Rail Infrastructure in Africa

Financing Policy Options

AFRICAN DEVELOPMENT BANK GROUP

Transport, Urban Development & ICT Department

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Foreword

Africa is currently experiencing an unprecedented economic recovery, with strong growth projections over the next three to four decades. The growth is driven by a fast- growing demographic and a large-scale urbanization. The operation of new mines, gas and oil fields, as well as the increase in intra-regional and international trade, are additional growth factors.

The transport sector can accelerate and intensify trade in Africa. Rail transport in particular, as a result of its energy efficiency, reduced greenhouse gas emissions and lower cost per ton kilometre, is expected to play an increasingly important role in the conveyance of freight over long distances. In comparison to other means of transportation, railways are particularly useful in mass transit systems for both inter-city and urban settings.

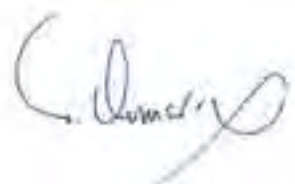
However, the current condition of existing railways infrastructure and rolling stock is poor in many African countries. This shortfall has undermined the potential of the rail systems to play a strong contributing role in economic development. In fact, rail transport market share in most countries on the continent is below 20% of the total volume of freight transport. Two of the major reasons, cited to account for this situation, are: the lack of investment in infrastructure and the absence of a supporting institutional framework. Rail transport is inevitably critical to supporting economic development and, unless this mode of transport is developed, Africa may not realise its full potential in exploiting its abundant natural resources and wealth.

Over the last fifteen years, and with the assistance of International Financial Institutions, several countries in Africa have been concessioning their railways with the objective of attracting private finance to invest in rail infrastructure. For reasons elaborated upon in this report, however, the results have been mixed. And often, the situation has not improved. Today, railways infrastructure still remains in poor condition in many African countries.

Premised on the lessons learnt from the last fifteen years, this report proposes a broad overview of policy options to be considered in financing rail infrastructure investment and maintenance. The recommendations presented in the report are by no means exhaustive. They are expected, however, to serve as a starting point for more innovative business models in Africa's rail transport sector.

It is, therefore, my sincere hope that this report will be useful to all those associated with rail development on the continent.

Amadou Oumarou



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Mr. Davies Makasa was the project task manager, and Mr. Amadou Oumarou, Director of the Transport, Urban Development and ICT Department of the African Development Bank, provided overall supervision and guidance.

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Abbreviations and Acronyms

Railway-related bodies and companies

ADIF	Administrador de Infraestructuras Ferroviarias (Rail Infrastructure Administrator)	Spain
ANCF	Agence Nationale des Nouveaux Chemins de Fer	Senegal
ATT	Agence du Transport Terrestre (Ground Transport Agency)	Madagascar
BR	Botswana Railways	Botswana
CAMRAIL	Cameroon Railways	Cameroon
COMIFER	Commission for Rail Infrastructure	Cameroon
CRF	Comite de Regulación Ferroviaria (Railways Regulation Committee)	Spain
DB	Deutsche Bahn	Germany
FDIF	Fonds d'Investissement et de Développement Ferroviaire (Railways Investment and Development Fund)	Madagascar
FIF	Fonds d'Investissemts Ferroviaires (Railways Investment Fund)	Cameroon
IR	Indian Railways	India
IRFC	Indian Railways Finance Corporation	India
KRC	Kenya Railways Corporation	Kenya
KURH	Kenya Uganda Railway Holdings	Kenya - Uganda
MADARAIL	Madagascar Railways	Madagascar
MINEPAT	Ministry of Economy and Planning	Cameroon
MINFI	Ministry of Finance	Cameroon
ONCF	Office National des Chemins de Fer	Morocco
PRASA	Passenger Rail Agency of South Africa	RSA
PTB	Petit Train Bleu	Senegal
RENFE	Red Nacional de Ferrocarriles Españoles (Spanish National Railway Network)	Spain
RFF	Réseau Ferré de France (French Rail Network)	France
RSZ	Railways Systems of Zambia	Zambia
RVR	Rift Valley Railways consortium	Kenya - Uganda
SCCF	Société Camerounaise des Chemins de Fer (Bolloré)	Cameroon
SITARAIL	Société Internationale de Transport Africain par RAIL	Côte d'Ivoire - Burkina Faso
SNCF	Société Nationale des Chemins de fer Français	France
SUMATRA	Surface and Maritime Regulatory Authority	Tanzania
TAZARA	Tanzania Zambia Railway Authority	Tanzania - Zambia
TRANSCAM	Cameroon Central Line	Cameroon
TRANSRAIL	Transrail SA. (Entreprise ferroviaire)	Dakar - Bamako
TRL	Tanzania Railways Limited	Tanzania
ZR	Zambia Railways	Zambia

Other abbreviations and acronyms

ACP	African, Caribbean and Pacific countries
ADB	Asian Development Bank
AFD	Agence Française de Développement
AfDB	African Development Bank
AICD	Africa Infrastructure Country Diagnostics
ARTIN	African Regional Transport Infrastructure Network
AUC	African Union Commission
BCEAO	Central Bank of West African States (Banque Centrale des États de l'Afrique)
BGK	Bank Gospodarstwa Krajowego
BOAD	West African Development Bank (Banque Ouest Africaine de Développement)
BOT	Build, Operate and Transfer
BRVM	West African Regional Stock Exchange (Bourse Régionale des Valeurs Mobilières)
CA	Central Africa
CEMAC	Central African Economic and Monetary Community (Communauté Économique et Monétaire de l'Afrique Centrale)
CWR	Continuous Welded Rail
DRC	Democratic Republic of Congo
EA	East Africa
EAC	East African Community
EBITDA	Earnings before interest, taxes, depreciation, and amortization
ECA	Export Credit Agencies
EDF	European Development Fund
EIB	European Investment Bank
EIF	European Investment Fund
EPC	Engineering, Procurement and Construction
ERR	Economic Rate of Return
ERTMS	European Rail Traffic Management System
EU	European Union
EUR	Euros (€)
FCFA	CFA Franc
FEMIP	Facility for Euro-Mediterranean Investment and Partnership
FSO	Funds for Special Operations
GDP	Gross Domestic Product
GMTN	Global Medium Term Note
GRF	Grant Facility
HGV	Heavy Goods Vehicles
HSR	High Speed Rail
IBRD	International Bank for Reconstruction and Development
ICA	Infrastructure Consortium for Africa
ICT	Information and Communications Technology
IDA	International Development Association
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IFF	Intermediate Financing Facility
IFI	International Financing Institutions
IIC	Inter-American Investment Corporation
IL	Innovation Loans
IM	Infrastructure Manager
IMF	International Monetary Fund
ITF	EU-Africa Infrastructure Trust Fund
LGTT	Loan Guarantee Instrument for Trans-European Transport Network Projects
MGA	Malagasy Ariary
MIGA	Multilateral Investment Guarantee Agency
ML	Multiphase Loans
MoF	Ministry of Finance
MoR	Ministry of Railways
MoT	Ministry of Transport

MTN	Medium Term Note
NA	North Africa
NEPAD	New Partnership for Africa's Development
O&M	Operation & Maintenance
OCT	Overseas Countries and Territories
OECD	Organisation for Economic Co-operation and Development
P&L	Profit & Loss
PBCE	Project Bond Credit Enhancement
PBI	Project Bond Initiative
PDL	Performance Driven Loan
PIDA	Program for Infrastructure Development in Africa
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public Private Partnership
PRG	Partial Risk Guarantee
PSP	Private Sector Participation
RER	Regional Express Network in France (Réseau Express Régional)
RMSA	Raw Material Supply Agreement
ROSCO	Rolling stock Operating Company
RSA	Republic of South Africa
RVN	Rail Vikas Nigam
SME	Small and Medium Enterprises
SPV	Special Purpose Vehicle
SSA	Sub-Saharan Africa
SSATP	Sub-Saharan Africa Transport Policy Program
STI	Sustainable Transport Initiative
SWAp	Sector Wide Approach
TGV	High Speed Train (Train à Grande Vitesse)
TOC	Train Operating Company
TU	Traffic Unit
UAR	Union of African Railways
UIC	International Union of Railways
UN	United Nations
WA	West Africa
WAEMU	West African Economic and Monetary Union
WB	World Bank
WHO	World Health Organization

Executive summary

The current situation

1. Most African railways have suffered a strong decline during the last decades

Railways transport is a mature industry in the developed world, which is experiencing a remarkable comeback after a period of decline. The rediscovered allure of railways is underpinned by its capacity to move huge volumes of freight or passengers in an energy-efficient and environmentally friendly way. Nevertheless, in many countries railways are still struggling to transform themselves from subsidy-dependant legacy companies to more efficient commercial undertakings.

With a few exceptions (mainly in the RSA and Northern Africa), African railways clearly lag behind those of most other regions in the world. Rail transport has faced the same constraints and challenges as elsewhere. But, poor economic, technological and institutional conditions have further aggraveted the situation in Africa. The result is outdated infrastructure, sometimes approaching a point of no return. The operations are clearly below international standards.

Concessions introduced in the 90s, under the impulse of the World Bank and other international donors, have halted the declining trend that threatened to dismantle many rail lines. But, the entire initiative has produced mixed results: in some cases it was a blatant failure and in quite a few others, if any, it was an outright success.

2. The fundamentals of rail economics and operations

Some of the fundamentals of railways that need to be borne in mind, are:

- Freight transport is typically competitive over mid to long distances but it usually loses its attractiveness in shorter journeys.
- Rail requires high volumes to be feasible, and it is a business of high volumes with low margins.
- Road and railway transport are both competitive and complementary. They compete over long distance but road transport is required for the “last mile.”
- Railway infrastructure is rigid, expensive and requires an operating and maintaining.
- The performance of the operator is highly dependent on the conditions of the infrastructure and rolling stock
- Rail freight and rail passenger transportation are very different businesses
- Most rail projects around the world require high levels of subsidy for the construction and/or operations to be sustainable. This subsidy should reflect the economic, social and environmental benefits of railways compared with other transport modes.
- Including appropriate stakeholders in the concessionaire’s shareholding improves project performance in the case of PPPs

There is no single “fit for all” business model for railways. A large number of railway business models can be found worldwide with various levels of integration/separation of infrastructure and operations, and with more or less private participation. Significantly, the bigger and apparently more efficient railways in Africa (e.g. RSA or Morocco) are public sector undertakings, which is not the mainstream pattern in the Americas or in Europe.

The need for a new approach

3. The analysis of selected African railways confirms the need for a new approach

An in depth assessment of the railways in eight African countries has been undertaken. These eight countries are: Botswana, Cameroon, Kenya, Madagascar, Morocco, Senegal, Tanzania and Zambia. They represent a wide range of backgrounds and experiences. Most have had experience with concessions, with different results. But some (like Botswana and Morocco) have maintained a public sector approach.
The most relevant conclusions from these visits are:

- In most countries, the introduction of concessions has proved rather unsettling to the point that two of them been terminated after a very short time. Where

concessions are still operational, the terms have had to be modified, resulting in major changes to their financial base.

- Most concessions underestimated the amount of investment required and the sums committed have had a limited impact on improving railway performance. Financial packages associated with these concessions have proved to be insufficient.
- Railways contract holders, most of them freight driven, have been overburdened with obligations that do not sit comfortably with their core business. They had to take over a substantial share of state railways legacy and passengers' service obligations, and this has been a major issue for their operations.
- Most concessions require operators to engage to a greater or lesser degree in infrastructure renewal or maintenance. This means that most African concessions are a hybrid that requires operators to be involved to a certain level in infrastructure and maintenance works.
- The coexistence of passenger services, with mostly freight-driven operators, has been uncomfortable to the point that in some cases, it has been the cause of litigation. Major concession amendments has been introduced, and effected even before the service was eventually terminated. In these cases, service termination is deemed more appropriate than service cessation.
- The competitive environment between railway and road transport modes has not been adequately addressed in most cases. Neither at the planning stage not at the implementation and enforcement stages were competitive modes of transportation appropriately considered. In too many cases, the compétitive or complementary aspects of road versus rail transportions have not properly been examined.
- Most countries have reached the conclusion that railway management and financing have to be reviewed. But these countries are still struggling to define the adequate financial models, most notably how infrastructure maintenance should be managed and funded.
- Most of the visited countries have several new major railway projects, targeting both freight (mostly mining) and passenger market segments. A variety of schemes at regional level have been designed as well. There is a general acceptance that PPPs can have a role to play in the funding of such projects. However, it seems of paramount importance that rail infrastructure, rolling stock and operations should be split both contractually and financially.
- Finally, some countries seem to have opted for a public approach to their railways sector with no intention to privatize them in the short to medium-terms. Thèse countries are: Morocco, Botswana and Zambia. Zambia, the last of these countries, came to make that decision after a disppointing experience with concessioning. The countries, which opted for the public sector approach, are also countries with the greatest technical capacities and the most attractive business environments in our sample. This is an indication that well-funded and properly managed public railways may be a suitable option in some cases, provided that appropriate institutional framework and commercial structures are in place.

The challenge

There seems to be two conflicting views:

- One opinion is based on the perception that rail transport as a losing game. The number of operations funded by International Financial Institution's (IFIs) in Africa, in recent years, shows relatively little investment in railways as compared to other infrastructure such as roads or energy.
- Conversely, the other opinion sees railways as an indispensable tool to foster development and take full advantage of the continent's natural wealth. Many African countries, as well as regional groupings, are currently designiing new railway schemes. And several foreign players have become very active in promoting, lobbying government and even investing in railways. High expectations for the sector, as well as a certain amount of media hype, can now be found in the offices of many African decision-makers.

These contradictory views should not provide any excuse for either inaction or irresponsible investment decisions. On the contrary, what is required is a clear understanding of the fundamentals of the rail business, its financing and the making of sound and unbiased assessments, especially at the stage of project identification and preparation. Unfortunately, in many countries, this process is hindered by a shortage of skills and familiarity with modern railways.

The solution

4. Opportunities for railways development do exist

There are opportunities for railway development in Africa as a consequence of the following drivers :

- Growing urbanisation and industrialization will pose new transportation challenges that railways are well suited to handle.
- Africa will produce large volumes of goods such as bulk minerals and commodities that are natural markets for railways.
- The huge continental mass of Africa and the existence of many landlocked countries will encourage the development of high-capacity and efficient transport corridors.
- Higher sensitivity towards environmental and safety issues will result in railways getting more public attention and social support
- The reduction of the extremely high external costs (noise, pollution, congestion, accidents etc.) associated with the constant increase in the use and ownership of private vehicles.

5. Focus projects on what railways do best

Railways are not the sole solution to all transportation challenges. Projects should be concentrated in segments where railways can effectively bring higher efficiency and lower costs than other modes: moving high volumes of persons or goods over a given distance. Accordingly the areas deemed to be most appropriate for railway projects in Africa are:

- **Major African Metropolitan Areas** > Urban and suburban passenger railways.
- **Densely populated areas and corridors** > High volumes for freight or passengers possible.
- **Corridors from ports to inland markets** > Freight trains moving containerised or bulk materials from/to ports over long distances.
- **Major mining basins** > Freight trains moving minerals and other raw materials to export ports.

