport requires four times less diesel than by road. It helps keep international transport tariffs competitive. Finally, railways reduce pressure on roads – and consequently road maintenance costs.

They generally have a positive influence on the economic development of the relevant States. Activities such as agriculture, construction, mining projects (for example, Essakane in Burkina Faso) or oil projects (Doba in Chad) directly benefit from the presence of a competitive railway operator.

In Côte d'Ivoire and Burkina Faso, extremely strong benefits are expected from the plan to boost the rail sector – compared to the consequences of a line disappearing. The World Bank (Figure 1) estimates that the total economic impact of Sitarail over a ten-year period would represent roughly twice the investment required for infrastructure as estimated by the concessionaire (World Bank, 2009). Bolloré Africa Logistics has completed this assessment by looking at it from a longer-term perspective, factoring in the likelihood of a rise in road tariffs and envisaging what impacts the disappearance of a core sector for development which invests in training would have. They consequently estimate the indirect benefits for Burkina Faso, Côte d'Ivoire and Cameroon at EUR 850 million (Table 1). These estimates do not include the shortfall related to the possible development of the informal sector, or the economic impacts that the large number of road accidents have on the economy.

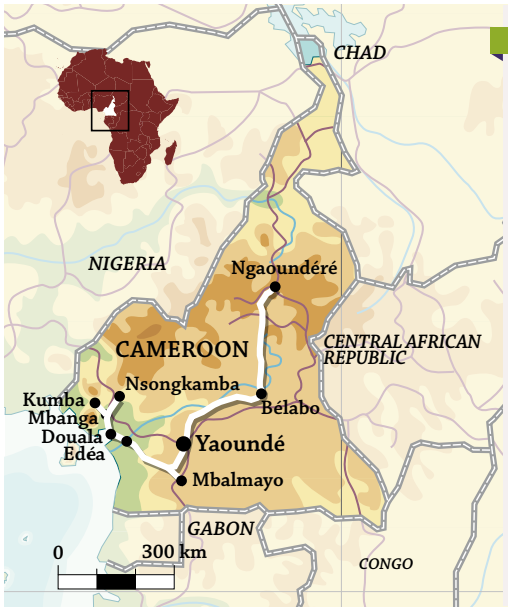
"When competition with roads has been unfair it has deepened deficits."

SITARAIL

FOCUS

The railway line between Côte d'Ivoire and Burkina Faso was built between 1905 and 1954. From 1960 to 1989, it was managed and operated by a binational State-owned company, the Régie des chemins de fer Abidjan-Niger (RAN), which belonged to both countries. In 1995, Sitarail, a company based in Abidjan, became the concessionaire for this 1,260 km long network, which links up Abidjan and Kaya, for an initial period of 15 years. This was subsequently extended to 2030.

CAMRAIL



FOCUS

In 1999, following the quasi-bankruptcy of Regifercam, Cameroon's national railway company, Camrail became the concessionaire of the country's railways. It is in charge of managing the 884 km of main tracks between Kumba, Douala and N'Gaoundéré until 2034. In 2008, Cameroon accepted to review Camrail's concession agreement. The aim was to share investments more evenly.

For the time being, the feasibility of certain mining projects (nickel and manganese in Burkina Faso, bauxite and iron in Cameroon), export development (oils, cotton, wood and fruit in general) and of supplying major urban centres necessarily requires railways that are economically and sustainably efficient. This development requires increasing the rolling stock fleet (engines and wagons). However, the financial capacities of companies continue to stem their growth. Bolloré Africa Logistics' aim is to improve rail network performance, in particular by seeking to go further than the commitments it has made in terms of service quality. It also provides its financial support in order to help change the way users perceive rail travel.

The efforts that have been made to renew tracks will allow an increase in transport capacity to be envisaged in the medium-term. Once the infrastructure on the current networks has been consolidated and extended to the main consumption sites or new mining centres, it will be possible to operate it in an optimal manner. It is only then that it will be possible to identify the remaining markets and to envisage interconnections in Central and Western Africa.

DIFFICULTIES ENCOUNTERED BY THE CONCESSIONAIRE

The first years of operating for the two concessions, Sitarail and Camrail, were marked by a considerable improvement in their operating performances compared to the last years when they were State-run. Customers very soon noticed the service improvement; railroad workers' support for the project showed States that a privatization operation could also be conducted with the agreement of employees. Despite hostile press campaigns – especially in Cameroon –, the steady growth in traffic, service reliability, productivity indexes and safety conditions all backed up the economic choices made by States. And for the latter, this *de facto* immediately reversed the trend in financial flows. Prior to the concession process, States paid huge subsidies to their national operators and consequently ran up both fiscal and social debts. Following the concession process, Sitarail and Camrail paid them fixed and floating license fees, taxes, duties and social contributions.

These payments were so high that they widely contributed to increasing the two companies' debts, despite the profits they had made. It is true, however, that investment needs were rising. Indeed, the works required to tackle the dilapidated state of the infrastructure were underestimated by experts. They consequently absorbed a level of investment and maintenance that was well above forecasts, which ruled out any possibility of developing the rolling stock fleet. In addition, despite the steady increase in the number of ▶▶▶

FOCUS

Bolloré Africa Logistics was founded in 2008 and is the largest private concession operator in Africa. It is active in 43 countries through its 250 subsidiaries. With a 22,000-strong staff, it is one of the largest private employers in Africa. Bolloré Africa Logistics operates two rail networks under concessions: the network linking up Côte d'Ivoire and Burkina Faso (Sitarail) since 1995 and Cameroon's rail network (Camrail) since 1999.

What role for the private sector in African railways development?

▶▶▶ users and more trains running on time, certain factors widely contributed to giving a strong feeling that the service had deteriorated: traffic slowdowns (for technical and/or safety reasons), no passenger wagon renewal and lack of refurbishment in certain stations under State responsibility.

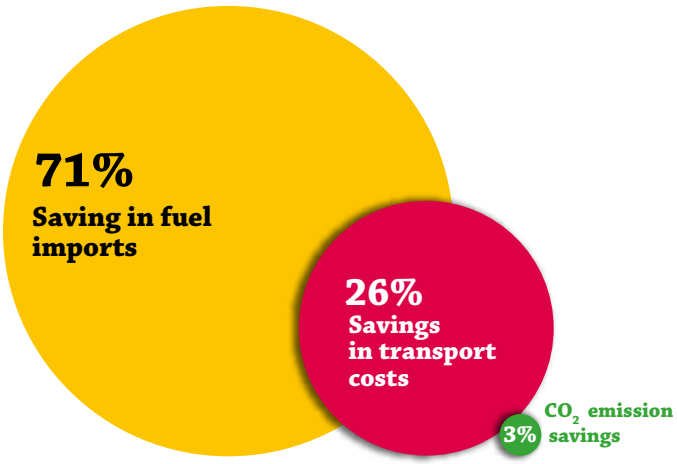
In cases where there was unfair competition from roads, the deficits worsened further still: no road tolls, little compliance with ton/axle weight restrictions, low investment needs, transport activities mainly based on the informal economy, etc. Despite its productivity gains, the rail sector was losing market share – whereas this means of transport is cleaner, cheaper and contributes to the State budget *via* taxes and duties (unlike the informal activities of most road haulage contractors). Bolloré Africa Logistics needed to come up with solutions to these problems with the agreement of the State: a new strategy was consequently required.

Concession agreements reviewed

States rapidly became aware of these difficulties. In Cameroon, despite sound operational performances, Camrail, which manages 884 kilometres of main tracks between Kumba, Douala and N'Gaoundéré, fell into a debt spiral which deprived it of any capacity to renew rolling stock. The public-private partnership which entrusted Bolloré Group, via Sitarail, with the management of the railway between Côte d'Ivoire and Burkina Faso (1,260 kilometres of tracks) no longer allows the concessionaire to meet its investment needs for the renewal of rolling stock or certain aging track sections. This first concession agreement could perhaps have been extended by a few years if there had been excellent operational performances, but this was without allowing for the Ivorian crisis of 2002-2003, or the ongoing crisis.

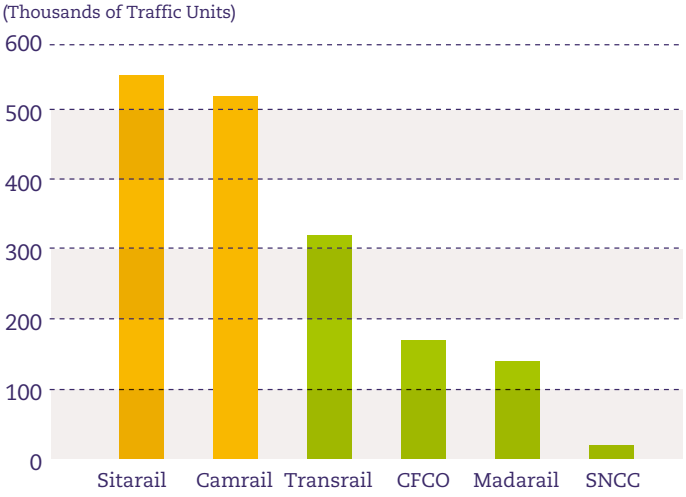
In order to be fully transparent in addressing these review plans, donors helped States assess the macroeconomic issues of their concessions and their concessionaires' performances (Figure 2). In 2008, Cameroon accepted to undertake a review of the concession agreement with Camrail in order to redefine the scope of the partnership and share the investments in a more balanced manner. The concessionaire will no longer bear the infrastructure cost alone. The aim is to gradually clear Camrail's debt from 2014-2019. For its part, the Cameroonian State intends to maintain a good level of public service and establish a balancing mechanism for a strategic activity sector in a country where opening up the north is an important socioeconomic

FIGURE 1: BREAKDOWN OF SAVINGS GENERATED BY SITARAIL IN 2008



Nota bene: Estimation based on a total saving of FCFA 9 billion (EUR 13.7 million)
Source: World Bank, 2009

FIGURE 2: STAFF PRODUCTIVITY IN CERTAIN AFRICAN COMPANIES IN 2008



Nota bene: Transrail operates in Mali and Congo-Ocean Railways (CFCO) in the Republic of Congo. Madarail is a Malagasy company, the Congo National Railway Company (SNCC) is that of the Democratic Republic of Congo.
Source: World Bank, 2009

TABLE 1: INDIRECT ECONOMIC GAINS FROM SITARAIL AND CAMRAIL FOR STATES (IN MILLIONS OF EUROS)

	20 years
Training	7
Transport cost saving / road (30% of OAC)	365
Crude fuel imports 50% excl. of VAT (ratio: 1 track to 4 roads)	303
Savings in CO_2 emissions / road	36
Savings in road maintenance costs (5,000 USD/km/year x 1,155 km)	107
Port revenues (port taxes)	35
Total indirect gains for States	**853**

Source: Bolloré, 2009

issue. Similarly, if it manages to survive the current crisis, the Sitarail agreement should be reviewed very shortly.