Railway policy makers may have to bear in mind that new railway projects in Africa will only be sustainable provided that they are compatible with their natural markets. Projects should be driven by the “need” within the Transport Sector with a clear set of objectives. Robust and detailed feasibility assessments such as cost-benefit analysis (CBA), economic impact analysis or social return on investment analysis need to be part of the evaluation process.

The way forward

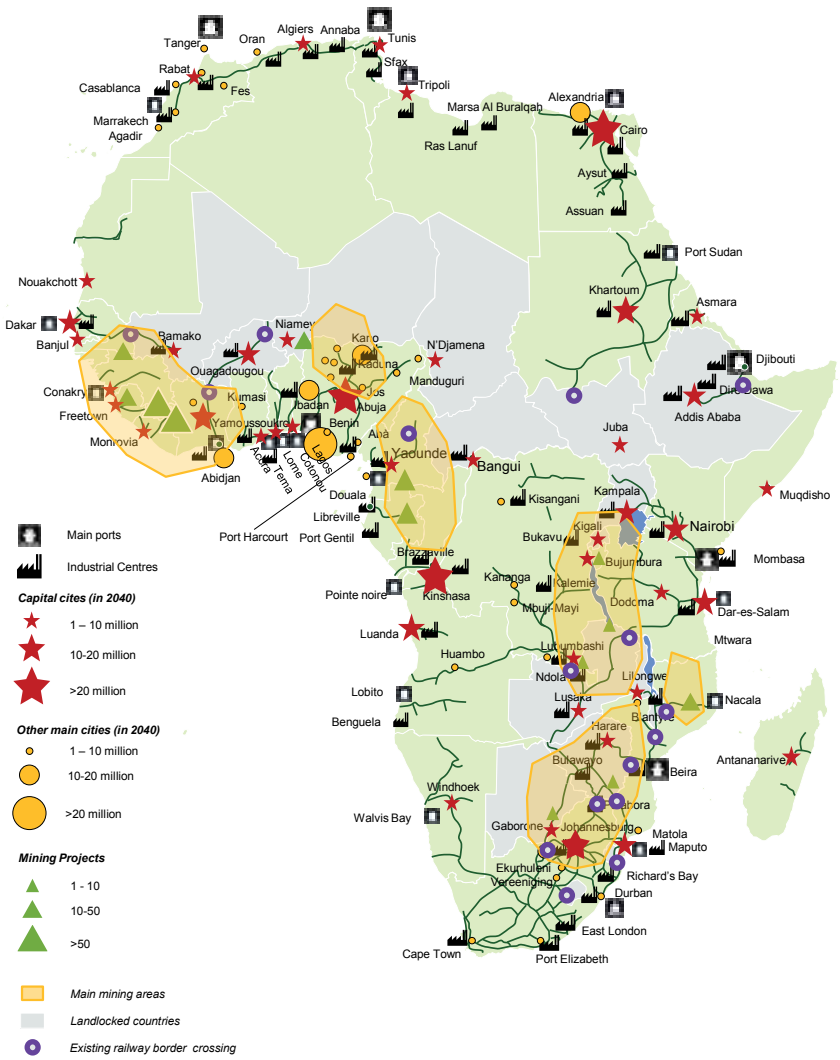
6. Learn from the experience of other countries

Faced with similar challenges in terms of the financing and development of railways, experiences in other developing and emerging countries are particularly valuable:

- Countries that pioneered railways concessions, such as Argentina, provide mixed results. While freight transport has grown and proven to be profitable, long-distance passenger services have been discontinued, as the subsidies required were unsustainable. However, urban and suburban trains remain crucial to Buenos Aires mobility.
- The quality of the institutional environment is critical to ensuring that users benefit from private sector participation. In poor institutional environments, private operators may be more interested in courting regulators and politicians (i.e. the source of subsidies), than in really engaging in the improvement of safety and service standards to users, since fares are a minor part of the operator’s revenues.
- Big, and bureaucratic, public railways may create highly professionalized spin-offs to provide flexible, credible and creditworthy instruments to deal with the private sector under a wide range of PPP deals. This is the case of IRFC and RVN in India. This type of

approach merits the support from IFI's.

- Public railways such as Transnet and PRASA in the RSA may provide acceptable to good service delivery and sound financial performance, under adequate institutional arrangements, and has experience with big PPP deals such as the Gautrain.
- Although it is a politically sensitive issue, the use of a share of fuel taxes to fund railway infrastructure is possible in emerging countries, as Poland's experience shows. This fund can eventually underwrite the issue of bonds to finance railway projects.
- Unless there is a clear political will to push forward with liberalization and integration of national networks, it can be difficult to get agreement to a legal framework that neatly separates infrastructure, operation and regulation.
- Partnerships between railways and logistics/transport operators have been successfully achieved in some of the leading railways in Europe and some examples already exist in Africa. The strong synergies obtained seem to favour this approach.
- The decision to change gauge within a country has many implications. It can hinder, almost irreversibly, the development of rail traffic as has happened in some EU countries without standard gauge. Any new project, that involves the introduction of a different gauge from the one existing on the network, needs to be carefully assessed before any decision is made. The assessment needs to take into account the requirements of stakeholders in the logistics chains and all the operational and day-to-day impacts.



Source: ALG based on PIDA

Main areas suitable for railway developments in Africa

7. IFIs have a key role to play in project development and financing

The activity and experiences of the most important IFI's have been assessed so as to identify their portfolio of financial products and their approach to railways. The main conclusions are:

- Although much more funding has been devoted to other transport modes such as roads and ports, the active involvement of IFIs, in the last few decades, has deeply influenced the development of railways worldwide. Thanks to their expertise, as well as their wide range of financial products, IFIs are in the best position to assist developing countries like those in Africa in setting up a viable model for their railways.
- The approach of IFIs in other continents, and particularly from other resource-rich and low-density regions, such as Latin America - where there is also longer experience with PPPs - should be closely monitored so as to learn from their successes and failures.
- Most multilateral banks have a wide spectrum of products that can be useful to support railways development. These products range from risk management products to loans and from multilateral guarantees to political risk insurance. Improving railways finance seems not to be an issue of creating new particular financial instruments but of developing new policy approaches.
- Project bonds may have great potential to finance railway infrastructure, although their introduction requires rather mature and sophisticated financial markets that exist in only a handful of African countries.

8. Provide a framework and policies for the resurgence African railways

From the experience of twenty years of railway reforms in Africa, ten objectives have been selected to provide an overarching framework:

Project identification and selection

1. Railway financing should prioritise projects that focus on identified markets generating high volumes;
2. Freight railway projects should take into account the whole logistics chain;

Railways finance

3. A new approach to passenger services is required;
4. A systematic approach to maintenance is mandatory as it underpins railway performance;
5. Insufficient funds and financial commitment to concessions;
6. Railways' economic, social and environmental contributions should be monetised;
7. New approaches to railway concessions should be explored;

Institutional structure

8. Enhanced technical and business capabilities should be encouraged;
9. Railway industry should be corporatized and regulated;
10. Larger railway markets in Africa should be promoted through increased cross-border cooperation.

These objectives have implications at a national level as well as at the level of multilateral financial institutions, such as AFDB. The AFDB seeks to become a key player in infrastructure financing in the continent, following the establishment of the Africa50 fund.

To address the objectives, twelve policy options are proposed. Some of these options aim to address single objectives while others are rather more transverse and their impact is across a number of policy options. Most policy options have implications at both the national level (i.e. individual governments) and the IFIs that are most active in Africa infrastructure financing.

Policy Options	National	IFIs
1. Introduce a systematic approach to railways project identification and preparation	x	x
2. Include railway financing as part of a broad sustainable transport policy	x	x
3. Establish clear and stable commercial agreements for passenger services	x	
4. Set up railways infrastructure and maintenance funds	x	
5. Larger financial packages and long term involvement is required	x	x
6. Develop monetisation methodologies for social, economic and environmental benefits derived from railways	x	x
7. Adapt finance solutions to different railways business models	x	x
8. Explore alternative PPP approaches including separation of infrastructure and operations	x	x
9. Promote capacity building and training centres to increase railways know-how at all levels of decision and operations		x
10. Improve regulation and monitoring bodies	x	
11. Co-ordinate acquisition rolling stock and maintenance and alignment of operating procedures among African countries	x	x
12. Set up a task force for African railways		x

9. Conclusion

The current condition of railways infrastructure and the performance of most rolling stock are generally poor in Africa. However, rail transport has an important role to play in the growth and sustainable development of the African continent over the next few decades. In comparison to other means of transportation, railways are particularly necessary for the conveyance of freight and passengers in urban and inter-city settings.

The renaissance of the railways in Africa will need to be underpinned by the recognition that greater funds are required to bring the infrastructure up to an acceptable level. It is also to be admitted that a higher degree of professionalism, regulation and expertise is required within the industry to ensure that the past mistakes made with the involvement of the private sector are not just repeated. The AfDB has a key role to play in the upcoming renaissance. The AfDB can provide strategic guidance, introduce new approaches through pilot experience and funding.

1. Need for rail transport in Africa

1.1 Background

Almost all of the rail systems in Africa have their origins in the early 20th century when European colonial powers built railway lines to support military movements and to transport goods produced in the large mining or farming operations. After the continent achieved independence, railway networks were broken up according to the new national borders, thus in some cases reducing their markets and economies of scale. Public bodies were set up to run railways that soon became inefficient and overstaffed, with dwindling demand due to the competition from road transport and most railways entered a spiral of neglect and decay. This led to a situation of severe deterioration sometimes near a point of no return. However, there are a few exceptions notably the RSA and some countries in NA where railways still play a relevant role in freight and passenger transportation.

Figure 1 : Locomotive in Cameroon

Source: Advanced Logistics Group (ALG)

In the mid-nineties, most often under the auspices of the WB and other multilateral donors, many Sub-Saharan railways experienced new PPP approaches. Looking back of 15 years after the first concessions, some lessons have been learnt and the conclusion is that most of them have not lived up to their initial expectations.

Nevertheless, the African continent is experiencing important economic, social and institutional developments which are creating a framework in which railways may once again play a major role within the transport system.

The growth of large cities, the opening of new mines and the strengthening of interregional corridors are some of the factors that will drive the commitment to rail during the 21st century.

This new situation has attracted the interest of most African governments, international financial institutions (IFIs) and international investors. Given the relatively poor results of previous railway reforms, governments are now wondering whether or not they should rely again on railway as an asset capable to provide financial, social, economic and environmental long-term benefits.

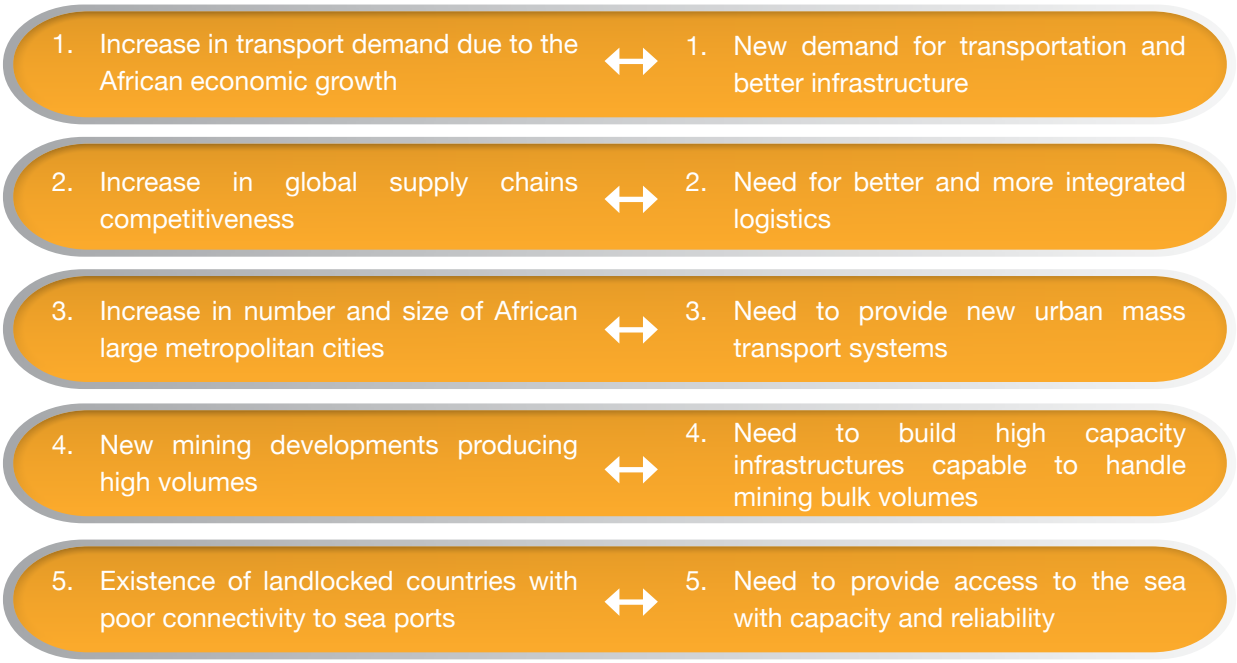
In the light of the large amount of projects and master plans arising from this increasing interest, this document intends to give a broad but detailed overview of key main topics that should be considered by each stakeholder involved in the development of African railways. The document also aims at providing railway policy makers with the best practices and measures to be implemented for the success of new and existing railway projects in Africa, so that they can become a powerful tool to support the economic and social development across the whole continent.

The questions to ask are: Is rail transport needed for the development of Africa? And if the answer is YES, how should it be financed and where should it be targeted to provide the greatest benefit and value? It is thus important to understand where this can be achieved, what the key drivers are and what opportunities railways may bring to the continent, if the investment is made under the correct criteria.

1.2 Drivers of railways potential in Africa

Despite the difficulties faced so far and the state of decline of rail in most regions, since the colonial era, railways in Africa still have great potential to support the economic and social development of the continent. Africa, within its geographic diversity, shows favourable characteristics for railway development which are summarized in Figure 2.

Figure 2 : Main drivers of the development of African railways



Source : ALG

The first two drivers presented hereafter are directly linked to the widely accepted economic emergence of the continent that should support the growth of rail transportation in some sectors.
The remaining drivers lay on the geographic and demographic features of Africa, which make railways more suitable or even essential in some specific areas. The rationale for each of these drivers is described in chapter 2, Fundamentals of rail economics and operations, where a detailed overview of the most appropriate conditions for both freight and rail passenger transportation is provided.

1.2.1 Increase in transport demand due to the African economic growth

It is well known that a close relationship exists between economic development and increased flows of goods and people, and that this leads to a growth in demand for new transport infrastructure. The economic growth of a country is always accompanied by increased market activity in terms of both private consumption (demand) and the production of goods (supply). The consequence of this is an increase in the exchange of goods and the mobility of people, increasing transport demand.

During the last decade, and despite the global crisis, Africa has experienced economic growth well above the world average (especially in Sub-Saharan countries); and this trend will continue in the coming years, as shown in Table 1 (See page 23).

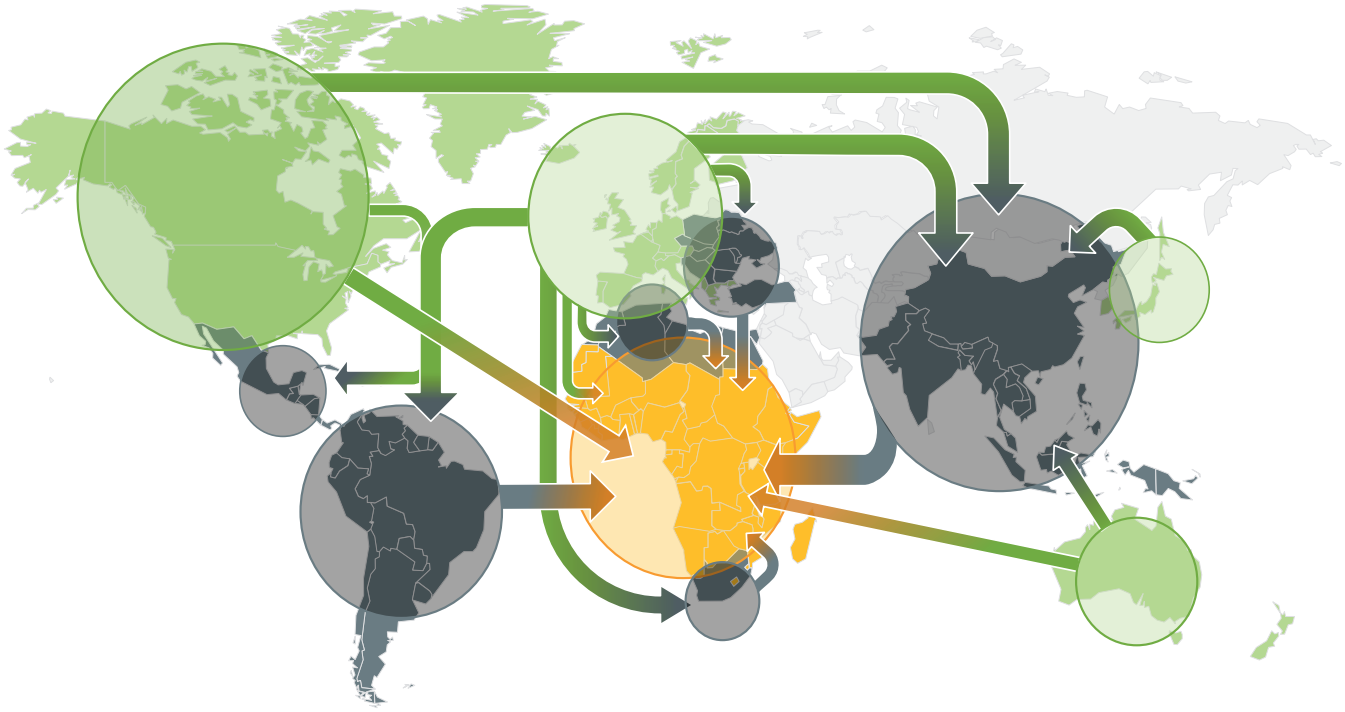
In this context, one can expect the railway sector to take on a new dimension, as in other regions of the world where the railway currently plays a much greater role where there are large distances of travel (freight) and high concentrations of population (passenger) (Figure 4, page 23).

1.2.2 Increase in global supply chains competitiveness

The reduction in transport costs and optimization of logistics chains has enabled the relocation of industrial production from the major consuming countries to other regions of the world with lower labour costs. This change has mainly involved movement from Western countries to Southeast Asia, Eastern Europe, Latin America and certain parts of Africa, especially North Africa and RSA.

In order to attract and maintain new industrial developments, these regions have had to develop new infrastructure to remain competitive against other parts of the world. Transport infrastructure is a key component and in many of these countries, the improvement of connections via rail has been decisive in connecting ports to large industrial areas or purpose-built logistics areas.

Figure 3 : Industrial relocation from emerging countries to African countries



Source: ALG

Given the steady increase of labour costs in the areas currently hosting the production, it is reasonable to believe that relocations to areas in the African continent could occur in the near future.

In parallel with the increase in purchasing power among Africans for consumer goods, it can be foreseen that the setting up of factories on the continent will make it necessary an infrastructure capable of transporting large volume goods such as containers, equipment or cars.

As it has been mentioned, rail can fully meet these needs, in terms of both efficiency and profitability. Thus, one can expect that areas with high potential to host new industries can develop rail freight networks and logistics centres such as dry ports, as has happened with seaports in the most industrialised areas of South Africa and the Maghreb.

1.2.3 Increase in the number and size of African large metropolitan areas

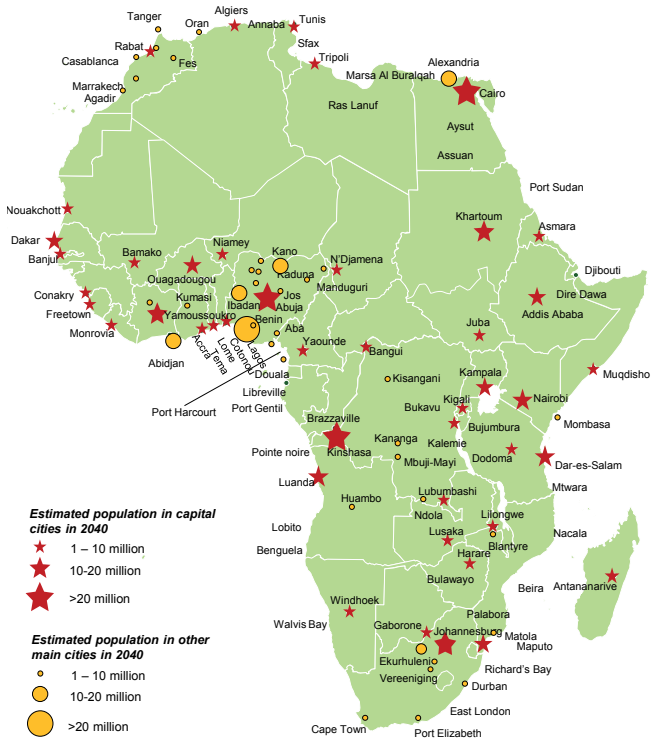
Demographic forecasts for the African continent suggest that the population will increase 70% by 2040. There will be a drastic reduction in child mortality and a significant increase in life expectancy. A process of migration will accompany this growth from rural to urban areas that will result in an increase in urban population from 450 million to 1 billion by 2040. As a result, it is expected that African cities will experience major growth in both population and size, as Table 1 shows.

Table 1 : Main urban areas and their forecasted demographic growth in Africa

Main African urban areas	Country	Pop. 2011	Pop. 2025	Change 2011-25
Lagos	Nigeria	11,2 m	18,9 m	+68%
Cairo	Egypt	11,1 m	14,8 m	+32%
Kinshasa	DRC	8,7 m	14,5 m	+65%
Luanda	Angola	5,1 m	8,9 m	+76%
Khartoum	Sudan	4,6 m	7,1 m	+53%
Alexandria	Egypt	4,5 m	6,2 m	+38%
Abidjan	Côte d'Ivoire	4,3 m	6,9 m	+63%
Johannesburg	South Africa	3,8 m	4,7 m	+23%
Dar es Salaam	Tanzania	3,6 m	7,3 m	+103%
Cape Town	South Africa	3,6 m	4,4 m	+23%
Kano	Nigeria	3,4 m	5,7 m	+69%
Nairobi	Kenya	3,4 m	6,1 m	+82%

Source: UN World Urbanization Prospects

Figure 4 : Main African urban areas in 2040



Source: PIDA

To ensure that the expansion of these cities is viable and sustainable, new urban transport systems offering greater capacity must be implemented. If not, the growth in the use of the private car, as a preferred means of transport among urban dwellers will have major impacts in terms of: traffic jams, congestion accidents, noise and pollution leading to a reduction in the quality of life and economic development, not only for the city but for the whole country.
Urban rail can provide a very efficient alternative due to its capacity to transport large volumes of passengers at high frequencies. If it is accompanied by a proper promotion policy, the railway could enable a decrease of the use of private vehicles in these cities, as can be observed in many large cities in emerging countries such as New Delhi, Bangkok, Buenos Aires or Sao Paulo.
However, urban rail cannot be considered without the financial contribution of the public sector. Considering that it is a form of public transport, the ticket price has to be affordable for the entire population, thus public investment and fare subsidies will be essential to allow an African metropolis to offer a transport system that is competitive with other alternatives such as bus or private vehicle.

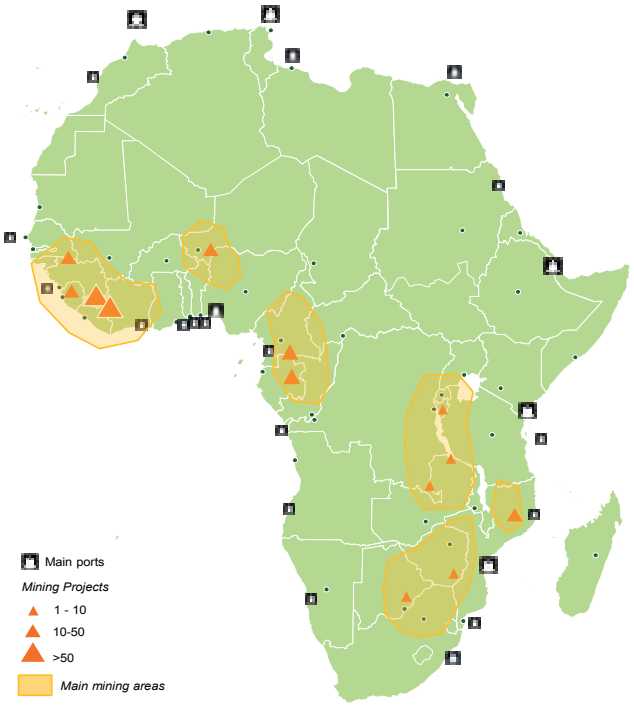
1.2.4 New mining developments producing high volumes

Until the recent increase in prices of commodities such as iron ore, coal or copper, many of the mineral deposits in Africa had remained unexploited due to the high costs of infrastructure necessary to access the mining areas. However, following the increase in prices, many mining projects have become profitable, attracting the interest of international investors. It is estimated that, in Africa, there are currently about 380 companies conducting mining operations with a total of about 1,500 projects across the continent (some of them still in the planning phase).
To take mining products to ports or industrial areas, rail provides costs per tonne well below road transport due to its better economies of scale (in some cases by around 20%, as in the case of phosphates). For this reason, it is expected that the railway will play a decisive role in the development of mining areas, multiplying the number of existing lines in Africa.
In general, most mining railway projects involve the construction of new private rail lines whose cost and risk is borne by the concession holder of the mining operation, this means that they are generally business-driven. However, since the cost of new railway infrastructure (a greenfield project) is very high, some of the mining projects of medium or small size may not be able to bear the cost individually.
The construction, under Public-Private Partnerships, of railway networks that serve areas with several mining projects can help deliver the infrastructure. It can be expected that many of these projects will go forward due to the positive impact on the economy, given that they can also provide improved connectivity to other nodes such as ports, cities, agricultural and industrial areas.

1.2.5 Existence of landlocked countries

Africa has the largest number of landlocked countries in the world, as seen in the map below. Since African ports are the gateways of the continent to the outside, landlocked countries require specific connections to coastal areas to allow them to trade with countries outside Africa.
Without such links, the economic potential of these countries is seen as very limited due to the loss of competitiveness arising from being landlocked and the creation of freight corridors connecting these countries with ports should be a priority. Since distances are typically of 500km or more, railways transport is a real alternative to road transport.
Some countries such as Burkina Faso, Mali or those in Southern Africa already use the railway as a means of transport to reach the coast.

Figure 5 : Main Africa mining areas in 2040



Source : PIDA

Figure 6 : African landlocked countries

Source : ALG

1.3 Main opportunities for railways development in Africa

Some of the trends in Africa bring associated interesting opportunities for the development of railways. The diagram below summarizes these opportunities and shows how railways may benefit from them

1. More public sensibility to the external costs of transportation	↔	1. Railways may become more attractive for freight transportation
2. Increase in the African intraregional trade	↔	2. Railways may provide high capacity freight corridors
3. Increase of environmental and social sensibility in Africa	↔	3. Railways may provide a more environmentally and socially friendly transportation alternative

4. Development of a railways industry	4. Railways may promote the direct and indirect creation of jobs
5. Better control of urban development	5. Railways may contribute to reduce social exclusion and poverty

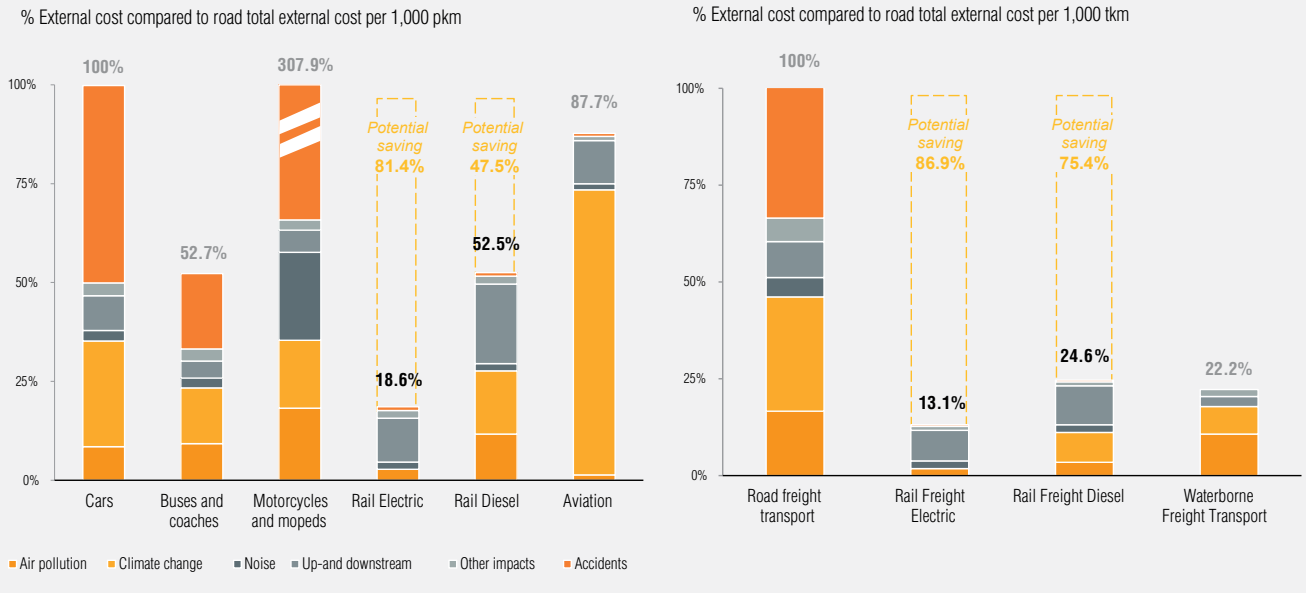
Source : ALG

1.3.1 Reduction of external costs of transportation in Africa

Compared to most regions of the world, the African road network is generally in poor condition, carries large volumes of heavy truck resulting in high maintenance costs. These conditions together with the lack of regulatory enforcement in the transport sector have led to both extremely high level of road fatalities and significant environmental impacts (noise, air pollution, climate change). In comparison, greater use of railways would transfer goods from trucks and passengers from cars thus reducing the damage to the roads and maintenance costs, they are also much safer, thus reducing fatalities on the roads and have much less impact on the environment.