In Cameroon, EUR 350 million of investments have been made since 2008; over two-thirds of this has been borne by the concessionaire. In Côte d'Ivoire and Burkina Faso, investments are estimated at EUR 192 million. Bolloré Africa Logistics has invested – either directly or as the delegated contracting authority – some EUR 800 million. These figures are scrutinized by committees involving several local ministries and donors, which periodically evaluate the concessionaires' management. This major commitment by Bolloré Africa Logistics is based on the following analysis: these rail networks are the essential link to achieving a cost-performance balance for the economic operators of corridors serving northern Côte d'Ivoire, Burkina Faso (and even Mali), as well as northern Cameroon, Chad and the Central African Republic. The long-term growth in Bolloré Africa Logistics' activities requires greater competitiveness in the economies served and an increase in their volume.

"Rail transport is cleaner and cheaper than road transport and contributes to State budgets via taxes and duties."

Both Camrail and Sitarail's resources converge to meet the commitments to renew equipment, clear the debts of concessions and renew the expertise of these two companies. They are clearly aiming to be exemplary and are aware of the fact that they are engines of the economies of the States in which they are established. This responsibility – that Bolloré Group is fully aware of – is a further source of motivation, despite the management difficulties that may have seemed overwhelming to any private investor in many respects.

In addition to the constraints related to infrastructure quality – the two networks have metric tracks with a single block system, which means interconnections between villages are not possible –, their fleet equipment is limited in terms of the rail market. The wagon mix, for its part, shows a low level of containerization and corresponds to a 1980s vision of transport. These factors limit both the size of renewal orders and access to certain manufacturers. They also have an impact on production time and costs. But, above all, they do not yet allow access to the long-term leasing market for railway equipment.

These African railway networks still enjoy a high traffic absorption capacity and are consequently far from having reached saturation point. New markets are still accessible. Africa has real development potential ahead of it provided, however, that it can sustainably adapt to the new situation in terms of transport "product mix": liquid and mineral containerized traffic. Today, there are real development prospects for these railway lines in terms of both passenger and freight transport. ●

REFERENCES / **World Bank, 2009.** Aide-mémoire of World Bank technical mission to Sitarail, April.

What role for the private sector in African railways development?

Developing Africa's railways using existing infrastructure

Although it may be difficult to make a final assessment of rail concessions in Africa, it is possible to point up the conditions that foster private sector involvement. In order to upgrade infrastructure, it is essential to start with what already exists. State investments and improving productivity remain essential. The diversity of stakeholders is an asset and the presence of investors – albeit small – must be promoted at all costs.

Éric Peiffer

Delegate Director of Vecturis

Over the past fifteen years or so, several sub-Saharan African railway networks have experienced more or less extensive privatizations with quite a variety of arrangements but there have, however, been constant features. It would be hazardous to attempt to build a comparative picture of these different railways. Full data is not available, and when data is available, it shows situations that can sometimes be extremely different. It is, however, possible to give a broad outline and the ideal conditions of a rail project involving the private sector – in a sector which has, since African independence, been exclusively reserved for the public sector.

Tailoring infrastructure to real needs

From the Sahara to Limpopo, where there are the greatest development needs, the vast majority of rail networks have narrow tracks, generally with a light-weight structure which only allows low axle loads. Both the coupling and brake systems in use (vacuum brakes) only allow relatively light and short trains to run. Operating conditions are poor and are partly dictated by infrastructure constraints. Railways have seen little development since the end of the colonial era and suffer from a general investment deficit and inadequate maintenance. These different parameters lead to a high cost price per transported ton. There are, in addition, exceptional costs caused by the increasing number of operating incidents. In this case, railways in most of these countries do not play the role that they should as mass transporters and yet their economies have a huge need for this for their development. Although they continue to transport passengers, comfort and safety conditions are poor and the tariff conditions are (far) from covering the real costs of setting up a service.

ÉRIC PEIFFER

Éric Peiffer is a former lawyer and a cofounder-shareholder of Vecturis. He was previously Chief Executive Officer of Comazar (South Africa) and is today Chief Executive Officer of Transrail (Senegal-Mali) and a Director of Madarail (Madagascar). He has held various positions in other companies (Tanzania, Côte d'Ivoire-Burkina Faso) and has been involved in numerous projects. This has given him extensive experience of Africa's rail sector. —

The relevant African countries tend to tackle this situation by defining their policies for rail transport infrastructure development by looking at external models, with a specific interest – considering the historical relations – in the European model.

As the priority is to set up a "mass" transport method with a high capacity and low cost price, the rail model that needs to be copied is that of North America and which can also be seen in Australia, South America or South Africa. The life cycle costs (LCC), as defined by the International Union of Railways, show that rail networks in the USA have managed to optimize the resources invested in infrastructure development remarkably well. Indeed, the costs of these networks are three times lower than those of European networks, given, of course, the fact that they do not meet the same standards. As for maintenance costs, they are systematically adjusted to objectives: the first remains freight transport, which requires high axle-loads but relatively slow speeds.

"When public authorities decide to privatize, they must take responsibility for it."

It is clearly this objective that most African railways should first seek to meet. All available resources should consequently be earmarked for reinforcing existing railway networks, without waiting for a possible "technological leapfrog". Indeed, too many lines are today sacrificed in the hope of benefiting tomorrow from a hypothetical railway with a standard gauge. For African countries, making the choice to conduct this policy, which is certainly ambitious but within the limits of the current gauge, means avoiding the considerable economic cost of a poorly managed transition from one operating system to another. Nothing, of course, must also rule out a possible upgrading to more international standards, wherever and whenever this is possible.

Japan had to face this very same question when its industrial upturn began in the 1950s. It decided to keep its narrow-track rail system and gave priority to transporting freight on it. Japan subsequently developed a separate rail network with a standard gauge intended to serve demand for very high-speed passenger transport. Half a century later, Japan continues to congratulate itself on having made this choice.

An essential interconnection

Outside Southern Africa, transport infrastructure still too often continues to correspond to the maritime corridors that were opened during the colonial period. Even today, the percentage of exports from African countries towards other African countries is much too low. Africa's economic dependence on markets located several thousand kilometers away stems the capacity to build a production economy. The latter is very often first and foremost based on the availability of a domestic market. And yet for African economies, which do not have the critical size to build a satisfactory domestic market, interconnection is essential. But there must be first something to actually interconnect and it must be of a similar nature. It is indeed here that there is the rub. There is no use interconnecting corridors on which rail operating is moribund and where infrastructure and operating tools are on the verge of breaking point. Priority must consequently be given to upgrading existing rail systems, provided that there is consultation at the regional level on the standards adopted for this upgrading so as to allow future interconnections.

In order to open up rail markets as much as possible, identical standards need to be adopted, first of course for the gauge, but also for the coupling and braking systems and, as far as possible, the system for axle loads and traffic organization.

States must not pull out

Evolving towards a more efficient system using existing infrastructure would therefore appear to be a particularly suitable option for the situation in Africa. It does, however, remain an ambitious and demanding option, which requires extremely high financial resources. The economic balance offered to private investors must take this into account. Yet, the traditional arrangement for the so-called "vertically integrated" concession – including both freight and passenger transport, as well as the infrastructure -, does not make it possible to meet this requirement.

Investment plans are needed in order to make up for the decades of underinvestment, lack of maintenance and, at the same time, develop the basic parameters (axle loads and speed). Yet these investments are often too high for a classic commercial company. The generally accepted debt/equity ratios will not be reached unless equity is increased unreasonably. This hypothesis makes no sense if the return expected by an investor will not materialize. In addition, supposing the financial resources required can be mobilized, the depreciation of the investments that are made is generally a drain on the company's balance sheet throughout the concession period. Moreover, underused infrastructure does not justify being financed by the private sector alone. The situation is quite different for relatively short lines that are used intensely (as is the case for mining projects).

It is generally highly recommended that States do not pull out of the rail sector completely as their participation in financing infrastructure is essential. Whatever the privatization arrangement selected, States continue to own the infrastructure and they can make their investments over periods that are longer than the concessions. In most cases, the financial cost of the debt that is consequently mobilized could be borne by the private operator, for example in the form of a fixed and/or floating concession license fee. Private partners, for their part, must bear the cost of investments for rolling stock ▸▸▸

FOCUS

Vecturis was founded in 2006 and has its headquarters in Belgium and an establishment in France. The company is specialized in the rail sector and is a reference shareholder and operator of the concession company for Madagascar's rail network (Madarail) and the operator of Transrail (Senegal-Mali). Vecturis also has a mandate to manage and stabilize the Congo National Railway Company (SNCC). Finally, the Group is involved in several projects in the development phase in Africa.

What role for the private sector in African railways development?

▶▶▶ and other operating equipment. These investments are by nature more flexible and can be adapted to the development of transport demand.

The social factor is also highly determining for the operating balance of a private rail company. In practically all cases of privatization, private operators have had to take over a labor force that was overmanned, aging and with long years of service. Its productivity was well below sector standards and the conditions those of the former State-owned companies. Yet it is essential for States and social partners to understand that African railway companies will only reach an adequate level of performance and service quality that meets user expectations by improving the productivity of their human resources. Moreover, it is essential for high-quality governance and business culture to be established. The improvements in rail sector performance thus made possible will eventually create indirect employment.

"Privatization arrangements will have become viable when they begin to interest strictly financial players."

All these developments cannot be achieved without a minimum of adhesion on the part of governments. Railways in African countries conserve a high value of national identification. Opening to private partners, particularly when they are not local, consequently carries major implications. If an operation is to be successful, it is essential for it to be accepted by the railway activity's social and political environment. The public authorities' attitude is consequently a decisive factor. When the decision to privatize is taken, responsibility for such a decision must also be assumed. It is never good, for example, to give the impression that it has been imposed by external circumstances, or that it has been dictated by the country's technical and financial partners.

Investors seriously lacking

It is always advisable for several types of private players to take part in a rail project: the diversity of both their respective activities and interests can help create a positive balance, although badly managed interests can lead to conflict. There are three main categories of private player: technical operators, industrial partners and, finally, investors – some may have one or all of these capacities.

The technical operator is a company with experience in managing railway companies in environments and contexts that are comparable to the countries in question. This operator must be independent: it will have no ties with equipment suppliers and rail services, or again with activities which are themselves dependent on the rail service. Industrial partners, for their part, can de facto be highly dependent on the rail system and services. But their presence during investment rounds is a guarantee of stability, performance and that market requirements will be met. It is, however, necessary to ensure that the conditions of the partnership and their representation in the capital do not create an over-exclusive dependence on them.