One of the main advantages that railways can provide to the society is the significant reduction in terms of these costs, as it can be seen in the study highlighted in the figure below for different means of transport:

Graph 3 : Comparing external costs of railways and other means of transportation



Source : ALG based on European Commission study on transport external costs

In 2008, external costs (excluding congestion) averaged € 500bn in Europe, i.e. 4% of the total GDP of the region and congestion costs were estimated to be about an additional € 200bn. Of these total costs, rail only accounts for about 2% when road transport's share is 93%. The main benefits of railway systems are summed up and Table 2.

The following benefits are evaluated with European data (reflected in Graph 3), and must be put into the perspective of developing countries. In Africa, older car fleet and driving habits would result in still higher costs for air pollution, climate change, noise and accidents.

Table 2 : Comparing railways external costs with other means of transportation

Externalities	Main benefits from using railways versus other means of transportation
Accidents	Railways may substantially reduce road casualties and their related costs. The cost of accidents is 50 times less for rail than road traffic, moreover the road traffic injury mortality rate is twice as high as the European average. It is estimated that by 2030 road traffic accidents in developing countries could be as high as AIDS deaths. Developing mass transit systems in urban areas could reduce such costs by mode transfer from road to rail.
Air pollution/ climate change	Railways produce far less air pollution than other modes. Air pollution causes health costs, crop losses and building damage. Rail diesel produces 50% more air pollution than electric rail although this is still significantly less than car, suggesting electric railways are better adapted to passenger traffic. In non-urban areas, railways produces 3 times less air pollution costs than road freight and such gains could be valued in financing sources, using climate change funds.
Noise	Both passenger and freight railways produce less noise costs than road modes. Noise causes health costs and general annoyance for people exposed.
Up-and downstream processes	Up- and downstream processes costs for railways greatly depend on electricity and fuel production costs. Such costs represent climate change effects and air pollution, derived from fuel and electricity pollution. Because of the needs for large-scale electricity production and a mix of energy sources, the contribution to total external costs is higher for rail than for other modes. It is notable that waterborne freight transport can have the least impact.
Others	Other impacts include nature and landscape costs, biodiversity losses, soil and water pollution recovery costs, and times losses for non-motorized users in urban areas. Overall, railways perform best in those categories than any other mode, except aviation.

It must be pointed out that railways represent an even bigger opportunity when looking at congestion costs, which are not included in the associated figures. The growth of urban agglomerations in Africa without effective mass transit systems, including railways, could further increase congestion costs. In Cairo, congestion costs are responsible for 4 to 5% of GDP, while efficient public transportation systems such as in Barcelona reduce this to between 0.3 and 0.6% of GDP.

1.3.2 Increase in the African inter-regional trade

Although African interregional transport is not significant at present, it is expected that economic progress will cause trade among African countries to grow significantly. The so-called African Regional Transport Infrastructure Network (ARTIN) is expected to account for 13% to 18% of freight transport in Africa by 2040. However, the growth prospects for these flows are currently highly constrained by the limitations of the freight corridors between African countries, which are very often deficient or non-existent.
Although road transport generally has much more flexibility than rail, some African corridors are conducive to freight transport, especially for the transport of bulk goods such as hydrocarbons, mining products or agricultural products. The incompatibilities between countries in terms of rail infrastructure may be an added hurdle for the development of these rail corridors, as has occurred in other parts of the world or on the African continent itself. Consequently, those countries sharing gauge or having bilateral agreements to facilitate border crossing (as already occurs in some corridors such as Senegal-Mali) will be more likely to succeed in the development of inter-African rail corridors.

1.3.3 Improved enforcement and compliance of road transport and road safety regulations

One of the biggest challenges that the African transport sector faces is to regulate road transport, which currently causes large impacts for society, infrastructure and the environment of the continent. Poor regulations and enforcement means that African roads suffer the highest accident rates in the world, heavy levels of congestion, pollutant gas emissions and, in parallel, an extremely high deterioration through usage (bridges, asphalt, shoulders...). Too often, road transport has benefited from a virtually “no rules” environment, being able to operate with much lower costs per tonne due to being able to have excessive axle loads, few speed controls, inadequate vehicle technical inspections and unclear procedures to obtain transport licences. All these contribute to operators making much higher operating margins

Table 3 : Axle load control in Tanzania

Types of axle	No. of tires	Max Load on Axle or Axle Group (tonnes)
Single steering drive operated	2	8
Two steering drive operated	4	12
Single steering draw bar controlled	4	9
Single Non Steering	2	8
Single Non Steering	4	10
Double Non Steering	4	12

Source : Government of Tanzania

These types of measures supported by an efficient control system can be very beneficial for African railways because they may imply a reduction in road transport margins, leading to the transfer of heavier goods to rail. For example, thanks to the implementation of axle load control, the transport of goods such as bulk mineral ores or heavy machinery -which in many cases are currently being transported by truck- will in general have to change to rail.
Nevertheless in adequate enforcement and petty corruption in the field is still an issue on most African roads.

1.3.4 Development of a railways industry

The development of railways is correlated to a wide range of both supplies and services, which have high added value. In particular, the necessary maintenance of tracks and rolling stock to assure reliable service depends on a high-performing industry run by skilled workers. The integration of such skills and the development of the industry is not only a necessary step for the successful development of railways in Africa, but also an opportunity to develop an industry that can bring sound economic and social benefits.
The public rail operator Transnet provides an illustrative example in that area. Understanding that railways not only provide a mean of transportation but an opportunity to develop an industry, Transnet has sought to develop rolling stock maintenance and refurbishments activities

internally, providing more than 12,000 jobs solely through these activities. When acquiring rolling stock from international manufacturers, Transnet has also demanded that manufacturing should be locally based, therefore employing local workers and offering valuable training.
Furthermore, the railway industry relies on other core industries, such as steel, energy and ITC. Developing railways can therefore have impacts in other sectors, contributing to the overall growth of industry. Railways should therefore be seen as component part of wider industrial development plans.

1.3.5 Better control of urban development

As previously noted, Africa will continue to experience major urban development in the next decades. The rapid process of urbanization has resulted in most cases in the proliferation of slums, increasing urban poverty and generally poor living conditions.
Such a situation has been fuelled by inadequate urban development strategies. The need for a more active role from government in urban expansion should be associated with the introduction of mass-transport schemes. Moreover it should be noted that underground trains (metro), light rail (over ground) and BRT usually have much more throughput capacity than any other alternative mode such as conventional buses.
Indeed, the development of mass transit systems in urban areas is an opportunity to better control development. The scale of the investment and construction work makes it essential that it is carefully planned to integrate into the urban environment. Because it reduces travel times and creates increased land values, railways transport can be viewed as a way to structure urban space economically, sustainably and socially.

1.4 Conclusions and recommendations

1. Why railways in Africa?

There are opportunities for railways development in Africa because:

- Growing urbanization and industrialization will pose new transportation challenges that railways are well suited to handle.
- Africa will produce large volumes of goods such as bulk minerals and commodities that are natural markets for railways.
- The huge continental mass of Africa and the existence of many landlocked countries will require the development of high-capacity and efficient transport corridors.
- Greater awareness of environmental and safety issues will create a climate in which railways will get more public attention and social support.
- Railways may play a relevant role in the reduction of extremely high external costs derived from the use of road transport, in a context of constant growth in road vehicles in Africa.

2. Where to develop railways in Africa?

Despite what has been said, railways are not the sole solution to all transportation challenges. Projects should be considered where rail effectively brings higher efficiency and lower costs than other modes: moving high volumes of people or goods over a given distance. Accordingly the areas deemed to be most appropriate to railway projects in Africa are:

- **Major African metropolises Areas** > Urban and suburban passenger railways.
- **Densely populated areas and corridors** > High volumes for freight or passengers possible.
- **Corridors from ports to inland markets** > Freight trains moving containerised or bulk materials from/to ports over long distances.
- **Major mining basins** > Freight trains moving minerals and other raw materials to export ports.

Figure 8 on the following page provides a raw illustration of where in Africa the abovementioned conditions are met and therefore could initially be considered to be the most appropriate for future railway developments

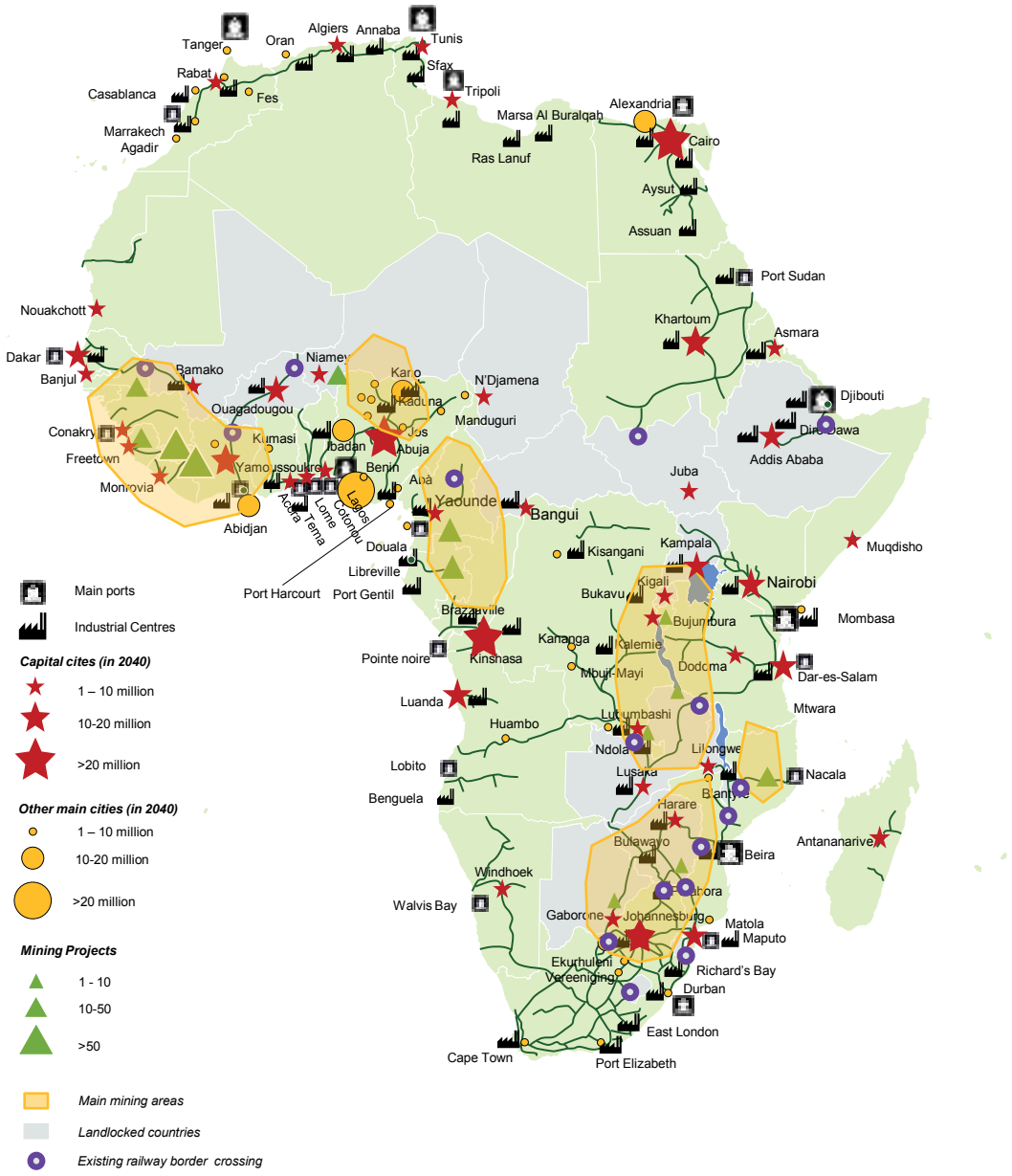
3. How to develop railways in Africa?

Railways policy makers may have to bear in mind that new railway projects in Africa will only be sustainable in the long-term provided they are compatible with their natural markets. Strong and detailed feasibility analysis,

including studies such as cost benefit analysis (CBA), economic impact analysis or social return on investment analysis needs to be part of the initial foundations for new developments. Furthermore, any new railway project should be framed within an overall vision of the needs of the whole transport sector.

Across the entire document, but especially in chapter 7 *Rail infrastructure financing policy options,* concepts and tools are provided for a better understanding on how railways should be developed in Africa.

Figure 8 : Main areas suitable for railways developments in Africa



Source : ALG based on PIDA

2. Fundamentals of rail economics and operations

2.1 The renaissance of railways

Figure 9 : Mining train in Senegal

Source : GCO

Railways were synonymous with modernization when they were built over a hundred years ago. Initially, they were constructed by mining companies to provide cheap and reliable transport links directly to ports, but quickly developed into networks for passengers as well as freight. At the time, railways seemed cheaper and quicker to build than paved roads and provided a much quicker and cheaper transport than other options available such as waterways and trucks. As other modes of transport expanded quickly, railways began a slow but study decline which can be explained by the following factors:

- Other modes were quicker to incorporate new technologies (as it happened in in the automobile and aircraft industries) than the railway industry. Fortunately, the railways industry has reacted in the latest decades with substantial new technologies (HSR, maglev, monorail, remotely driven rails, etc.…)
- Railways were typically managed by public sector entities with lesser customer-oriented and cost-efficiency cultures and higher reluctance too changes.
- Governments became less willing to subsidise a transport mode burdened with legacy practices and challenges and with a dwindling demand.

However, rail is experiencing a strong comeback. Under adequate conditions, it can be more efficient, economic and environmentally friendly than other transport modes such as road or air. Hence, most if not all rail development schemes around the world are based on a broader assessment of its economic benefits. Transport policies in the EU, along with those in many other countries, have prioritised increasing the share of alternative modes to road transport, notably railways and inland waterways. This is also the case in China, Japan and the USA. Metros and suburban rails are being introduced – and even re-introduced – in many major metropolises in the world as they struggle to reduce congestion and pollution.

Indeed, several industries and “big volume sources of freight” such as ports, mines, steel mills or large chemical plants have never lost their interest in railways as they provide a solid and reliable transportation device. Although modern engineering and logistics were not historically integrated into railway design in the early stages, at present, most countries worldwide see the opportunity for this through new railway projects.

Developing countries need efficient supply-chains for raw materials and for distribution, especially for import and export. Railways (as a transport mode with high capacity in weight, volumes and connectivity of distant regions) can play a significant role in supporting development, for ports and in landlocked countries. They can increase the economic attractiveness and the connectivity of regions, ports, cities and/or corridors.

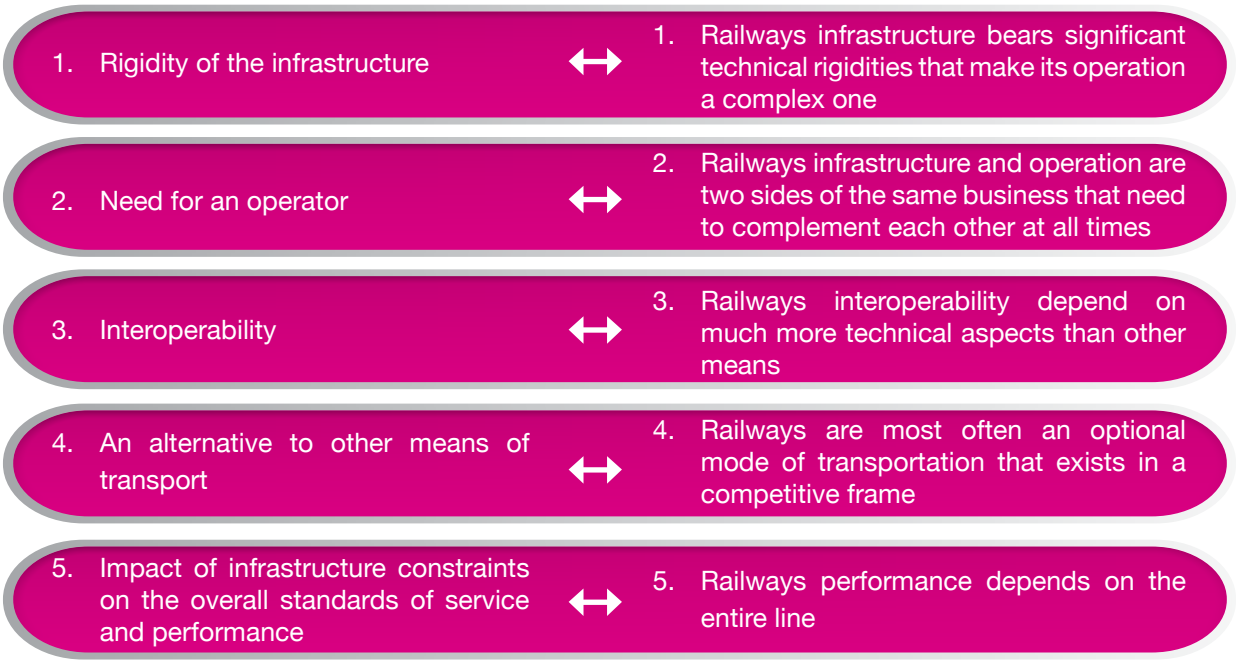
The following sections in this chapter aim to introduce the essential rail-related concepts to be considered with regard to the development of new railway projects in Africa. These refer to the rationale of rail, its main technical features and the current economic and business models that support it. It also provides an overview of the specifics of railways versus other infrastructure assets as well as offering a review of the main railway market trends.

2.2 Particularities of railways versus other infrastructure assets

There are several features that make railways different from other types of infrastructure and have an influence in financing. They are summarised in the figure below.

Figure 10 : Particularities of railways against other infrastructures

Particularities of railways versus other infrastructure assets



Source : ALG

1. Rigidity of the railways

From a technical point of view, railway is a mode of transport that presents substantially greater technical constraints than other modes. Complex manoeuvres and/or specific infrastructure are required to overtake and change direction and it requires shallow gradients and curves than roads. Unlike roads or ships, services have to be controlled under a slot (path) system together with a communication system. Trains are slower to react to unexpected events, e.g. it takes more time for a freight train to stop to avoid collision than a truck, and thus stricter safety regimes need to be in place.

Trucks, planes and ships have far more flexibility to change their route if required for commercial reasons or in the event of an incident, compared with trains.

2. Need for an operator

Other infrastructures do not require an operator to perform transport along the network. Gas or liquids move along on pipelines pushed by physical principles as in case in electricity. Cars and trucks are able to move freely along roads. On the contrary, rail transport always requires two sides: infrastructure and operations. As discussed in other sections, infrastructure and operations are radically different types of businesses and require different skills and expertise. Where infrastructure is widely accepted to be a natural monopoly, operations, at least in theory, can be performed under a commercially driven way in a competitive environment.

Although both railways and roads have infrastructure, which has to be maintained, anyone with a truck or car can use a road whereas for railways you need a specific operator who has to make a significant investment in rolling stock before they can operate. Private operators will not commit to an operation unless there is a sufficiently large market and if the operator does not have sufficient business the burden of cost will fall to the Government.

3. Interoperability

Planes and ships can move freely at ports and airports around the world. The main technical constraints are those related to dimension e.g. draught or wingspan. The same happens with road transport, a truck can theoretically move along any road with little technical limits.

Energy and fluids may have some interoperation problems

related to pressure, voltage, etc. but these are lesser hindrances compared with sophisticated railways.
Gauge width is potentially the most significant constraint to interconnect railway networks, but other aspects such as electrification, communications systems, maximum axle load, train length or tunnel clearances are also factors on many networks.

4. An alternative to other means of transportation

Railways are only one of the options for moving people and goods in a competitive transportation framework i.e. road in the freight and passenger segments and with air in the long distance passenger segment. The user chooses the mode of choice according to cost, travel time, availability of service, comfort and reliability among other criteria. Other infrastructure caters for the needs of citizens (water, sanitation, electricity, telecoms) and thus demand risks are much lower than those found in railway transport.

5. Impact of infrastructure constraints on the overall standards of service and performance

The overall standards of service in a railway, however long it is, will be determined by the standards on the worst section in the line. Let us illustrate with the following example:
If along 1,000 km line there is a 10 km section where only 10 tonnes per axle are allowed, trains covering the whole distance will generally be limited to 10 t per axle, regardless that higher tonnage is possible along the rest of the track. In this case upgrading the 10 km section will bring a great positive impact along all the line. Also, the lowest clearance of all tunnels along a railway line will limit the overall vertical clearance.
If a line has a number of infrastructure and technical constraints that lead to very poor standards of service, as is the case in most of Africa. Improving a single section will not bring a great overall improvement because other sections still suffer from constraints, a real improvement will only be felt if most if not all infrastructure constraints are removed. This is likely to require significant upfront investment.

2.3 Railways operations

2.3.1 Rail freight transportation

1. Composition of a freight train

A freight train is composed of a collection of wagons hauled by one or several locomotives, depending on the motive power required. Freight trains throughout the world are most often diesel-powered either because electrified networks are not available or in order to offer more operational flexibility by allowing trains to run on any part of the network, including non-electrified sidings.
A wide range of technologies has been developed in wagon design to cover the spectrum of transportation needs of almost all commodities.
Standard types of wagons exist for high volume dry bulk goods, liquid goods, containers, cars etc. Several specific developments exist for certain goods such as cement, steel coils etc. Wagons are designed to load/unload the products with low human operation and in a time-efficient manner. The wagons are optimized to transport as much freight as possible, limited by the axle load allowed on the infrastructure and the specific weight and volumes of goods. Usually the load efficiency of a wagon in tons and volume is far higher than that of a comparable road vehicle.
The growth in the use of containers for freight movement has in the last decades spread to rail freight transportation. Containers are loaded onto flat wagons. Those wagons are fitted for a certain number of containers of international standards (20', 30', 40' or 45'). Double stacking of containers is possible if the structure gauges allow that and it increases volume and efficiency of trains significantly.
The efficiency of rail is dependent on high volumes being transported in a single train journey. The assembly of a larger number of wagons into longer trains, as is common in the US and Australia, improves efficiency further. However, national regulations and infrastructure constraints can limit the maximum length of trains as loops, sidings and stations may not be able to accommodate them.

2. Logistics of operating freight trains

Thanks to the variety of the previously described rolling stock, nearly any product can be moved by rail freight transportation. But shipped products differ widely in terms

of volumes (both weight and dimension), frequency of shipment, distance of travel, sensitivity to time, value, etc. These differences have operational consequences.

Industries, which need to move high volumes of a specific bulk good on a regular basis, such as the mining industry, energy, steel, paper, waste, chemicals etc., usually operate complete trains known as block trains. The best economically and operationally case for rail freight is a door-to-door service, which occurs when both source and final destination have access to railway sidings to perform the loading/unloading process.

However, in many cases, no siding is directly available at one (or both) end(s). So, an extra movement of goods is necessary. This makes the transport chain and the economic feasibility for rail more difficult as it incurs separate transhipment costs for the "last mile". Different technologies are available to optimize the interface between the modes of transport. But specific trucks might be needed and this has an impact on economic competitiveness, especially for heavy bulk goods transport.

Given the above, the advantage of containers becomes obvious. Different types of goods can be moved on the same train with standardized wagons and transhipment technology. The trucking for the last mile is possible again with standard equipment. Containers can therefore help the railways to provide services for smaller volumes and for "networks" which not only concentrate on A to B connections, as most bulk transport does, but rather serve a number of different destinations and thus makes rail transport attractive for logistics service providers distributing consumer goods. Meanwhile, containers are even attracting bulk goods due to their efficient, simple and worldwide-standardized procedures.

For container transport, a network of terminals is required to load and unload containers on and off the wagons. Terminals need to be as close as possible to the clients but they also need to bundle as much volume as possible to be better utilized and more efficient. These container terminals might attract other logistics services and become "freight villages" to concentrate services around logistics at one area. High efficiency levels of these terminals can attract industries to request new services using rail.

If the infrastructure is shared with passenger operation, priority is most often given to passenger trains, which limits the performance of freight, but this can generally be accommodated as freight is not generally as time critical.

Economies of scale: High volumes

Both road and rail transport have large initial fixed costs in infrastructure construction (whether it be greenfield or brownfield) and additional costs in terms of rolling stock or heavy goods vehicles. However, since the initial costs are fixed, the cost per tonne reduces as the volume carried increases. This results in better economies of scale for rail as trains can carry more goods and there is always the ability of adding extra wagons whereas heavy goods vehicles (HGVs) will always only be able to carry the same limited amount of goods per vehicle.

The costs of carrying freight are often calculated by the transporting of a block train. However, it can also be cost effective to transport smaller tonnages if the train service is a regular one and is made up of individual containers. Economies of scale can also apply in this case if the transport flows and tonnages are effectively matched. Table 4 shows two examples of how economies of scale benefit railway transportation compared to road transportation in the case of iron ore transportation. Details on railways costs are included in subchapter 2.5 Railway economics.

Table 4 : Examples of iron ore rail transportation versus road transportation

Ore iron railway line	Railway transportation versus road transportation
Line in Brazil (Carumba-Santos)	Iron ore train has 110 wagons 1,700m long and can transport 10,230T iron ore. This would require over 200 HGV to transport the same tonnage
Line in Norway- Sweden (Narvik-Lulea)	Iron ore train has 68 wagons and transports 6,800T of iron ore. This would require over 370 HGV to transport the same tonnage

Source: Railistics

Mid to long distance transportation

The different transportation modes (rail, road and have different cost functions according to the distance serviced. On a general basis, as it can be seen in the graph on the right hand, for short distances, road has the lowest cost functions, but it climbs faster than the cost functions of rail and maritime transport. Rail transport becomes more competitive than road transportation on distances greater than 500km.
In reality, these "break even" distances may vary depending on the traffic density of each country, the availability of transport alternatives and the nature of the terrain or other geographical reasons.

Transportation of hazardous goods

Rail transport in general is safer than road and in recognition of this many countries have passed laws or recommendations that hazardous goods be transported by rail rather than road. Rail systems have to comply with stringent controls and monitoring measures and are also subject to more regulation than roads. Trains follow dedicated routes and are in constant contact with an operation centre and run to a fixed schedule. Hazardous goods are transported in specially designed wagons or containers, which are inspected more frequently than 'normal' road vehicles.

Bulk transportation: mining, oil and agriculture

Rail has proved to be the best option when carrying bulk goods (dry or liquid), as it can provide greater capacity, regularity and higher energy efficiency compared with other transport modes.
To further increase the economies of scale, it is technically possible to assemble a large number of wagons into exceptionally long trains (over 3 km long), generally on dedicated freight lines as found in Australia, America, China and Brazil. However, in Europe, the maximum length for freight trains ranges from 400m to 700m depending on the goods moved, the railway line, the availability of passing loops, the track capacity and the capacity and length of the final unloading areas.
Rail freight transport provides outstanding advantages for mining commodities due to the large volumes that can be carried, particularly relevant to mining sites. The use of rail implies removal of this same high volume from the roads, resulting in the reduction of road damage and reduction in CO2 emissions.

2.3.2 Rail passenger transportation

2.3.2.1 Overview

Despite sharing a common technical basis, the business of rail passenger transportation differs greatly from freight in many aspects.

1. A spectrum of services

The development of rail passenger transportation is typically divided into several markets: mass transport system, regional lines, and long-distance railways.
Mass transport systems in urban areas have developed on the basis of providing reliable, timesaving and high volume transportation for people. The network may be underground, above ground, or mixed; and is usually passenger exclusive. Infrastructure and maintenance costs in these systems are generally the highest because of the urban context, but they do provide a critical social service in most urban areas and therefore can justify high public subsidies to cover the costs.
Rolling stock is selected accordingly to provide the needed capacity whilst minimizing loading times, and specific noise-reduction standards are set (lines are almost always electrified). Speeds are usually lower, with limits usually set at around 100 km/h, but frequency is much higher requiring more sophisticated systems to optimize intervals between trains. The ticketing system is more flexible and often integrated with other urban mass transport systems to provide connections and a seamless service.
Regional railways offer different services and rely on different technologies. Covering longer distances (usually between 30 km and 100 km) through above ground infrastructure, the trains are longer and run at a lower frequency. Because noise is less of an issue, electrification is not as important. Their capacity is generally lower than that of mass transport railways but they offer more comfort and are in competition with road commuters in large urban areas.
In contrast with the two above categories, long distance railways are generally not used regularly as commuter transport but rather for business trips and leisure. The

rolling stock has over time been adapted to these needs by offering more comfort, often with a premium class and, in the most developed railways, an experience similar to that of an aircraft. Train sizes are adapted to routes and peak hours by adjusting the number of carriages.
For regional and long distance railways, commercial speeds can reach 160 km/h, but are generally around 100-120 km/h. High speed railways are defined in Europe as being railways where the speed limit is a minimum 200 km/h. The highest speed limit on public networks allowed as of today is 320 km/h. The operation of high-speed rail is very different from other trains, both from a technical and a marketing point of view and their financial sustainability is hard to establish.

2. The specificity of passenger operations

Punctuality and reliability are of high importance in passenger services. While a freight train is usually considered on time for a time-interval of about 30 minutes, punctuality in passenger operation is usually restricted to between 5 and 10 minutes. The consequence of this is a more rigid and sophisticated operating regime.
A major problem in implementing passenger services is the adjustment of frequencies to meet the market needs. Passenger transport always has peak demands (generally in the morning and evening) and the overall frequency, quality, size and number of rolling stock has to be adjusted to either have capacity for the peak and operate very inefficiently during non-peak times or to provide only limited coverage during peaks.
Given this, it is difficult to operate services on a commercial basis and the provision of passenger services usually involves a political decision regarding the quality of services provided to the market. Most often, passenger services are subsidized through Public Service Obligation contracts justified by their social, environmental and economic benefits to society.

2.3.2.2 Best opportunities for rail passenger Transportation

3. Metropolitan areas – Mass transportation systems

Railways can provide mass transportation services to relieve roads in very congested areas and can provide a reliable transport service on a regular basis and with higher service quality than all the alternatives. The big conurbations in Africa provide the market basis for such solutions, provided rail infrastructure is made available. Mass transit on rail can be provided for commuter traffic to and from places of work and for regional travels to city centres for different purposes, such visits to administrations and/or leisure.
Rail services compete with bus services on a regulated or non-regulated basis. The ticket prices are low, so rail services will also have to offer relatively low prices. This will lead to a certain deficit for such services (which is the case all over the world). The loss compensation needs to be guaranteed to the service provider and can be covered from different sources such as the industry commercial business, shopping malls and locations, municipalities, regional authorities etc.).
An important aspect from financing perspective is the transparency of the expected loss to be compensated. This requires a comparably sophisticated cost and income forecast and this analysis should be considered as crucial for any third party to become interested in a financial involvement in such services.