As for investors, they are generally companies or partners with activities that have no real connection with the rail sector and have no vocation to be operators. They are mainly seeking to invest equity in projects that create value and guarantee a return on the equity invested. Unfortunately, they may be essential, but they too seldom find their place in most rail privatization projects in sub-Saharan Africa. It is undoubtedly true that privatization arrangements will have become viable and sustainable and will have struck the right balance when strictly financial partners start to seriously consider the possibility of investing in rail activities. In an industry that consumes extremely high amounts of equity, this is a challenge that needs to be met. The only other solution is to have to depend on the capacity of States alone over the long term to mobilize the investments required to develop Africa's railways from institutional donors.

It is premature to draw final conclusions from these first experiences of privatization in Africa's rail sector. Different arrangements have been experimented; they have admittedly shown their limits, but they have also helped make considerable headway in putting Africa's railways back on the track of recovery. Although most projects have not yet managed to strike a balance between the expectations of private interest and those of public players, it would be wrong to conclude that this balance does not exist. With the goodwill and intelligence of all parties, it will be possible to very rapidly design rail projects in sub-Saharan Africa that will be at the same time realistic, ambitious, attractive for private players and that meet the legitimate expectations of African populations and public authorities. ●

Improving concession contracts in sub-Saharan Africa

Thanks to its experience in Africa's rail sector, the European Investment Bank can determine optimal conditions for implementing a concession. The conceding authority must first and foremost be strong and extremely present. Assets must be accurately assessed and the regulatory conditions stable. The project preparation phase may be crucial, but the presence of international institutions over the long haul can be one of the keys to the success of a public-private partnership.

Matthew Arndt

European Investment Bank

Since 1968, the European Investment Bank (EIB) has conducted roughly a dozen lending operations in the rail sector during its successive mandates in sub-Saharan Africa – including four since 1995 (Table 1). The latter represent a total amount of EUR 101 million in signed loans and are managed by private companies under concessions to operate national lines – in Mozambique, Cameroon and Madagascar – or international lines, as is the case between Côte d'Ivoire and Burkina Faso and between Mozambique and Zimbabwe.

The structure of the concessions that have been financed, and consequently the financing provided by EIB, has taken different forms for the four most recent operations. EIB – following its experience in Europe – has an open position in Africa concerning the arrangements of an operation, which can be entrusted either to the public sector, the private sector or come under a public-private partnership. EIB does, however, remain realistic in terms of the complex nature of arrangements that bring in the private sector. Rail transport would appear to be well-adapted to the long distances and remote areas which characterize the African continent. However, the economy of the entire rail system can sometimes be precarious as a result of the lack of sufficient flows and the boom in road transport. The few lines that may be interesting to maintain from an economic perspective rely on dated infrastructure that is often in a bad state of repair.

Concessions have trouble breaking even

Few private companies are willing to bid for operating concessions, despite their economic potential. The latter generally have trouble tapping the funds required for operating alone, particularly for rolling stock. In this case, the conceding authority still has to bear the cost of infrastructure rehabilitation or urgent repair works (tracks and fixed equipment), which are consequently paid for with public money. The private concessionaire is rarely given the responsibility for infrastructure works; this is, however, the case for the line running between Beira au Mozambique, managed by Companhia dos Caminhos de Ferro da Beira.[1]

"A successful concession necessarily requires a strong conceding authority."

Once the initial financing stage for the investment has been completed, projects experience difficulties during the operating phase. The main reasons for this appear firstly to be linked to the fact that assets are overestimated when they are transferred and, secondly, to the instability of the regulatory framework. Certain lessons can be learned from the experience that has been built up and can ▶▶▶

[1] *51% of CCFB's shares are held by RICON (Indian joint venture made up of Rites and Ircon international) and 49% by the Mozambican State.*

MATTHEW ARNDT

Matthew Arndt has over twenty years of international experience in the transport sector – particularly in the rail, road and urban sectors. He graduated from the École Centrale Paris and started his career as a researcher at the Johns Hopkins University in Baltimore (USA), where he analyzed the impacts that underground systems have on urban development. In 2006, he was appointed Head of the "Road and Rail" Division at the European Investment Bank's Project Directorate. —

What role for the private sector in African railways development?

▸▸▸ help optimize the private sector's contribution to Africa's railways. Some clearly stem from public decision-making and structure the fundamental parameters of a railway project, independently of the choice over its management and financing method. The quality of project preparation, under the responsibility of the contracting authority, is crucial: economic justification, environmental and social management plan, and implementation of an equitable and transparent international bidding process. There is, in addition, the project's integration into the regional and national transport development strategy. All these aspects are particularly important in order to ensure there is long-term political and social support and to obtain financing from international institutions.

Public authorities also need to take several other aspects into account when setting up private sector participation. This involves being sure of the quality of the conceding authority; addressing the issue of whether or not to include infrastructure in rail services; assessing existing assets and guaranteeing the stability of the regulatory environment.

Quality of the conceding authority

In Africa, like everywhere else, a successful concession necessarily requires a strong conceding authority capable of successfully completing a complex project. This includes an international bidding process and a negotiation, the main issue being to share risks between the public and private sectors. This not only requires technical skills, but also governance that is autonomous, yet without being disconnected from the political context. Although the concession allows a considerable part of the technical risk to be transferred to the private sector, it is absolutely essential for the conceding authority to have sound knowledge of the issues at stake. Potential problems often lie in the details of contractual clauses. And yet the skills that the conceding authority most often lacks are not so much of a technical nature, they are more of a legal and financial nature. International financial institutions, thanks to their sound experience of the sector, have a role to play in ensuring there is a balance. They can provide relatively neutral external expertise, focusing exclusively on the project's success.

Combine or separate infrastructure and operating?

The principle of separating infrastructure and operating management for rail services set out in European legislation does not receive unanimous support. For example, the United States and Japan have made quite the opposite choice. The extent to which this principle can be adapted to a specific context must be taken into account, as well as how it can be articulated with the intervention of private players.

From an economic perspective, it is also not an absolute necessity to fully cover the costs of a railway system with revenues. In some cases, it can be justified to support the rail transport mode, which is considered to be less-polluting. It is possible to offer profitability conditions that are acceptable to the rail service operator, once a fixed – and therefore eminently predictable – fee for the infrastructure charge has been paid. This option offers the private sector a turnkey scope for its operations; the public sector continues to be responsible for completing the charge with other resources in order to ensure the infrastructure operates. In other cases, particularly if there is a sizeable market for heavy mineral products, revenues from rail services may be high enough to fully cover predictable infrastructure expenditure.

Whatever the case, a pragmatic approach is required. It should first be noted that even when several concessionaires use all or part of the same infrastructure, none of the cases observed in sub-Saharan Africa have given rise to direct competition between operators. The question of whether to sep-

TABLE 1: RAIL CONCESSIONS SUPPORTED BY EIB SINCE 1995

Country	Concessions	Amount (in millions of euros)	Year of signing
Côte d'Ivoire-Burkina Faso	Sitarail	13	1995
Cameroon	Camrail	12	1997
Madagascar	Madarail	11	2003
Mozambique	CCFB (Compahia dos Caminhos de Ferro da Beira)	65	2009

Source: EIB, 2010

arate or combine operating and infrastructure management is therefore not raised in terms of equitable access to the market, but simply in technical terms. The choice of separating or combining is consequently based on the parties' capacity to bear the technical and financial risk related to maintaining infrastructure at a sufficient level to allow an adequate and well-defined level of train services to be operated. They must also be able to manage the interfaces between fixed equipment and rolling stock.

"Processes to make inventories and assess the value of existing assets have been inefficient in most cases where concessions have been set up."

Finally, the contract that is established must contain provisions for extreme situations, such as traffic coming to a halt due to a natural disaster (for example, a landslide, as was the case in Madagascar). Who is then responsible for the repairs and in what time frame? How is the rail service operator compensated? Everything may be clear in the contract, but experience has shown that there are not necessarily sufficient resources in place to allow essential action to be taken. Long-term support from financial institutions, coupled with technical assistance when required, can help provide a solution to these situations.

Assets often poorly assessed

Processes to make inventories or assess the value of existing assets have been inefficient in most of the cases observed. Yet any margin of uncertainty over the cost of repairing assets that fall within the scope of the concession risks encouraging candidates to undervalue the investment need. This can lead to considerably delays in works implementation and the operating start-up phase and also have an impact on the quality of the service offered by the operator.

To avoid this situation, the conceding authority can organize a detailed inventory prior to the bidding process, along with an independent technical and economic assessment. This would all be made available to candidates. Should it be observed at a later stage that something was left out or that there are discrepancies, their consequences would then be the responsibility of the conceding authority. In order to reduce this risk, lenders could request an independent audit of this inventory and all the assessments in general – as is often the case in Europe. These additional studies may lead to an extra cost and small delays in the preparation phase, but they do, however, have very considerable added value.

Stability of regulatory conditions

The regulatory conditions – price-setting, legal framework, public service obligations, framework for competition with road transport, etc. – are fundamental parameters that determine project profitability. In principle, the concessionaire has absolutely no control over them and is particularly vulnerable to the lack of control over road competition. It is logical for the private sector not to bear the risk in this situation, but it must be able to rely on coherent and continuous action on the part of its public partner.

The private sector can adapt to all types of situation, but will only be able to make the right investment if the rules of the game do not change, or at least, if the method used to find solutions is clear, fair and realistic – and consequently tailored to the context. Given the extremely long duration of concessions, it would appear useful to have a conflict resolution mechanism included in contracts, as we can see for major public works contracts at the international level.

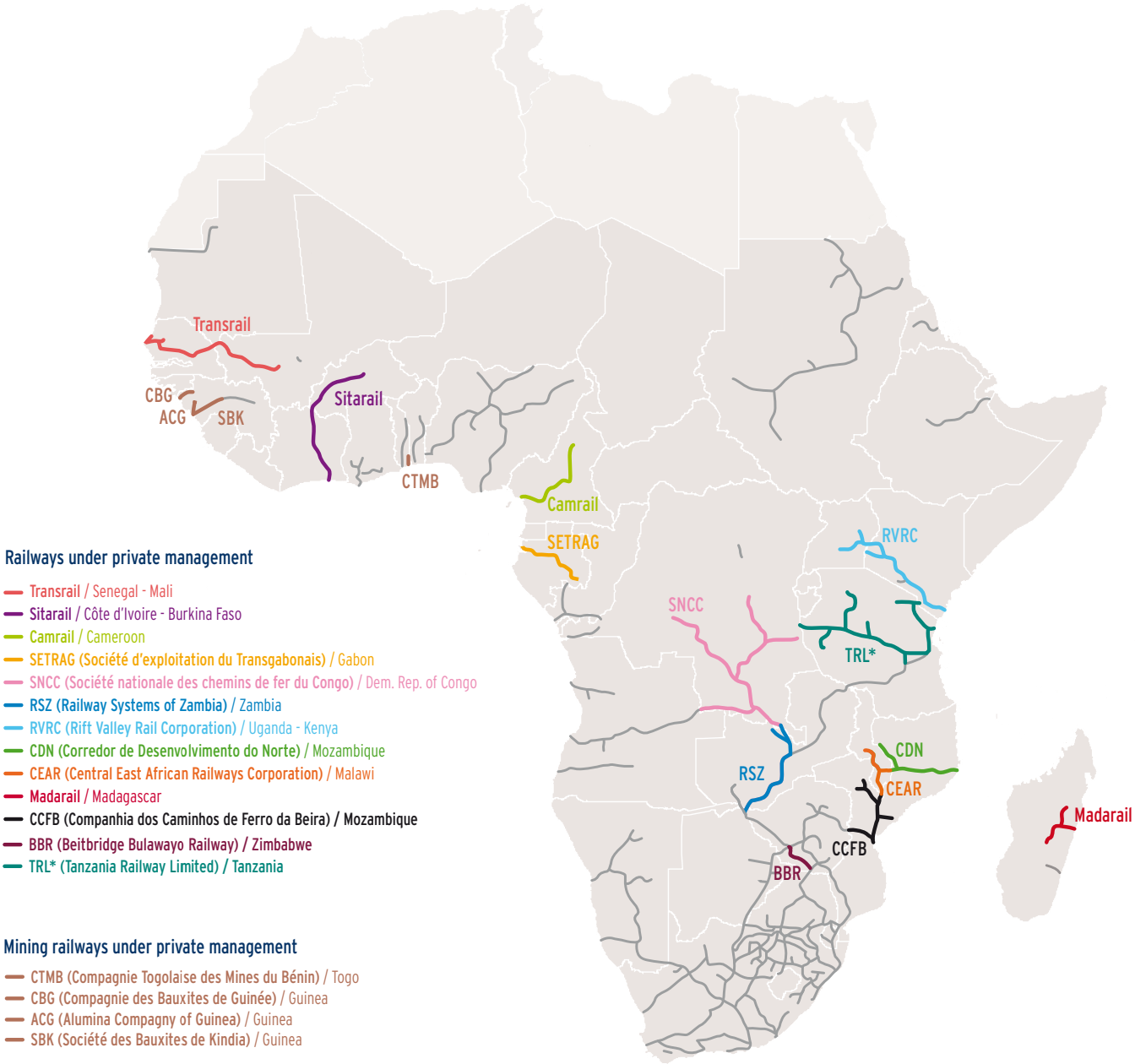
The rail sector involves a long-term activity and has benefits in terms of impacts on the environment which deserve the full attention of donors. Both local players and foreign investors are fully aware of its strategic value: international links for landlocked countries, alternative to road transport, energy impact... Experience built up over the past fifteen years should make it possible to optimize concession models in order to give existing lines greater potential.

At a time when the African continent is feeling the ripples of moderate economic optimism, new players are arriving *en masse*, particularly from India and China, which are major rail transport countries. This new offer comes with its challenges, but also with its opportunities, for example by raising the question of the appropriate technology. In this situation, the players in charge of designing and implementing projects should more than ever before bear in mind the need to respect the fundamental parameters of economic justification, environmental impact management and the need to set up an equitable and transparent international bidding process. •

What role for the private sector in African railways development?

Over the past fifteen years or so, roughly two-thirds of State-owned railway companies in sub-Saharan Africa (excluding South Africa) have been entrusted to private operators. The concessions have generally had positive effects – particularly on productivity and traffic volumes. Railways are essential for the economic development of the continent, but they are also more economical than road transport, particularly for fuel, and have a better carbon balance.

Private participation in African railways in 2010



Railways under private management

- Transrail / Senegal - Mali
- Sitarail / Côte d'Ivoire - Burkina Faso
- Camrail / Cameroon
- SETRAG (Société d'exploitation du Transgabonais) / Gabon
- SNCC (Société nationale des chemins de fer du Congo) / Dem. Rep. of Congo
- RSZ (Railway Systems of Zambia) / Zambia
- RVRC (Rift Valley Rail Corporation) / Uganda - Kenya
- CDN (Corredor de Desenvolvimento do Norte) / Mozambique
- CEAR (Central East African Railways Corporation) / Malawi
- Madarail / Madagascar
- CCFB (Companhia dos Caminhos de Ferro da Beira) / Mozambique
- BBR (Beitbridge Bulawayo Railway) / Zimbabwe
- TRL* (Tanzania Railway Limited) / Tanzania

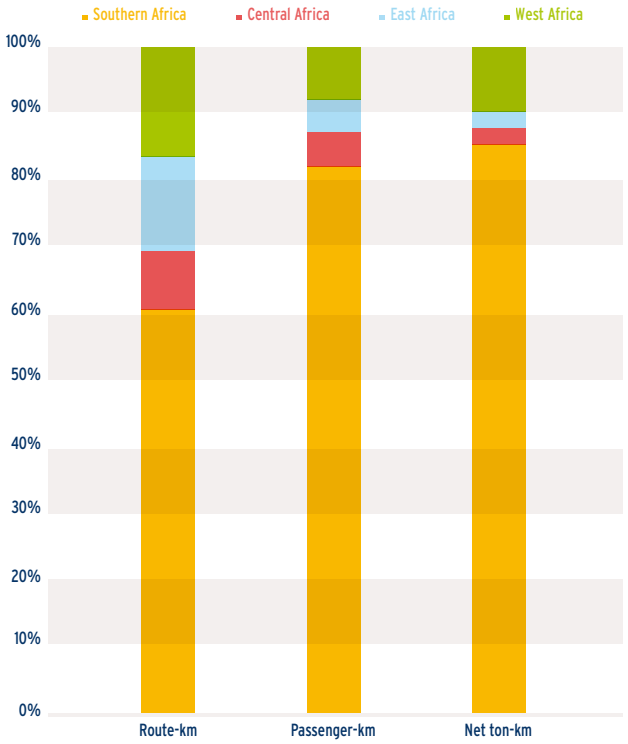
Mining railways under private management

- CTMB (Compagnie Togolaise des Mines du Bénin) / Togo
- CBG (Compagnie des Bauxites de Guinée) / Guinea
- ACG (Alumina Compagny of Guinea) / Guinea
- SBK (Société des Bauxites de Kindia) / Guinea

— Other operational Railways

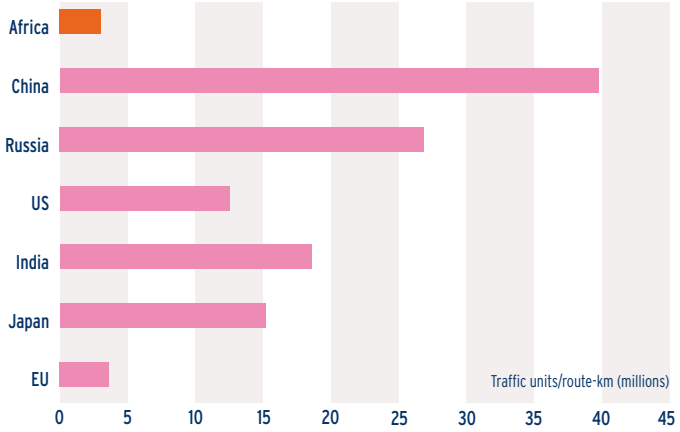
Source: Proparco/Private Sector & Development, 2011
**The Tanzanian government has terminated at the end of February 2011 the 25-year management contract signed in 2007 with Rail India Technical Economic Services (RITES)*

Regional share of network and traffic in Africa



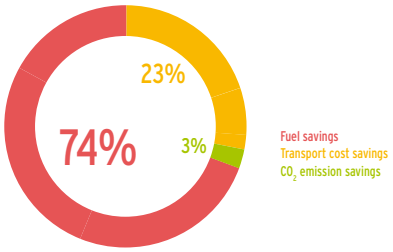
Southern Africa: *Angola, Botswana, Madagascar, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe;* ***Central Africa:*** *Cameroun, the Democratic Republic of Congo, Gabon, Republic of Congo;* ***East Africa:*** *Djibouti, Eritrea, Ethiopia, Kenya, Sudan, Tanzania and Uganda;* ***West Africa:*** *Benin, Ghana, Guinea, Mali, Mauritania, Nigeria, Senegal and Togo*
Source: Bullock 2009, World Bank/AFD, 2010, Africa's infrastructure, A time for transformation

Comparative railway traffic's density 2007



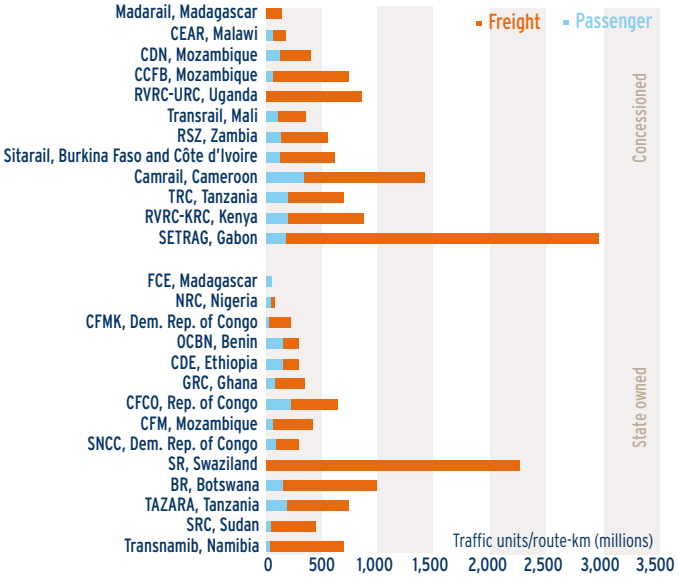
Traffic units are the sum of passenger-kilometres and net-tonne-kilometres
Source: Union Internationale des Chemins de fer, 2007

Breakdown of the economic impact of African railway systems by categories

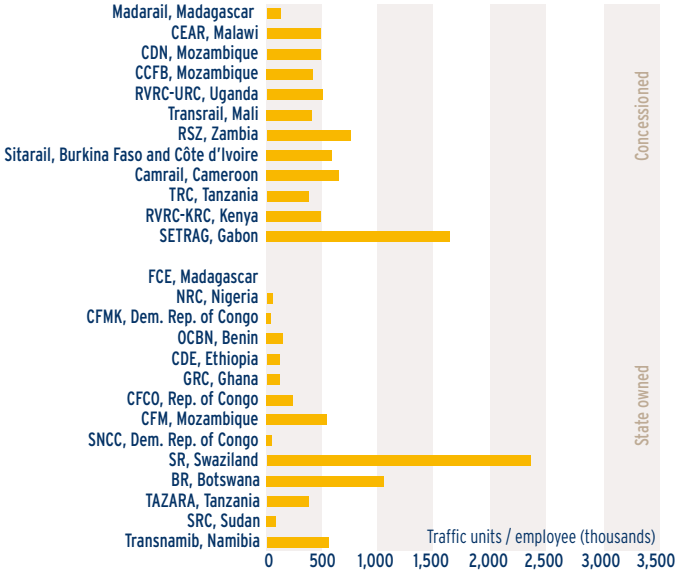


Source: Pozzo di Borgo, 2010

Average African* railway network traffic density between 2001 and 2005



Labour productivity on African* rail systems(1)



The overall traffic units carried by a railway are the sum of the passenger-kilometres and the net tonne-kilometres of freight carried. This simple standard measure is widely used as a means of aggregating freight and passenger traffic. The relative weighting of passenger and freight is conventionally taken as 1:1.
** Except Maghreb and South Africa*
(1) Common averages have been used for Kenya and Uganda, which are included in a single concession, and for Nacala (Mozambique-CDN) and Malawi, which share common resources.
Source: Bullock 2009, World Bank/AFD, 2010, Africa's infrastructure, A time for transformation

What role for the private sector in African railways development?