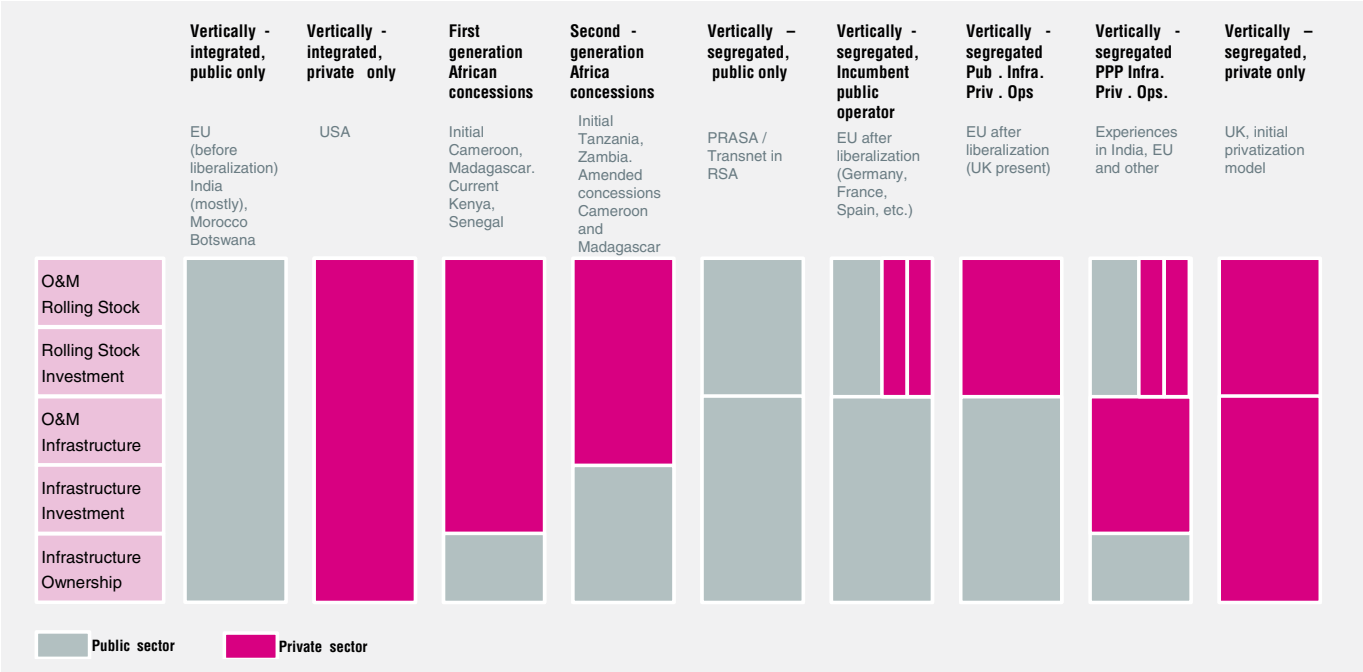
4. High density corridors and HSR

Only high volumes of passengers can reduce the need for substantial subsidies from governments. In long-distance travel, passenger transportation may only be suitable provided that the pairs of cities or corridors connected have enough passenger flows to justify the high frequencies that can compete with road transportation. There are many examples worldwide in which long-distance services have been discontinued due to poor financial performance. If highly subsidised, passenger services are able to connect regions successfully and offer a comfort and punctuality difficult to find in other transport alternatives.
High-speed Railways can be a serious competitor to air transportation over medium distances (railway journeys taking less than 3 hours) and where there is willingness to pay the relatively high ticket prices necessary to cover the higher associated costs.
Passenger transport is an important political instrument to the public and is an important image improvement opportunity for railways. The difficult economic situation requires a transparent and sustainable financing agreement to allow investment not only in rolling stock but also in stations and marketing.

2.4 Railways business models

A large range of business models has emerged in the railways sector based on railways history, existing regulatory framework and market specificities (including market size and density). Differences exist between vertically integrated and vertically segregated models, and private and public sectors, as 11 shows, can share responsibilities for infrastructure investments and operations. All models can prove successful if developed in a suitable environment, underlying that no perfect railway business model exists.

Figure 11 : Railways business models (illustrative examples)



Source : ALG

1. Vertically-integrated railways

Vertically integrated railways have the advantage of there being a single company controlling the full value chain in the railway business. That means that coordination between railway operations and infrastructure is maximised. The main drawback of this model is that it is inherently monopolistic and it thus may not allow more than one operator, even if the existing one is not performing satisfactorily.

Railways that are publicly owned and managed as well as vertically integrated are still the most common pattern found in the world. This is the prevalent model in most of Asia, Russia, and North Africa and it was widespread in Europe before liberalization. It is the current system in Botswana and Morocco. This model fully integrates public service and social considerations but requires strong funding from government budgets and they face the risk of political interference and non-efficient management and allocation of resources.

This model seems to be a good match for middle-income countries where railway still has a critical social or economic impact and the public sector raises enough revenue to sustain it. This is also a widespread model for suburban and urban railways and subways across the world, although here PPPs are more and more common.

Privately owned and managed vertically integrated railways are common in the USA. This model has the advantages of allowing full coordination and requiring little or no costs covered by taxpayers. However, the introduction of passenger operations in this model (such as Amtrak passenger services running on private lines), usually entails complex and uncomfortable arrangements.

2. Vertically segregated railways

Separation of infrastructure, which is a natural monopoly, and operations, where competition may exist, has been implemented in many countries. Segregation most often means that railway operators are companies providing strictly transportation services, thus not engaged in any civil works activity. It is the responsibility of the infrastructure manager to engage in infrastructure investment and maintenance. Infrastructure managers provide capacity and receive fees from the operators that use the infrastructure. This model requires complex coordination among different parties and a full-fledged independent regulator to assure fair and transparent conditions to market access.

Most often, infrastructure managers are public sector undertakings. A private sector infrastructure manager was experienced at the early stages of privatization in the UK and the model was partially reversed after it was blamed for prioritizing returns to shareholders over maintenance and safety, resulting in several accidents involving fatalities. Across Europe, the separation of infrastructure and operations, as well as the opening of the market, have not yet been fully accomplished. There is a status-quo in which incumbent public sector operators still retain market dominance and effective unbundling is limited by the fact that the operator and the infrastructure manager remain within the same group and often under the same political control. More details are explained in 4.2.

Figure 11 shows that there are several differentiated models at present but none of them is the "most suitable" for any purpose. Within these structures, the financing credibility of the sector depends on two aspects:

- Commitment of the government/state to support railways
- The potential involvement of private participants in the sector.

Depending on the business model, these aspects materialise rather differently in each country (concession, liberalization, infrastructure ownership, funding, public service obligations for passenger service, etc.). In Africa, most countries are currently drawing different approaches to railway business models after the lessons learnt from the first wave of concessions. While countries such as the RSA, Zambia or Botswana seem strongly committed to public sector delivery, various approaches to liberalization are being considered in other countries, e.g. Tanzania, Senegal, Cameroon, etc.

It is important to underline that the choices regarding a more bundled or unbundled business model, public or private delivery, or a more or less liberalised environment are most often based on political or ideological considerations, and it is impossible at this stage to provide decisive technical evidence in support of a single model.

2.5 Railways economics

One of the most relevant aspects to take into consideration when planning a new railway project is to ensure economic sustainability during the main lifespan phases: the construction phase and the operations phase. This section provides the reader with a review of the economics of both phases, starting with the railway assets investments to be conducted during the construction phase and following with the income, costs and cash flows derived from the operations phase.

2.5.1 Railways assets

The first big issue that arises when planning a railway project is whether it is strictly necessary to build a brand new rail track (greenfield infrastructure), or if the existing railway line (brownfield infrastructure) or the working trains (rolling stock) should be renovated/replaced. Beyond the environmental or social implications of choosing between these three approaches, it should be noted that the financial requirements associated to their assets are completely different. Each asset has its own general set of specificities in terms of investment risk, upfront investment requirements (costs), and rigidity against variations in market demand and investment cycle profile. The following lines provide details of each railway asset as well as examples of typical costs that can be found in the market.

2.5.1.1 Greenfield infrastructure

Greenfield railway projects refer to the design and construction of completely new railway lines including the bridges, tunnels, embankments and cuttings required to build the whole railway track, stations, signalling systems and electrification (if necessary).

Greenfield investments are usually concentrated during the earliest phase of the project (prior to the beginning of operations). As Table 5 shows, they require big upfront investments, which are financed by the railway stakeholder who is in charge of undertaking the infrastructure investment, in general the public sector. Railway operations will only begin after the completion of the new rail infrastructure, which normally offers a certain capacity to match increases in the market demand forecast on a long-term basis. The possibility of underperforming demand results in higher risks for investors.

The following table offers examples of some railway greenfield project costs. As it can be seen, the cost per kilometre may vary significantly depending on the amount of civil engineering structures, the terrain, the total length of the railway line, or labour, raw materials and expropriations costs. The total cost may range from $ 2 million/km for single-track non-electrified lines in a developing country to $40 - 50 million/km in a HSR line in a European urban area.

Table 5 : Examples of railways greenfield projects costs

Railways	Date	Project	Cost per km	Length	Comments
China: Yichang-Wenzhou	2011	Main line	$ 9.1 m	377 km	278 km in structures
UK: Glasgow to Edinburgh	2011	Main line	$ 6.6 m	75 km	
France: TGV Rhine-- Rhone	2011	HSR line	$ 45.4 m	140 km	high speed electrified, environmental protection, biodiversity measures
Zambia-Angola: Chingola-Benguela railway line	On-going	Main line	$ 1.98 m	554 km	
Ethiopia: Mieso-Djibouti border railway line	On-going	Main line	$ 3.53 m	339 km	Electrified line

(*) Some of them may also include land costs

Source : ALG and Railistics based on multiple sources

2.5.1.2 Brownfield infrastructure

Brownfield railway projects are those projects in which an existing rail infrastructure is partially or completely renovated, including the rehabilitation of bridges, the modification of railway alignments (curve radius, slopes and cants) or the conversion from single to double track. This type of investment must not be confused with the maintenance of railway lines, which is a mandatory action for all infrastructure managers in order to provide an adequate level of service. Some estimates suggest that the cost of rehabilitation of a railway track is approximately 50% of the construction costs of a greenfield two-lane road.

In contrast to the construction of new lines, brownfield investments can be spread throughout the whole railway line lifespan. This is due to the fact that, sometimes, old railway lines are still able to host train operations while they are being renovated, although their performance may keep far below the standards that can be offered by a new infrastructure. The main advantage of this type of investment for railway sponsors is that it reduces the initial financial requirements while it can better adapt to the railway market demand in a long-term basis.

This approach is most suitable when building a new railway line becomes too risky for the railway owner or simply when big upfront investments are not available, and is frequently the case of developing regions, such as the African continent. Since the financial resources in these countries are very limited, old or colonial railway lines may offer the best transport alternative to connecting areas with untested railway market demand. Some brownfield investments examples are presented in the following table. Again, prices tend to vary depending on several factors.

Table 6 : Examples of railways brownfield projects costs

Railways	Date	Project	Cost per km	Length	Comments
Angola: Luanda to Malanje	2010	Rehabilitation	$ 1.28 m	470 km	
Turkey: Irmak Zondulak	2011/2	Rehabilitation	$ 1.05m	486km	
UK: east coast main line	2007	Rehabilitation	$ 3.4m	632km	Two tunnels and electrification
Northern Uganda Rail line	2013	Rehabilitation	$ 2 m	500 km	
Ethiopia: Mieso-Djibouti border railway line	On-going	Main line	$ 3.53 m	339 km	Electrified line

Source : ALG and Railistics based on multiple sources

2.5.1.3 Rolling stock

Rolling stock includes locomotives, wagons and other operations-related assets. These are the type of investment offering much higher adaptability to the market demand than infrastructure, especially if leasing is used. Moreover, the upfront investment required for rolling stock is substantially lower than for greenfield or brownfield infrastructure.

As a consequence, rolling stock stands out as offering a lower investment risk and is much more attractive for private investors wishing to enter in a railway project, especially in countries where the railway market demand presents a high degree of uncertainty, as is the case of many African countries. The table below provides some examples of rolling stock market prices:

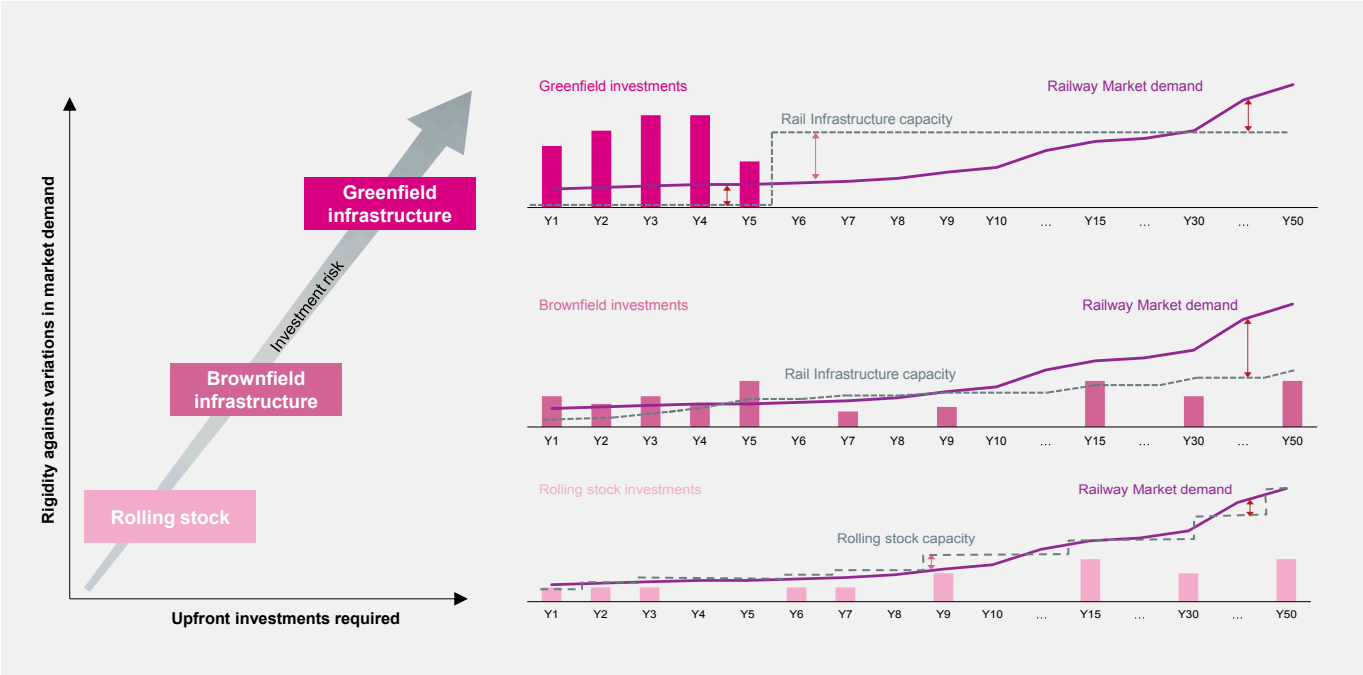
Table 7 : Examples of rolling stock market prices

Country	Date	Type of train	Cost per vehicle	No. of vehicles	Supplier
Israel	2011	Diesel-electric locomotives	$ 4.7 m	15	Vossloh España
Sri Lanka	2008	Diesel Motor Units	$ 2.67m	15	CSR Sifang (China)
Ukraine	2011	iron ore pellet wagons	$ 65,000	400	Stakhvin
Turkey	2013	oil tank wagons	$ 300,000	100	Legios (Czech Rep)
Italy	2011	E464 electric locomotives	$ 3.72 m	50	Bombardier
Republic of South Africa	2014	56% electric and 44% diesel units	$ 4.45 m	1,064	Multiple manufacturers

Source : ALG and Railistics based on multiple sources

The main aspects of railway assets presented above are summarised in Figure 12.
On the one hand, as can be observed, the railway investment with the least flexibility with respect to market variations is greenfield infrastructure, due to the fact that capacity is defined at the beginning of its lifespan. On the other hand, brownfield infrastructure and rolling stock investment can adapt to the variations of the market demand more easily since they take place during the railway's lifespan.
As can also be seen in following chart, the financing of new projects (greenfield) requires significantly greater funds under a higher level of market risk. Thus, when technically possible, brownfield projects or the improvement of operations quality (rolling stock) should be examined before considering greenfield projects.