The paradox of the Djibouti-Ethiopia railway concession failure

The Djibouti to Ethiopia railway line concession ended in failure despite the fact that the rehabilitation project was considered viable and that it was also fully coherent from a political and economical perspective. Whilst part of the failure can be attributed to lack of initial investments carried out by the respective governments, the companies responding to the tender also bear part of the blame because they did not submit realistic offers. Furthermore, investor inflexibility and lack of monitoring can also be cited as contributing factors to the failure of this project.

Arthur Foch

Centre d'Économie de la Sorbonne (University Paris 1 – CNRS) [1]

Created in 1981, *la Compagnie du chemin de fer djibouto-éthiopien* (CDE) is a public company jointly owned by the Djiboutian and Ethiopian governments. At the time it was established, initial expectations were high, with the company expected to play an important role in the economic and social development of both countries. However, due to poor quality railway tracks and insufficient infrastructure maintenance, the company was by 2000 at an impasse. Trains were slow, de-railings were frequent, and freight clients were generally dissatisfied with the high tariffs which in 2004 averaged USD 55 per tonne compared to less than USD 30 per tonne for road according to Infrastructure Consortium for Africa (ICA, 2007).

As a result of unsatisfactory reliability and relatively high cost, many freight clients began looking for alternative means of transportation. The highway linking Djibouti to Ethiopia offered such an alternative. Whist heavily travelled and previously in very poor condition, it underwent significant repair work in 1998. In 2003, a truck could complete the journey in just three days compared to 12 days by rail (Cabanius, 2003). As rail freight volumes dropped, so did turnover (Table 1). By 2002 the financial situation was so critical that the CDE decided to contact its long-standing partners – the Agence française de développement (AFD) and the European Commission.

They agreed to extend aid but only on condition that an operating concession would be granted – an option that both the AFD and the Commission had been recommending since 1990. French regulations governing state aid had changed at this date and the granting of sovereign concessional loans in underdeveloped countries was no longer authorised. Consequently, the AFD could only support the CDE initiative with a non sovereign loan that required the participation of a private profitable operator.

A PROMISING POLITICAL AND ECONOMIC CONTEXT

The conflict which broke out between Ethiopia and Eritrea in 1998 was a real boost for the project because it meant that all freight traffic destined for Ethiopia (Table 2) had to be redirected through the Port Autonome International de Djibouti (PAID). Faced with this influx, the two States realised the necessity of rehabilitating the CDE railway – and this by means of a concession which would allow it to play an essential role in freight transport between Djibouti and Ethiopia.

For Djibouti, the rehabilitation of the CDE was particularly important. It would transform the country into a multimodal trans-

ARTHUR FOCH

Arthur Foch is a PhD student in development economics at the University of Paris 1 Panthéon-Sorbonne *Centre d'Économie*, where he studies infrastructure privatisation policies in sub-Saharan Africa. Having worked as a teacher at the Paris *Institut d'études politiques* and at the University of Paris 1 for over four years, he joined Proparco in 2009 as a consultant. Since 2011, he has been *Trade and Policy Analyst* at the OECD, where he contributes to the drafting of the annual *Aid for Trade at a Glance* report. —

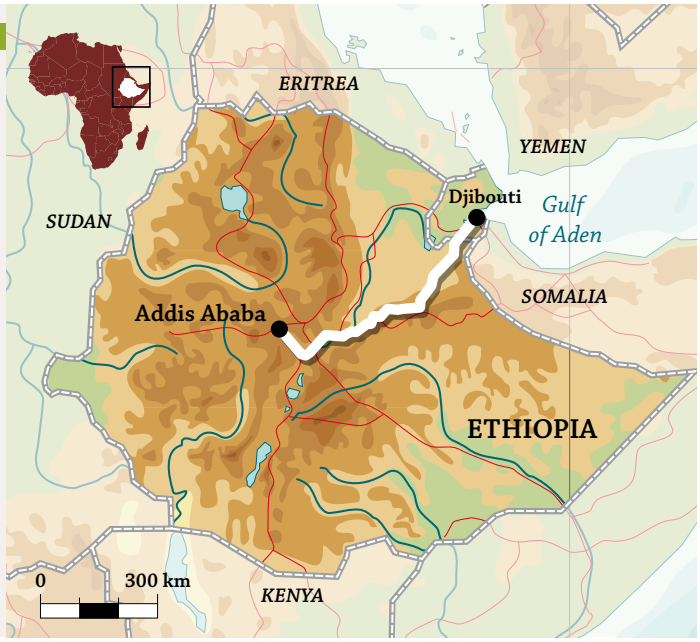
[1] *This article is the summary of an in-depth study carried out in Djibouti in 2009 on the basis of interviews conducted by the author with representatives of government, public establishments, private companies and members of civil society.*

[2] *Djibouti already has several comparative advantages which explain its special position: its port sector has been modernised, its political situation is stable, the country is safe and the road to Addis Ababa was rehabilitated in 1998 (Foch, 2010).*

DJIBOUTI-ETHIOPIA RAILWAY COMPANY

FOCUS

The 784 km-long railway line linking up the City of Djibouti with Addis Ababa, the capital of Ethiopia, was built between 1897 and 1917. The operator was previously called Imperial Railway Company of Ethiopia, then Franco-Ethiopian Railway Company from 1909 onwards, before becoming, in October 1981, Djibouti-Ethiopia Railway Company (La Compagnie du chemin de fer djibouto-éthiopien - CDE). CDE went out of business in 2011 following the failure of its concession tender.



port platform, giving it a real competitive edge over other regional ports. This would enable Djibouti to sustain a quasi monopoly[2] over Ethiopian traffic, a real economic driver. In addition, the rehabilitation project would allow the CDE to increase its share of the freight market which at the time was dominated by Ethiopian companies offering more competitive pricing.[3]

"Roads needed full rehabilitation every 7 to 10 years, compared to 15 to 20 years for railroads."

For Ethiopia, the rehabilitation of the CDE was vital. Apart from the main highway, the railway had been the only other means of access to the landlocked country since 1998. In addition, the CDE railway concession would also provide Ethiopia with a less costly means of transportation when compared with trucking, and more generally enhance the country's overall transport capacity. It was in this context that the Djiboutian and Ethiopian authorities decided to grant an operating concession for the CDE railway. Subsequent to the decision to rehabilitate the CDE, additional evidence became available which tended to indicate this had been an appropriate decision. Broadly speaking, this offered a major cost savings opportunity. According to ICA (2007), the cost of transport by truck was USD 42.80 per tonne, whereas a cost of USD 15.30 to USD 35.60 by rail was considered achievable should a USD 68.6 million investment be carried out. In 2001, the United Nations Conference on Trade and Development (UNCTAD, 2003) reported that in sub-Saharan Africa, transportation costs represented on average 13.8% of the value of imports – and up to 20.7% for landlocked countries like Ethiopia. The decrease in transportation costs would therefore lead to a reduction in the price of goods imported by the two countries, which would in turn increase the competitiveness of exports.

Major savings could also be realised through road maintenance and rehabilitation works. At that time 100,000 heavy trucks were ▶▶▶

[3] The Djibouti-Addis Ababa journey is invoiced USD 3,000 for a 40 tonne truck by a Djiboutian freight company, compared to less than USD 1,500 for an Ethiopian freight company. Consequently less than 1% of freight is entrusted to Djiboutian freight companies (UNDP, 2004).

TABLE 1: TRENDS IN CDE FREIGHT TRAFFIC BETWEEN 1996 AND 2007

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total traffic (in tonnes)	90,195	92,551	113,448	117,733	113,850	71,011	38,180	141,254	108,500	66,000	59,900	23,600
Estimated revenues (in dollars)	1,984,290	2,036,122	2,495,856	2,590,126	2,504,700	1,562,242	839,960	3,107,588	2,387,000	1,452,000	1,317,800	519,200

Source: CDE, 2009

What role for the private sector in African railways development?

▶▶▶ using the road every year, and with a 30 tonne truck causing as much road surface damage as 240,000 cars (Cabanius, 2003), high levels of investment would have to be made (exemple: in 2003 EUR 18 million was needed to rehabilitate 100 km of road in Djibouti). Roads needed full rehabilitation every 7 to 10 years, compared to 15 to 20 years for railroads (Pozzo di Borgo, 2011). The rehabilitation of the CDE could also reduce the volume of petrol imports for freight carriers and limit carbon dioxide emission levels. According to Pozzo di Borgo (2011), a railroad's energy consumption and its carbon footprint could be respectively 75% and 85% lower than that for highway.

Government and concession holder responsibilities for the project failure

Despite all of the aforementioned factors, by early 2011 a railway operating concession had still not been granted. For the two governments, the opportunity cost was high due to the savings which could have been realised. Also, the Djibouti Port activity has been restrained by insufficient transport infrastructure, which led to extended shipping delays for Ethiopian goods. According to PAID, the annual financial impact for Ethiopia as a result of these delays is estimated at USD 35 million. The failure of the railway concession project is therefore paradoxical considering that all the necessary conditions had been met, the funding had been secured, and both States were supportive of the project. Above all, the size of the freight market between Djibouti and Ethiopia (4.5 million tonnes in 2006) was enough in itself to justify the rehabilitation project. For example, for operations to be profitable and to justify the investments, only 20% of the market share had to be won compared with 5.5% in 2004, (AFD, 2009).

In order to fully understand the reasons behind the failure of this project, looking back at the roles played by the two States as well as those of the bidding companies is necessary. Following a call for tenders, the COMAZAR consortium was selected in 2004 as the preferred bidder, but negotiations with the two governments broke down and by 2007 COMAZAR had lost the deal. The governments subsequently began discussions with the Kuwaiti firm Al Ghanim & Sons. Once more, negotiations broke down. Clearly the two contracting authorities needed to assume their share in the responsibility for the two successive failures. They never fully respected the bidder prerequisites for the signing of the concession agreement. For example, in Djibouti, the rail link to Doraleh, on which the profitability of the railroad depended has still not been completed. In Ethiopia, the rehabilitation of 114 km of rail track financed by the European Commission in 2006 was falling further and further behind schedule.

"The freight market between the two countries was large enough to justify rehabilitation: with only 20% of this market, operating was profitable."

In addition to complicating the negotiation process itself, the bilateral nature of the CDE made respecting the prerequisites difficult. Despite common interests, there was insufficient cooperation in the management of the company. Disagreements began to appear with the first call for tender: the late submission of the COMAZAR bid, backed by Djibouti, provided Ethiopia with a good reason to demand COMAZAR's withdrawal. Again in 2007, Ethiopia showed little sign of flexibility or patience during the negotiations with Al Ghanim when the situation started to get complicated. Perhaps Ethiopia's political commitment to the CDE rehabilitation project was not as strong as it appeared to be. When looking more closely, it can bee seen that two Ethiopian state-owned firms had a monopoly over freight forwarding and maritime transport, and the road freight market was dominated by three highly influential Ethiopian companies. The CDE rehabilitation project was not in the best interest of any of these companies. The bidders also bear some responsibility for the failure of the concession project. Despite a

TABLE 2: TRENDS IN ETHIOPIAN FREIGHT FORWARDING VIA THE PAID BETWEEN 1997 AND 2003

	1997	1998	1999	2000	2001	2002	2003
Ethiopian freight forwarding	278	1,218	1,775	1,918	1,960	1,913	2,933
Growth rate		+438.1%	+45.7%	+8.1%	+2.2%	-2.4%	+53.3%
Percentage of freight forwarding/total	16.1%	38.7%	45.8%	47.6%	46.7%	42.1%	49.2%
Total freight	1,724	3,150	3,873	4,027	4,199	4,548	5,967

Source: Foch, 2010

preference for a partial operating concession, the COMAZAR consortium did end up agreeing to pay for rolling stock maintenance and operating investments and to invest in infrastructure. With a total investment of USD 100 million announced (Africa Intelligence, 2006), it was aiming to generate 777,000 tonnes of freight traffic in the first year, followed by 1 million tonnes in year 2, and revenues of USD 50 million by year 5. These objectives were ambitious and would have placed the CDE among the most active and most profitable of the sub-Saharan railway operators. For the experts, the bid was opportunistic and failed to take into account the time necessary for track and rolling stock rehabilitation works. Above all, COMAZAR suffered from a lack of coordination and never put together enough capital to be credible in the eyes of the lenders or the participating governments.

The Al Ghanim bid was even more optimistic, with forecast annual traffic of 5.8 million tonnes in 2012. This meant that in the space of four years, the CDE would have had to capture all freight transported by land. In addition, the USD 200 million investment to be made by the concessionaire was considered to be economically unrealistic by the funding institutions in light of effective annual traffic and limited revenue potential.[4]

The role of financing institutions and the future of the railroad sector

Beyond the political obstacles – which played a predominant role in the breakdown of negotiations – could support provided by the funding institutions have been allocated differently in order to improve the feasibility of the concession project? French aid was subject to too many conditions and prevented the AFD from granting a sovereign loan guaranteed by the State, and this complicated the CDE concession process. In contrast, European aid appears to have been provided too freely. There were no suitably adapted conditions imposed on the grants made by the European Commission. Rather than simply making full payment contingent on the signature of a 'concession agreement', which actually provided no guarantee whatsoever, the Commission could have instead structured the financing in two tranches, linking the second to the actual signature of the concession contract. Furthermore, monitoring of the project that had been financed by the European grant was unsatisfactory. For example, in 2009 only five kilometres of track had been rehabilitated. Lastly, the simultaneous role of the European Commission in both rail and road sectors was ill advised. The Commission simultaneously granted development aid for road and rail corridors: in 2007, 25% of the amount of the 9th European development fund destined to Djibouti was granted to the road sector (European Union and Republic of Djibouti, 2007). By rendering the regional road corridor operational, the Commission permitted both governments to postpone the rehabilitation of the CDE which had become less of a short-term imperative. In hindsight, if the work on the road corridor had been delayed for a short while, the rail rehabilitation project would have retained some degree of urgency. Another solution would have been to make the financial aid for the road corridor works conditional on significant progress in the CDE concession process (customs reform, rehabilitation work, etc.).

Today the effort to carry out the concession process is falling further and further behind. Financing is a problem for government authorities, which have neither funds to finance them nor sufficient support from the funding institutions. Whilst the AFD and the European Commission had made their support conditional on the finalisation of a concession agreement, the bidders had made the signature of a concession agreement conditional on the completion of works which require external financing. As can be seen, the project seemed to have become permanently entangled in a vicious cycle. The two States gradually abandoned the CDE, which by 2011 had ceased all activities. More recently they have launched negotiations with Chinese and Indian partners for the construction of a new electric railway line. For Western experts, this project could never attain profitability considering the amount of required infrastructure investment and the minimum level of traffic (estimated at between 5 and 10 million tonnes per year). This being said, the success of the modernisation of the Djibouti port, carried out with the help of aid from Dubai, has led the Djibouti and Ethiopian governments to believe that a similar approach could be applied to the rail sector (Foch, 2010). •

[4] The forecast public investment plan (USD 250 million) was imprecise and incomplete and only covered track rehabilitation.

References / **AFD, 2009.** Assignment report, working paper. // **Africa Intelligence, 2006.** Details about a rail contract, Letter from the Indian Ocean, n°1193, September 9. // **Cabanius, P., 2003.** Improvement of Transit Systems in the Horn of Africa, report for UNCTAD, New York, June 23 to 27. // **CDE, 2009.** CDE freight traffic between 1996 and 2007, data collected by the author in Djibouti from CDE management. // **European Union and Republic of Djibouti, 2007.** Joint Annual Report, June 28, 2008. // **Foch, A., 2010.** Djibouti, une nouvelle porte de l'Afrique ? – L'essor du secteur portuaire djiboutien, *Afrique contemporaine*, 234, 71-87. // **ICA, 2007.** Rehabilitation of the railway line pre feasibility study, report. // **Pozzo di Borgo, P., 2011**. Striking a balance between public and private sector roles: the key to a successful rail concession, *Private Sector and Development*, n°9. // **UNCTAD, 2003a.** *Review of Maritime Transport*. UNCTAD. // **UNDP, 2004.** Djibouti – cadre intégré, étude diagnostique de l'intégration commerciale, report.

African railway concessions, a step forward but not the whole answer

Railway concessions in Africa may present significant difficulties (candidates with limited financial resources, sometimes unrealistic demands from States, etc.), but they do often improve economic results and service quality. If they are to be effective, African concessions must be based on joint investment, enhanced control, real compensation for public service obligations – and maybe stronger road regulations.

Richard Bullock

Independent consultant

In most of the African interior, railways historically have been the key to economic development. They transported passengers and freight at a fraction of the time and cost of alternative methods, such as ox- or bullock wagons and head-loading and enabled agriculture and mining to be greatly expanded. For many years, rail maintained its dominant role because of the generally poor state of the roads, and even when motor transport became common, it provided only feeder services to the rail network.

After the Second World War, road transport began to expand, and over the subsequent 40 years has been supported by governments directing most of their transport investment into road improvements in response to increases in motor vehicle ownership. This coincided with a general economic liberalisation, in which long-established parastatal trading organisations, with traditional relationships with rail, were replaced by smaller and more nimble trading groups. Rail was slow to respond, with few changes other than some reductions in the over-manning that resulted as traffic volumes declined.

By the 1990s, many African railways were badly run-down, requiring substantial rehabilitation of both infrastructure and rolling stock. They carried very low volumes by world standards: a few had substantial mineral traffic, but most carried semi-bulk freight between the interior and the ports and vice versa; there were significant internal flows only on the southern African networks. In a number of countries, railways financed by under-resourced governments began considering concessions.

This began in earnest in 1992 with the line between Abidjan and Ouagadougou (between Côte d'Ivoire and Burkina Faso), and by 2010, 14 systems in sub-Saharan Africa had been concessioned or contracted, and another four were at varying stages of progress. Arrangements in three of the 14 networks have been cancelled (and subsequently revived with different operators), one has been badly affected by war, and one has suffered from natural disasters and long procedural delays. At the end of 2010, 11 had been operating for five years or more, but four of these had suffered a significant dislocation of some sort.[1]

Except for the railways immediately adjacent to South Africa (Botswana, Swaziland and, to a limited extent, Namibia), those that have not been concessioned have continued to deteriorate over the past decade, and in a number of cases these declines will be terminal.

The rocky road to success

Concessions have not been without their problems. In some cases, there were very few bidders, with limited financial resources; governments have had to guarantee investments; and mobilising finance has been slow. Concessionaires have generally been unenthusiastic about

[1] *The concessionaire has been changed in Senegal and Gabon; Côte d'Ivoire has experienced civil war and Malawi was severely affected for some years by cyclone damage. With Camrail, the concession agreement has been significantly amended.*

RICHARD BULLOCK

Richard Bullock has over 35 years of experience in transport analysis and investment planning, covering all forms of transport in a number of countries, including several in southern and eastern Africa. He has worked at a senior level for transport agencies, governments, the private sector, regulatory agencies and project promoters and lenders. He specialises in the financial, economic, organisational and institutional analyses of transport systems, with particular emphasis on railways. —

running passenger services, which generate less revenue than freight, and tie-up scarce traction-power. Further, there have been disputes about the payment of Public Service Obligation (PSO) compensation by governments for non-profitable services, and problems have arisen about the level of concession fees, the length of concessions, and staff redundancy payments.

Nevertheless, the overall impact of concessioning has been positive, even where some expectations have not been met. Both labour and asset productivity have improved in most cases. In both Côte d'Ivoire/Burkina Faso (Sitarail) and Cameroon (Camrail), freight traffic increased by around 40% following concessioning; labour productivity on these two railways increased by over 50% (Figures 1 and 2). Active searching for new traffic by concessionaires and streamlined internal business practices have improved railway cost and pricing structures and lifted the level of service to users, following investment by donors and International Finance Institutions (IFI).

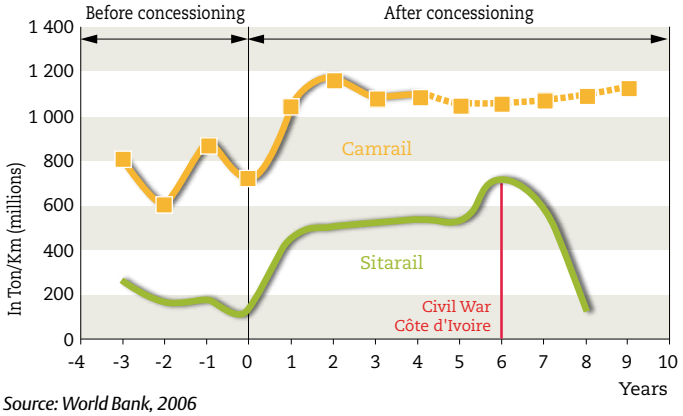
Generally, concessionaires have complied with passenger service requirements, even where this has been operationally difficult for them, or where promised PSO payments have not been made. A key government objective has generally been to obtain finance (whether private or through IFIs) to rehabilitate and maintain track infrastructure, and most concession agreements clearly put this responsibility on the concessionaires. However, for most concessionaires, track rehabilitation, especially renewal, is a major expense that drains funds. This can be deferred (as in the past) at the cost of speed restrictions and derailments. Investment has largely been limited to the on-lending of IFI loans, in most cases to address maintenance and renewal backlogs and in many cases without which there would be no functioning railway. These can be characterised as a "once-off" investments to get the systems functioning again. Responsibility for the on-going rehabilitation and maintenance of tracks is rapidly emerging as a major issue.