Figure 12 : Railways assets investments and their specificities (illustrative examples)



Source : ALG

2.5.2 Economics of railways operations

Economics of railway operations are mainly characterized by the need to cover large fixed costs and achieve traffic volumes. Therefore, the overall financial viability of railways lies in the challenge to both cover large infrastructure costs and achieve traffic density. To explore a wide spectrum of situations, depending on market separation, existing demand and specific technical aspects, it is necessary to make several distinctions:

- In a vertically integrated private business model, operating costs must include infrastructure depreciation to cover network maintenance, renewal and expansion. In a vertically separated business model, however, such costs can be assigned to Infrastructure Managers (IMs).
- Among operators, passenger and freight activities show strong differences that should be addressed distinctly.
- Developing countries have different market patterns from emerging countries that require closer analysis.

2.5.2.1 Income structure of railways companies

Three main components drive both freight and passenger railways incomes: traffic, pricing and subsidies.

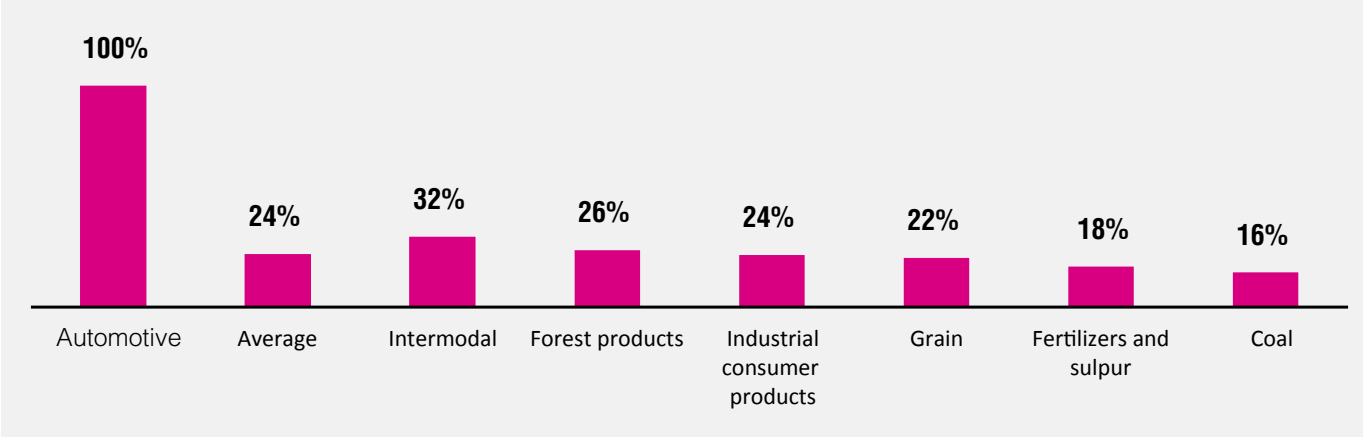
Railways traffic:

- Increasing traffic volumes is one of the main objectives for railways operators in order to ease the burden of high fixed costs and increase profitability.
- On vertically separated networks, railway traffic can be composed of both freight and passenger transport. Proportions of freight and passenger traffic are country and market-specific, generally adjusted by regulators to ensure profitability. Increasing traffic refers either to increasing traffic units and length (trains), or increasing goods transported.

Pricing:

- To encourage high-volume traffic, sometimes prices are set below costs so as to keep railways attractive to users compared to other alternative means of transportation.
- In freight, customers express a wide range of specific needs: multimodal transport, logistics transport, and stock, time of delivery, safety… This range of needs should theoretically be reflected in pricing to maximize profit. For instance, Canada Pacific calculates revenues generated by each segment, and sets its prices accordingly.

Figure 13 : Segment analysis for strategic market-approach example



Source : ALG based on Canadian Pacific Railways Costs structure of railway companies

- In vertically separated environments, operators have limited power to define prices according to segments. The operators must pay an access fee set by Infrastructure Managers (IMs) that does not directly target freight customers but rather the operators themselves. This gap between customers and IMs often causes demand elasticity to be ignored. For example, levels of access fees set by IMs in Europe are required to be non-discriminatory and therefore are transparent and equal for all operators, without fully taking into account the specific needs of each one and their priority.
- In passenger transport, operators increasingly use yield management, as in the airways sector, to control price elasticity. The situation is different from freight because passenger trains are much more predictable and operators' efforts are put into maximizing the use of capacity
- Government subsidies / service payments Government subsidies / service payments:
- In addition to subsidies given to IMs for infrastructure purposes, public subsidies are also given to operators to serve social and political purposes, especially in the case of less viable passenger transport. Although the cross-subsidisation of passenger and freight operations is strictly scrutinised so as to comply with EU competition regulations, many non-incumbent players in the liberalised market complain that public operators still find ways to circumvent this restriction. In total, public contributions vary in great proportion

in the final delivered product – from about 4.8c€/passenger-km in Sweden for example, to 8.8c€/passenger-km in the UK. Such subsidies play a major part in the distortion between prices and costs.

- Examples of government failure to honour its subsidy commitments have repeatedly led to bankruptcy of some concessions in Africa and in other developing countries, underlying the importance such financial sources can have in a concessionaire's budget.

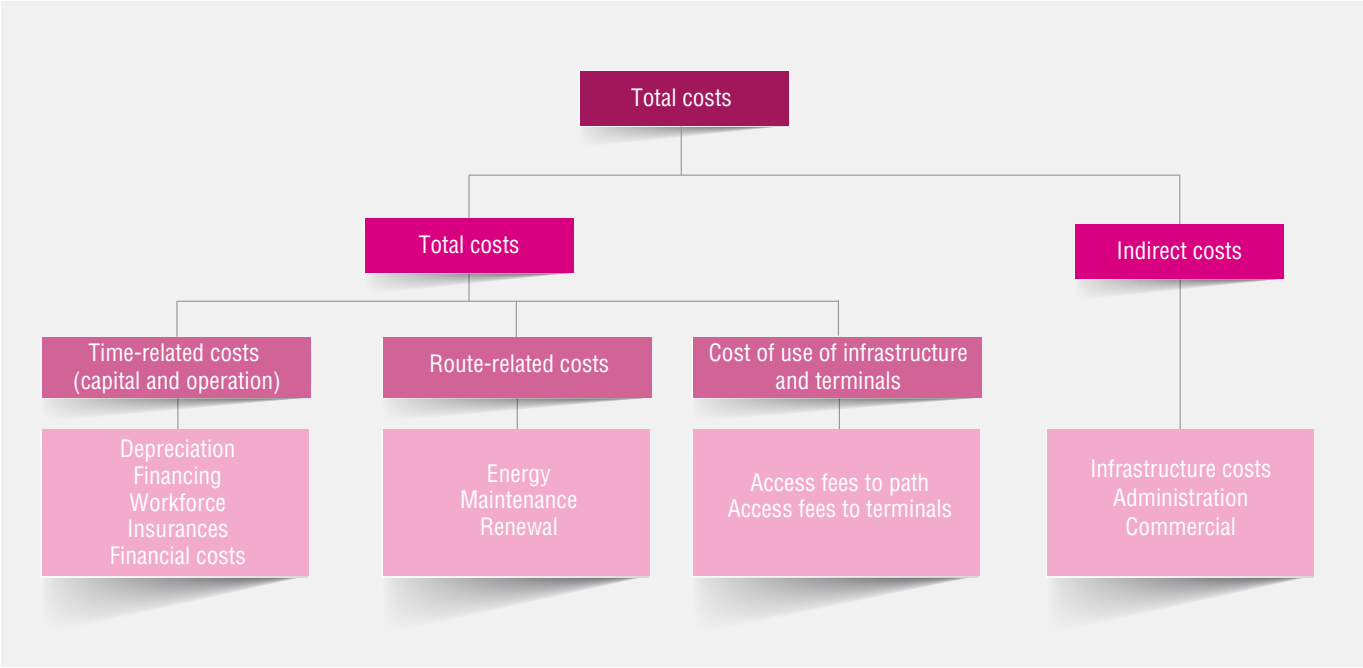
As explained in the following section, the high fixed costs of railways influence operators to maximize traffic density so as to increase profitability. If competitive prices are mandatory for increasing rail's market share, an increase in the level of service is also a successful approach. Examining traffic using other transport modes and the success factors involved can provide useful information on how railway operators can offer higher quality services at competitive prices. Adapting to a segment's specific needs, as well as focusing on reliable and timely services can dramatically improve market share and related revenues.

Government's role in revenue generation is not limited to direct contributions. Transport strategies define the competitive environment in which railways will or will not perform well, directly influencing incomes through traffic. Moreover, governments influence pricing through economic regulation mechanisms that often include price caps for passenger operations.

2.5.2.2 Operating costs of railways

The operating costs for railways should be considered as very stable, as they are fix-cost driven with the main components being fixed and direct costs and a higher transparency of costs is crucial for any future financing option, especially for projects in the existing railway system. Figure 14 shows the major costs for railways in a hierarchical structure, which are then discussed in detail below.

Figure 14 : Hierarchical structure of railways costs



Source : ALG

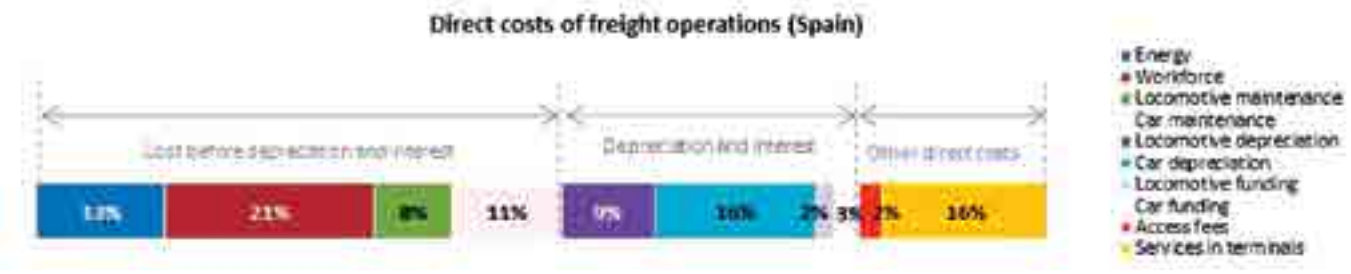
Indirect costs

- Infrastructure network costs account for a high proportion of total railway costs. Capital and maintenance costs for infrastructure are composed of a fixed component generally evaluated at more than 2/3 of total infrastructure costs. The remaining variable part substantially varies with traffic volumes defining economies of density.
- Since **operators in vertically separated networks** do not directly support by infrastructure costs, their cost structures are significantly different from those of integrated companies. In vertically separated networks, IMs cover infrastructure costs through access fees that railway operators pay. Nevertheless, since IMs are most often largely subsidized (50 % in the case chosen for review, from the Netherlands), infrastructure costs for operators in vertically separated railways may be lower than integrated ones. Another main consequence is that infrastructure costs for operators are directly proportional to their traffic units and are treated as operating costs.
- In integrated networks, infrastructure costs are generally part of investment plans and are fed by the depreciation of tracks and equipment.

Direct costs

- An example of the proportions of direct costs in freight operations is proposed in Figure 16, with total direct costs evaluated at about 12 €/TU-km in the case studied, from Spain
- In vertically-separated railways, depreciation and interest costs are mostly related to rolling stock: when including maintenance, rolling stock costs sum about 50 % of direct costs (Figure 15). Increasing the train weight directly correlates with a decrease in total direct costs of freight, thus defining economies of scale. The overall share of rolling stock costs also diminishes.
- Operating costs of electric and diesel trains in freight only are dependent on energy costs.
- Freight activities need services in terminals to prepare trains and handle goods in the multimodal chain. Rail freight transport generally implies multiple handling in the multimodal chain, contrary to road transport. Large freight groups in Europe and around the world are therefore investing to insource such services and facilities so as to reduce related costs (SNCF, DB, Cargo Rail Europe…) and be more competitive with respect to their road transport competition.
- Labour is responsible for a quarter of direct costs, underlying the importance of workforce performance and training programs

Figure 15 : Example of direct costs proportions for freight operations

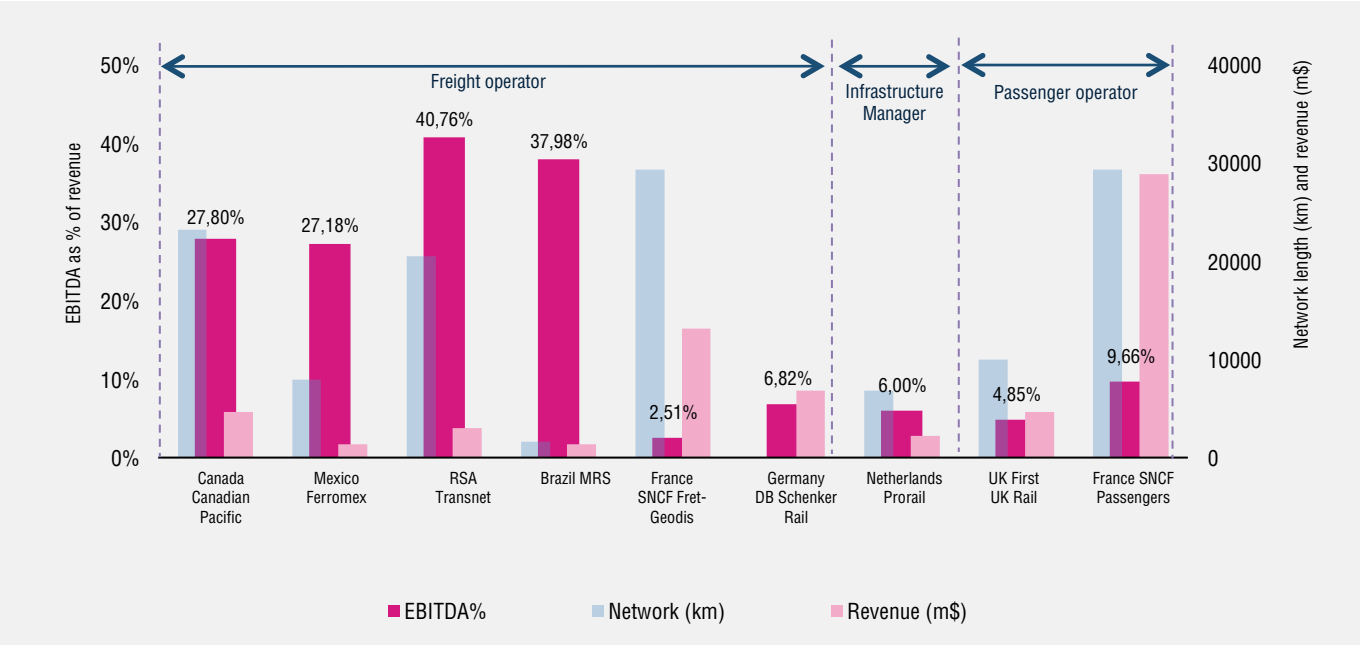


Source : ALG based on Vicente Rallo, "Costes del transporte ferroviario de mercancías".