It is clear that classic concession schemes (i.e., those that require private operators to take on significant debt burden relative to revenue) in Africa are unlikely to be attractive to bidders other than those who can secure indirect financial benefits (e.g. by controlling a distribution chain, awarding rehabilitation contracts to themselves or supplying rail equipment).

Experience has shown that for most concessions, both passenger services and track rehabilitation will need substantial public funding. However, if this is provided, governments will also need to strengthen their regulatory capacity to ensure compliance with concession conditions, and to ensure its impact on the rail sector is properly considered when policies in other sectors of the economy are being developed.

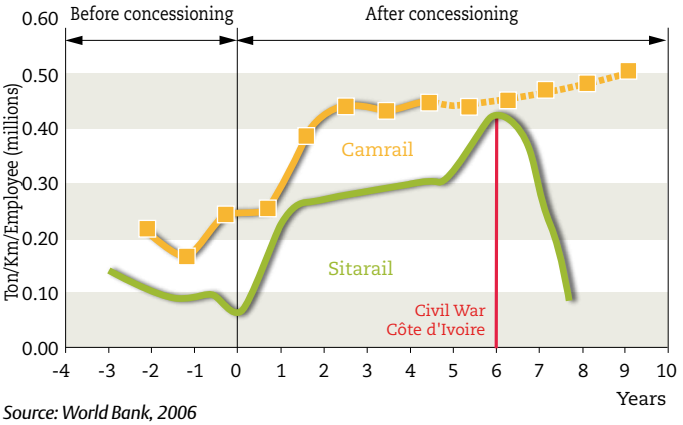
So, are concessions a long-term solution, or are they merely short-term fixes that rely on investments from IFIs, which will prove to be unsustainable in the long term?

FIGURE 1: TRAFFIC PERFORMANCE OF SITARAIL AND CAMRAIL SINCE INCEPTION



Source: World Bank, 2006

FIGURE 2: EMPLOYEE PRODUCTIVITY OF SITARAIL AND CAMRAIL SINCE INCEPTION



Source: World Bank, 2006

Nota bene: Sitarail operates in Burkina Faso and Côte d'Ivoire, Camrail in Cameroon.

THE CHALLENGE OF PASSENGER SERVICES AND RAIL RENEWALS

Few passenger train services in Africa are able to contribute to infrastructure costs, and even fewer can justify investment in rolling stock. Many are a hangover from previous times, and passengers would be economically and otherwise better served by a road-based system.

There are no privately run high-quality passenger services. Some are well-managed, but only to minimise costs. Camrail is one of the better ones, although local newspapers often report complaints – while government is responsible for financing new rolling stock, 10 years after concession, they have just started doing this.

As all concessionaires require locomotives that would be better employed hauling freight, ▶▶▶

What role for the private sector in African railways development?

▶▶▶ most would willingly forego passenger services. If these are to be retained beyond the initial years of a concession, governments will need to develop a simple compensation scheme, with payments for these made on time and without fuss. Schemes should be easily auditable, and should be reviewed periodically, say every five years. If these are not introduced, passenger services will constantly be a contentious issue between governments and operators, diverting the focus of the concessionaire from improving freight services, which are far more economically important to countries.

Few African rail systems can finance major infrastructure renewals. While most concessionaires pay concession fees, probably none could afford to if they were accruing funds for future renewals, and other than for mineral lines, a private rail concession capable of financing itself on a long-term basis is probably unachievable in much of Africa.

With the traffic volumes typically carried on an African general freight railway, track structures have lives of several decades. On a small system, track renewal is an irregular event required every 20 years or so. It is usually possible to defer renewals for several years beyond this, at the cost of deteriorating track conditions and reduced operating speeds. For any concessionaire uncertain of its long-term future, the safest strategy would be to undertake as little track renewal as possible, which for private operators is not viable in addition to concession fees. And raising debt finance for this (with its limited resale value) is almost impossible for small railways, which are usually financially ring-fenced from their shareholders.

Thus, with almost all concessions, governments will likely need to contribute funds for major infrastructure maintenance. The 2008 restructuring of the Cameroon concession,[2] with both parties contributing to infrastructure renewal rather only the concessionaire, is the most realistic model in the region for the long-term sustainability of rail networks. An option for governments might be to part-finance infrastructure renewal through a land transport renewal fund, which could be an extension of a road fund, both funded by road user charges and rail concession fees.

Enforcing reporting by regulating concessions

In theory, it is the issuing party's responsibility to monitor the requirements of a concession agreement. To this end, IFIs have funded the establishment of regulatory frameworks and agencies, but their implementation is very difficult. The first problem is getting competent staff. The second is that concessionaires know that in many countries they circumvent the authorities by dealing directly with the minister or president. So the prospects of implementing regulations are minimal.

In practice, many concessionaires ignore many or all of their reporting obligations. Authorities are thus often ill-informed about the problems facing concessionaires and about the remedies being attempted. Therefore, their capacity needs to be strengthened. One option would be to specify annual independent financial and operational audits (to be undertaken by competent independent organisations) in concession contracts, financed by concession fees. However, in some cases, governments lack the will to administer concessions transparently.

Transparency and consistency – essential government values and behaviours

Many concessions have been prejudiced by government requirements. The existence of a politically and technically empowered oversight body could obviate much of this.

Strategically, governments also need to develop stronger policies regarding infrastructure cost recovery, and overloading by road operators. The lower the road user charges, and the greater the degree of overloading permitted, the lower freight rates by both road and rail will be and the less funds will be available from concessionaires to maintain and upgrade railways.

In spite of all these problems, well-run railways still offer the most economical solution to transporting non-time-sensitive general freight over distances of 500-800 kilometres, and over much shorter distances for bulk commodities. As such, their revival through concessioning is warranted whenever the business fundamentals are sound. Better solutions must also be devised to ensure that while governments benefit from the improved level of service, concessionaires' financial returns are high enough to attract broader and more competitive investor participation.

Experience has shown that, for the traffic volumes typically carried on most African railways, few concessionaires are able to support passenger services, and they are generally not prepared to invest their own funds in major infrastructure renewals or upgrades. Politicians' expect concessions to transform run-down, under-engineered railways into modern, European-style operations. They rarely do this, but they do provide railways with the best opportunity of contributing to the economic development of countries, so long as governments financially support passenger services and major track maintenance and ensure compliance with contractual arrangements. ●

[2] *On this subject see Édouard de Vergeron's paper in this issue of Private Sector and Development.*

References / **World Bank. 2006.** Review of Selected Railway Concessions in sub-Saharan Africa, Economic and Sector Work, Report.

Mixed results for private sector participation in Africa's railways

Africa's railways face competition from roads and need to be modernized. Their diversity means that reforms must be conducted on a case-by-case basis; private participation can also take a variety of forms: subcontracting, management contracts, affermage, concessions... An integrated organization that gives access to third-party operators continues to be an appropriate solution in Africa. In addition, private investors are rarely railway companies or local players; they are often major clients. Public financing is still required for infrastructure on low density traffic railway lines.

Olivier Ratheaux

Agence Française de Développement

In Africa, the first railway lines were created by private concessions. Apart from the ideological reasons behind them, the nationalizations of the 20th century came in response to the fall in the financial profitability of lines that had formerly been monopolies. They had to face increasing competition due to road improvements and the increased productivity of vehicles in terms of power and freight capacity. The African railway sector was obliged to move from a monopolistic situation to intermodal competition and focus on markets where it holds on to a comparative advantage.[1] Over the past decades, several States have once again called on private companies to help them bring about this change, particularly in Latin America and sub-Saharan Africa. Learning lessons from these experiences helps give an insight into the potential and limits of this type of partnership.

In Africa, rail transport generally has no comparative advantage over road transport for travellers. However, it can be significant for freight transported over several hundred kilometres. Savings on the main route offset the additional expenditure for terminal equipment and handling.[2] This is the case for bulky goods which are not time-sensitive (cement, fertilizers, grains, etc.), oil products, container goods, especially when transported on block trains.[3]

There is a real – though generally small – environmental advantage brought about by energy efficiency. It is not well valued by the market and it is not enough to justify investments in modal transfer. The exception is electric traction when traffic density (ratio of tons-kilometres to network length) makes it possible to amortize its installation cost and when electricity generation emits low levels of greenhouse gases. Yet in the few African countries where this density is high – Egypt, Morocco, South Africa – the second condition is not met.

"The diversity of African railways means a case-by-case approach is required."

The diversity of African railways

African railway operation differs enormously in terms of network size, traffic and management. For example, South Africa's freight rail network – which has high traffic intensity, sound public management, and is profitable without State subsidies – has nothing in common with small lines in sub-Saharan Africa, which suffer from low traffic levels, insufficient modernization and poor management. This diversity means a case-by-case approach is required. For low traffic density lines, ▸▸▸

OLIVIER RATHEAUX

Olivier Ratheaux graduated as an engineer from the MINES ParisTech Graduate School and holds a specialized diploma in development economics. He joined Agence française de développement in 1992 after holding different positions in the technical assistance field. He has prepared numerous infrastructure financing projects and has worked on public-private partnerships, sectoral policies, the economic calculation of projects and procurement. He is currently team leader referent for the transport sector. —

[1] *A comparative advantage is assessed in terms of tariff and service quality: reliability, safety, freight traceability, speed, punctuality, frequency, safety, comfort for passenger transport.*
[2] *Distance is not a modal choice criterion for ore transport.*
[3] *Complete trains with point-to-point routes and no change in the convoy.*

What role for the private sector in African railways development?

▸▸▸ where it is difficult to make operation sustainable due to the high level of fixed costs, the only financially profitable projects are those that improve existing assets. In this case, the operator cannot bear the cost of investment in a new line; the investment priorities are consequently to upgrade tracks in order to secure freight traffic, to modernize and, sometimes, to increase the capacity of the rolling stock. In some cases, winning back the market would require investments in modernization that are too high to be economically justified and financially sustainable. The best thing to do in this case is to shut down the line.

Ore transport constitutes a specific case. The high traffic density of an ore railway usually makes it possible to amortize the upfront investment. A private investment can consequently cover costs relating to the mine, the enrichment plant, the dedicated railway and the export port terminal. Indeed, the mining company seeks to control the allocation of the mining rent, from extraction to the final consignee.

What clients and States expect from private participation

Freight owners give utmost importance to the rail company's capacity to provide a service that is punctual, reliable, safe and client-oriented. Performance of private rail operators in sub-Saharan Africa is perceived by clients as being better than that of public bodies: they note a more commercial approach, in addition to a sharp rise in productivity (particularly in terms of staff and rolling stock).

Through privatizing operation, African States seek to completely release themselves from financing investment and operation. This objective is not realistic for African railways with low traffic density; public financing for infrastructure investment continues to be required. However, by privatizing operation it is possible to reverse financial flows between the State and the operator: concession or *affermage* fees, along with taxes and duties paid, then exceed the amount of subsidies. When operation is privatized, the State should mainly expect management to be improved, greater professionalization and a normalization of relationships with the operator – rather than a provision of private capital which will remain limited by risks and moderate profitability.

The forms of private participation

As with other infrastructure, private participation in railways mainly takes the form of outsourcing, management contracts *affermage* and concession. Outsourcing is an interesting option for public rail companies that are used to directly handle maintenance through force account. Although outsourcing may be difficult in small markets where there is only room for one subcontractor and one principal (working on a regional basis does however extend the market), it provides an opportunity for small and medium-sized local companies, often staffed by former railroad men. On a slightly different note, Sitarail, which manages the Côte d'Ivoire-Burkina Faso line between Abidjan and Kaya, subcontracts passenger train commercialization to a domestic private operator.

The Management contract has been tested in Africa's rail sector. There have been mixed results, especially when it simply comes to making staff available without financial incentive to perform. In highly unstable environments, however, it may be the only realistic method, for example in the Democratic Republic of Congo. It is customary for such contracts to be short-term, usually for five years; this duration is often too short to allow time for implementing major reforms and investments. Keeping operators over a long period would give public bodies easier access to long-term financing.

With *affermage*, the lessee operates the investments financed by the public authority against a fee, whereas with a concession all the investment costs are borne by the operator. Full-fledged *affermage* or concession-type *affermage* are generally preferable: the responsibility for investments is shared between the public authority and the operator. They are based on a logic similar to that in road transport, whereby investment in infrastructure is public and the cost of its maintenance borne by the user (*via* fuel levies), while investment and operation of the rolling stock are private. Sitarail operates using this model, which was also selected for Cameroon's railways in 2008, following a period of full concession which did not prove to be sustainable over the long term. Concessions remain feasible for lines with very high traffic density.[4]

The motives of private operators

In Africa, it is rare for private railway operators to be involved; one example would be the initial operation of the Nacala concession in Mozambique with the American Railroad Development Corporation; or, more recently, the involvement of Brazil's América

[4] *As an order of magnitude, several million tons a year on a one thousand km line.*

Latina Logística in the Kenya-Uganda railway. Northern American private rail operators have shown a greater interest in Latin America concessions; European railways, for their part, remain relatively closed to the private sector, except in the United Kingdom. The involvement of rail operators from other continents took the limited form of technical assistance *via* engineering companies. However, the case of Rail India Technical and Economic Services – a subsidiary of India's railways – is worth noting. It is or was a shareholder in concessions in both Tanzania and Mozambique.

Shareholding by major railway clients has proved more promising, whether they be logistics companies (Bolloré) or shipping companies (Maersk). Their interest in providing a service throughout the international transport chain lies in the fact that they can control the development of rents and increase their market share. This explains why "transfer pricing" (management fees, rebates) is more common than distribution of dividends.

Involment of national business remains low, with the exceptions of subcontracting and of rail concessions in Zambia and Kenya.

The success of privatization is not guaranteed. The first sponsors of the Dakar-Bamako and Kenya-Uganda concessions failed on all fronts: financing, management. The Djibouti-Ethiopia railway concession failed from the beginning due to the lack of cooperation between the conceding States, the inadequacy of the arrangement, the weaknesses of the candidates.[5]

The risks at hand

The macroeconomic risk stems from the prevalence of fixed costs in rail expenditure and, therefore, lack of flexibility in case of economic turnaround, as well as the fact that income is denominated in local currency.

The political risk relates to operating infrastructure with a long life span. In 1994, during the preparation of the Sitarail *affermage* no one could have foreseen that operation would come to a complete standstill for nine months in 2002 due to a civil war in Côte d'Ivoire. The regulatory risk, which characterizes the relationship between the State and the operator, can be small if transport tariffs are freely set. Binational concessions (Dakar-Bamako, Côte d'Ivoire-Burkina Faso, Kenya-Uganda, Mozambique-Malawi) allow both operating to be rationalized and economies of scale. But this entails an increase in transaction costs in order to implement common tax and customs systems, harmonized personnel management rules, etc. For their part, brownfield projects carry a technical risk which stems from the lack of visibility on the actual state of the transferred assets.

Sectoral policy and private participation

The role of the State is to organize the sector, direct (or indeed finance) infrastructure investments, ensure safety of rail services, prevent risk of abuse of dominant position, harmonize the terms of rail-road competition and mitigate the risks falling within its remit: political, macroeconomic, regulatory risks.

The organizational models used in the rail sector are based on: integrated companies, either intra-modal monopolies or in competition with other rail companies on neighbouring routes, with or without network access to third-party operators (USA); separation of infrastructure and operation (Western Europe); total unbundling of functions (United Kingdom). Given the generally low levels of traffic and small size of companies – along with the high coordination costs when functions are separated – an integrated organization with access to third-party operators continues to be preferable in Africa.

There are flaws in the harmonization of competition conditions between road transport, which mainly concerns the self-employed or very small enterprises, and railways, which belong to the formal sector. With the exception of ore transport (integrated into the 'mining-export' industry), the State can transpose the road model to the rail sector, whereby investment in infrastructure is financed by taxes, maintenance costs are passed on to the user (generally *via* a road maintenance fund), with private and commercial operation. Finally, the State should avoid any bias in favour of road transport, for example in price structure for products such as fuel. •

[5] *On this subject see Arthur Foch's paper in this issue of Private Sector & Developement.*

Lessons learned from this issue

BY BENJAMIN NEUMANN EDITOR IN CHIEF

Africa needs efficient and competitive railways. Rail transport, particularly for freight, can play a key role in the continent's development. It is cheaper than road transport, has a longer lifespan and a better carbon balance. During the 1970s, most sub-Saharan African railways were neglected and lost out to roads. They were seen as vestiges of the past, lacking the capacity to provide mass transport for agricultural raw materials and minerals in good conditions and with competitive prices.

The future of State-owned railway companies was put in the hands of the private sector, mainly in order to implement extensive operations for infrastructure and rolling stock refurbishment made necessary after decades of underinvestment. The first concession was launched in the mid-1990s and concerned the line between Côte d'Ivoire and Burkina Faso. In 2010, almost 70% of sub-Saharan African rail networks (excluding South Africa) had been fully or partially privatized. It may be premature to draw final conclusions from these experiences, but it is, however, possible to learn some lessons from them.

Private sector participation has generally had positive effects, particularly on rail traffic productivity and volumes. Freight services have gained market share and the accounts are more balanced. In most cases, financial flows between the State and the operator have been reversed: the license fees and taxes that are paid now exceed the subsidies.

But the results are nevertheless mixed. The level of private investment that was initially planned when the concessions were launched has not been reached. And most of the concessions have not managed to be financially viable in the long term without support from public authorities. Transport markets have been overestimated, when it is not the poor state of infrastructure that has been minimized. Finally, certain States have not given railways the means to compete with roads on a level playing field: the regulations and taxes applicable to road users, who only pay a fraction of road network maintenance costs, have not changed. Broadly speaking, most projects have not managed to strike the right balance between private interests and public expectations. The markets served by railway concessions in sub-Saharan Africa are too narrow to allow companies to bear the full cost of financing infrastructure and rolling stock. If concessionaires were to build up reserves for future renewals, they would no longer be able to afford to pay the license fees. African States, for their part, are also seeking to pull out completely from financing investments and operating. They see privatization as a low-cost way of transforming national rail networks into modern "European-style" services.

And yet railways have the capacity to contribute to the continent's development, provided States continue to be involved and that more private operators – carrying an industrial vision – are willing to invest in the sector over the long haul. For beyond refurbishing and modernizing railways, the challenge for the coming years lies in connecting existing networks and building new lines in order to develop inter-African trade.

The African rail sector is an industry that consumes vast amounts of capital and will need to attract financial partners, otherwise it will be entirely dependent on the capacity of States to mobilize the investments required for this development from institutional donors. For the time being, these financial partners very seldom find their place in rail privatization projects. Their presence in great numbers will consequently be a sign that privatization arrangements have become viable and sustainable and have managed to strike the right balance.

In our next issue

Cement, between eco-responsibility and economic needs

Proparco
GROUPE AGENCE FRANÇAISE DE DÉVELOPPEMENT

PROPARCO IS A DEVELOPMENT FINANCE INSTITUTION WITH A MANDATE TO PROMOTE PRIVATE INVESTMENTS IN EMERGING AND DEVELOPING COUNTRIES.

PRIVATE SECTOR & DEVELOPMENT is published by Proparco, Agence Française de Développement Group, a company having a share capital of €420,048,000, 151, rue Saint-Honoré - 75001 Paris, Tel: 33 1 53 44 31 07, E-mail: revue_spd@afd.fr, Website: www.proparco.fr • **Publications Director** Etienne Viard • **Founder** Julien Lefilleur • **Editor in chief** Benjamin Neumann • **Deputy Editor in Chief** Charlotte Durand • **Editorial committee** Laurent Demey, Alan Follmar, Adeline Lemaire, Elodie Parent, Véronique Pescatori, Denis Sireyjol, Aglaé Touchard, Benoît Verdeaux • **This issue was coordinated by** Charlotte Durand (Proparco) et Olivier Ratheaux (Agence Française de Développement) • **Contributors to this issue** Matthew Arndt (European Investment Bank), Richard Bullock (Independent consultant), Arthur Foch (Centre d'Économie de la Sorbonne), Éric Peiffer (Vecturis), Pierre Pozzo di Borgo (World Bank), Olivier Ratheaux (Agence Française de Développement), Édouard de Vergeron (Bolloré Africa Logistics) • **Graphic design and creation** NOISE 28, rue du Fbg Poissonnière - 75010 Paris, Tel: 33 1 40 34 67 09, www.noise.fr / Publishing: Jeanne-Sophie Camuset / Layout: Xavier Péron • **Traduction** Warren O'Connell, Christine Mercier • **Editorial office** (: ? ! ;) D O U B L E P O N C T U A T I O N www.double-ponctuation.com • **Printing** Burlet Graphics Tel: 33 1 45 17 09 00 • **ISSN :** 2103 334x • **Legal deposit at publication:** 23 June 2009.

IMPRIM'VERT® FSC

Subscription to the electronic version of the bimonthly magazine Private Sector and Development is free (www.proparco.fr)