2.5.2.3 Operating profitability and Cash flows

Major differences of profitability exist between railways companies (See Graph 4). Freight is generally more profitable than passenger services, with Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) for freight ranging between 25 and 50% of revenues, while for passenger services it reaches 10% at the most having taken into account that passenger services benefit from subsidies.

Graph 4 : Operating profitability of several railways



Source : ALG

It can be postulated that freight railway profitability is higher in larger countries where greater distance are involved and where there is less developed infrastructure. This would tend to indicate that the African market has the potential for profitable freight operations.

2.6 Railways prospects

2.6.1 World market trends in the railways sector

The worldwide market trend in railways is a growing one. The reasons are diverse and the main drivers have already been explained in chapter 1. From the 70s to the ending of the 00s, without regard to the decade considered, China and India were the countries showing the most sustained and rapid increase in rail transportation, for both passenger and freight. By contrast, in other world regions (mainly the USA, Europe, and Japan) rail growth rates have been stagnant or negative, especially in the passenger's segment.

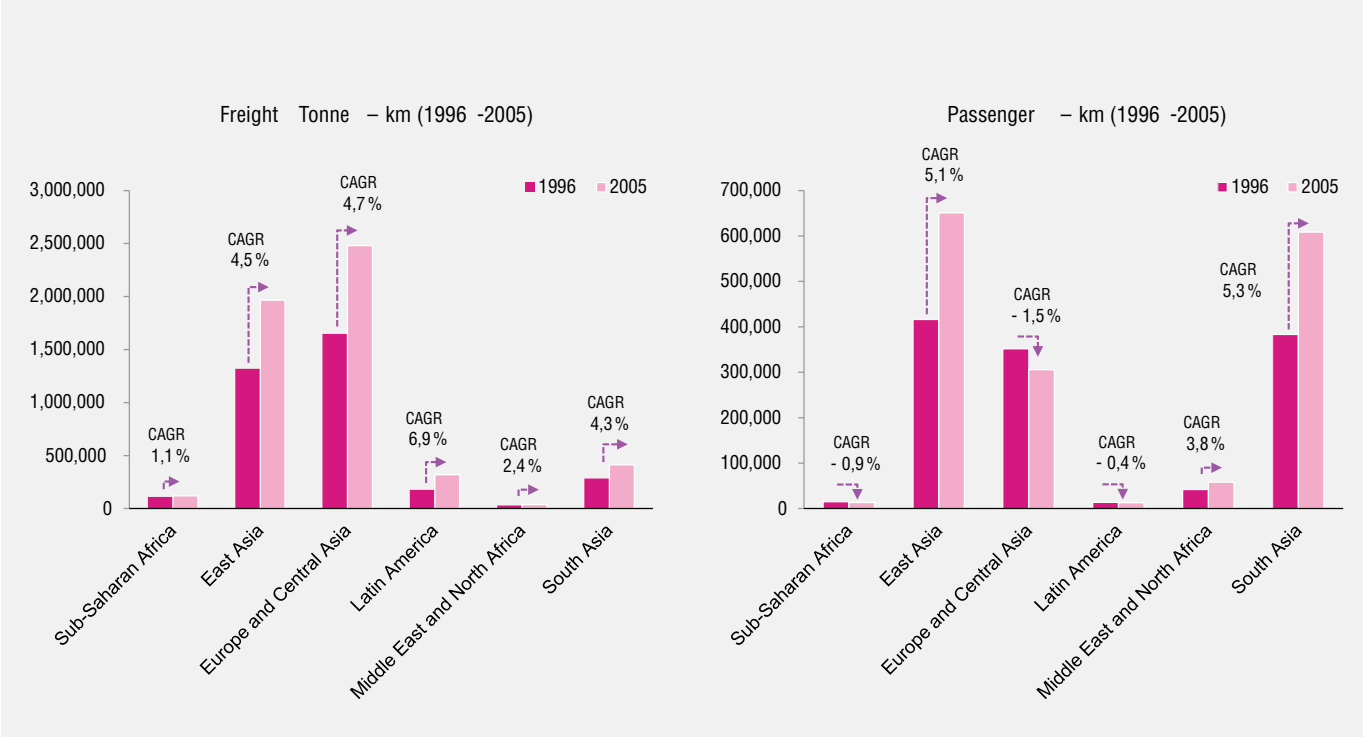
These growth rate patterns over the last decades are closely linked to overall social and economic trends. For instance, in contrast to other emerging countries, Russia and Eastern Europe have been severely affected by the collapse of centrally planned economies that included vast but inefficient railway networks.

At the same time, there have been many technical and managerial innovations over the last decades that have enhanced efficiency and service quality in rail and, therefore, have enabled these positive trends.

However, taking all modes of transport into consideration, rail has suffered a major loss of market share since 1970.

This drop in percentage is a clear result of motorization for short trips and air transportation for long haul trips. Some exceptions can be found, for example in USA, where rail freight's market share has remained stable. The graphs below present the evolution recorded from the mid-90s to the mid-00 in different world regions.

Graph 5 : World rail market evolution, 1996-2005, per region



Source : World Bank

If focus is made on the evolution over the most recent years, emerging countries such as China and India still present the highest growth rates, both in passenger and freight traffic. By contrast, there has been rather limited growth in rail traffic in Sub-Saharan Africa, where rail performance is still far behind the rest of world regions.

Today, India and China on their own account for more than half of the world's rail passenger transportation. In the freight segment, North America, Russia and again China are currently leading.

Africa can and should follow the trend to use railways for the potential economic growth. This trend clearly shows the potential of railways.

2.6.2 Trends in railways management and finance

Railways as any other industry need to modernize the organization structure, the service culture, the business models and also the financing schemes. The overall system needs to be adjusted to the changing requirements of the market and needs to react on new competitors to survive. Some relevant trends in the railway business are described in the following points:

1. Railways as logistics service providers

Transport requirements will further develop towards an integrated transport product, or a "single window to the customer". Rail can play an essential role in this regard,

as it has been recognized that railways need to become a part of integrated supply chains together with different transport modes, each play to its strengths. In more mature railway markets, many operators are transforming into integrated logistics groups with presence in many markets (see examples of DB Schenker and SNCF Geodis in chapter 4).

2. Outsourcing of non-core activities involving private partners

In an industry characterized by high fixed costs and complex business models, the search of flexibility is critical to keep competitive. Accordingly railway operators are keen to outsource activities such as maintenance, terminal operations, handling, ticketing, etc. so as to concentrate them in their core business, which is providing transportation and logistics solutions.

3. Commercial exploitation of property

Railways are increasingly developing strong property divisions so as to explore commercial exploitation of their real estate assets to provide alternative revenue streams. These are notably stations and terminals in the city centres, obsolete shunting yards, right of way and other railway-related assets. These real estate developments are still largely unknown in SSA, although some NA countries are already experiencing this.

4. Leasing and pools for rolling stock

Well-maintained and efficient rolling stock is required for railways to be competitive. Although lower than infrastructure, rolling stock can still represent significant investments and carry demand-related risks for railway operators.

Rolling stock pools have developed strongly in many railway markets, and provide the opportunity of renting or leasing Rolling stock in the short or medium term without bearing high initial investment costs. Providers can be banks, leasing companies or the railway companies' own rolling stock departments.

The industry would benefit from: the modernization of the fleet, a better organized maintenance regime and higher reliability as well as higher flexibility, given that locomotives are only acquired if transport volumes are contracted.

A further political advantage is that liberalization would be much easier for newcomers in the sector because rolling stock could be available on a short-term basis.

There are two basic leasing options:

- Capital lease involves the transfer of the responsibility of the leased cars to the lessee with a contract that covers the expected lifetime of the equipment. Capital leasing mainly targets highly capitalized companies.
- An operating lease is contracted for only part of the rolling stock's lifetime. In a wet lease the leasing company handles maintenance and related services, whereas in a dry lease operator performs such activities. A soggy lease is a hybrid model in which heavy and regular maintenance are split between leasing company and operator. Operating leases are the most common.

A further main benefit of leasing rolling stock for operators is to spread investments over long time scales and decrease traffic-related risks. It is particularly interesting for railways operators with low capitalization (which is the case all over Africa) who cannot afford the financial option of major rolling stock acquisition, and can therefore keep rolling stock debt off their books. Government may support leasing companies (e.g. in India with IRFC, UK in large railway corridors) in order to plan long-term and to enhance credit and overall financing.

The leasing market is still in its infancy in Africa but represents an interesting alternative for railways operators to keep debt off their balance sheet. Very recently, the South African company Grindrod formed a joint venture with the Pembani Remgro Infrastructure Fund in the leasing market in Africa, mainly targeting mining projects.

However the operating leases model would benefit from greater connectivity and interoperability between networks so as to easily move rolling stock from one client to another. Some regions with poor interconnections between national networks as well as other regulatory barriers that restrict the free movement and utilization of rolling stock from one country to another (for instance Africa) may find difficulties in reaching leasing agreements. Therefore, more network integration is likely to make leasing easier to African railways.

5. Integrating non-financial indicators to railways projects : Value capture mechanisms

Value Capture mechanisms are innovative approaches to improve funding for infrastructure projects. Such mechanisms aim to monetise expected additional values brought by the introduction of a new infrastructure. This might become important in the preliminary discussions concerning the justification of the project. For example, a transport development can lead to variations in land value in areas where accessibility has improved, and generate new business activity, industry efficiency, safety and other social and environmental benefits.

Traditionally, these effects are estimated by economic analysis such as ERR but not necessarily monetized in ways that can give the benefiting stakeholders sufficient justification to provide real funding for the project. These mechanisms also illustrate the positive effects of new infrastructure and provide an acceptable measure of the social opportunity. That measure will likely be well accepted by the market, and will contribute to better government guarantees.

Difficulty may arise when intending to evaluate potential values to be captured from infrastructure projects involving a large number of stakeholders, who may have mixed views and interests, over a long time-scale. One way to maximize the capture of value is to construct a Value Analysis Framework, which helps to better describe motivations and views of the different parties, and their relevant value type.

The next table offers an example of a Value Capture Framework developed by McIntosh.

Table 8 : Value Capture Framework

Value created	Value Type	How assessed	How value	Length
Increased level of service	Increased service provision	Service revenue modelling analysis	Passive: increase in existing service based revenue Active: introduction of new service based revenue or premium revenue streams	Increased fare box or toll revenue etc.
Government property development	Active government property	Property development analysis	Various active strategies: acquisition and development joint venture with current owner	Development returns, rental returns, etc.
Increased value of government property	Passive government property	Value of property with and without project	Passive: value of property increases	Increase in future sale price
Increased value of non-government property	Active and passive non-government property	Valuation of property with and without project	Passive: increase in existing ad valorem tax Active: introduction of new ad valorem taxes	Increase in earnings from current or new tax regimes
Increased economic prosperity	Active and passive non-government property	Valuation of increased economic activity and productivity as a result of project	Passive: increase in income tax from existing regimes Active: introduction of new tax regimes	Increase in earnings from current or new tax regimes
Cost avoided	Costs avoided	Valuation of costs avoided as a result of project	Decrease in future expenditure on infrastructure	Decreased future expenditure

Source : McIntosh, 2011

2.7 Conclusions and recommendations

1. Railways are experiencing a recovery worldwide

After decades of continued decline, the introduction of new technologies and management approaches, as well as more public awareness of environmental issues has led to a resurgence in railways.
However this resurgence has not been effective worldwide due to lack of adequate government commitment in certain countries, as has been the case in the majority of the African continent.

2. There is no single business model for railways

There is a large variety of railway business models worldwide, which have been founded on various historic, institutional or market backgrounds. They consider the separation or unification in various combinations of the construction of infrastructure, rolling stock, operations and ownership.
The private sector may participate in any of these business segments by owning private railway lines or through involvement private-public partnerships. In the case of the latter, the fair and detailed definition of rights, duties and responsibilities of each part will be essential for the success of the railway project.
Business models have to be tailored to adapt to particular situations, political cultures and markets, and no single one can be recommended to fit all circumstances.
Whilst the trend is for private sector involvement, public sector owned and operated railways should not be dismissed out of hand. The few successful railways in Africa (Morocco, South Africa) have made dramatic changes to their structure and organisation to achieve this and other railways could learn from what they have done, irrespective of any financing considerations.

3. Railways success depends on rail infrastructure and rolling stock simultaneously

Rail competitiveness requires that both infrastructure and rolling stock are in adequate operational conditions and managed by specialised hands. This highlights the necessity to rely on well-trained staff at all levels, from management to operations.

4. Brownfield and Rolling Stock investment is less risky in uncertain markets such as SSA.

Greenfield projects require large up-front investment, have less certainty about future demand and generally present a higher risk to private investors. Governments should be careful to investigate any Brownfield and rolling stock improvement options before proposing Greenfield projects to investors and financiers.

5. Rail freight and rail passenger transportation are very different businesses

The characteristics of freight and passenger railways are quite different – freight: large volumes, large distance, relatively infrequent and not time sensitive – passenger: smaller trains, higher frequency, require reliability and punctuality. Generally consider keeping freight and passenger operations separate as far as possible.

6. Subsidisation and economies of scale are key to the success of railways projects

Any railway project involving Greenfield/Brownfield infrastructure or rolling stock will require large upfront investments. Given that the railway industry normally generates low EBITDA margins (especially for passenger services), subsidising the construction and operations phase is more than likely to be necessary in order to guarantee the sustainability of any railway project. Public Service Obligations (PSO) may also play key role for passenger transportation.
Economies of scale play an essential role in the viability of railway projects, the larger the volumes of goods and people to be moved the greater the likelihood of operating on a commercial basis. Thus, some specific markets such as bulk transportation, freight corridors or urban transportation will be more likely to generate projects.

3. Overview of African railways

This chapter will review the current market situation of railways in Africa and will focus on the particular experiences of eight countries with different backgrounds and different approaches to this sector. Some of the features found in the selected countries can explain the difficulties that have hindered the success of the first wave railway reforms started in the late nineties.

3.1 Railways market situation in Africa

Figure 16 : Besengué passenger station in Douala, Cameroon

Source: ALG

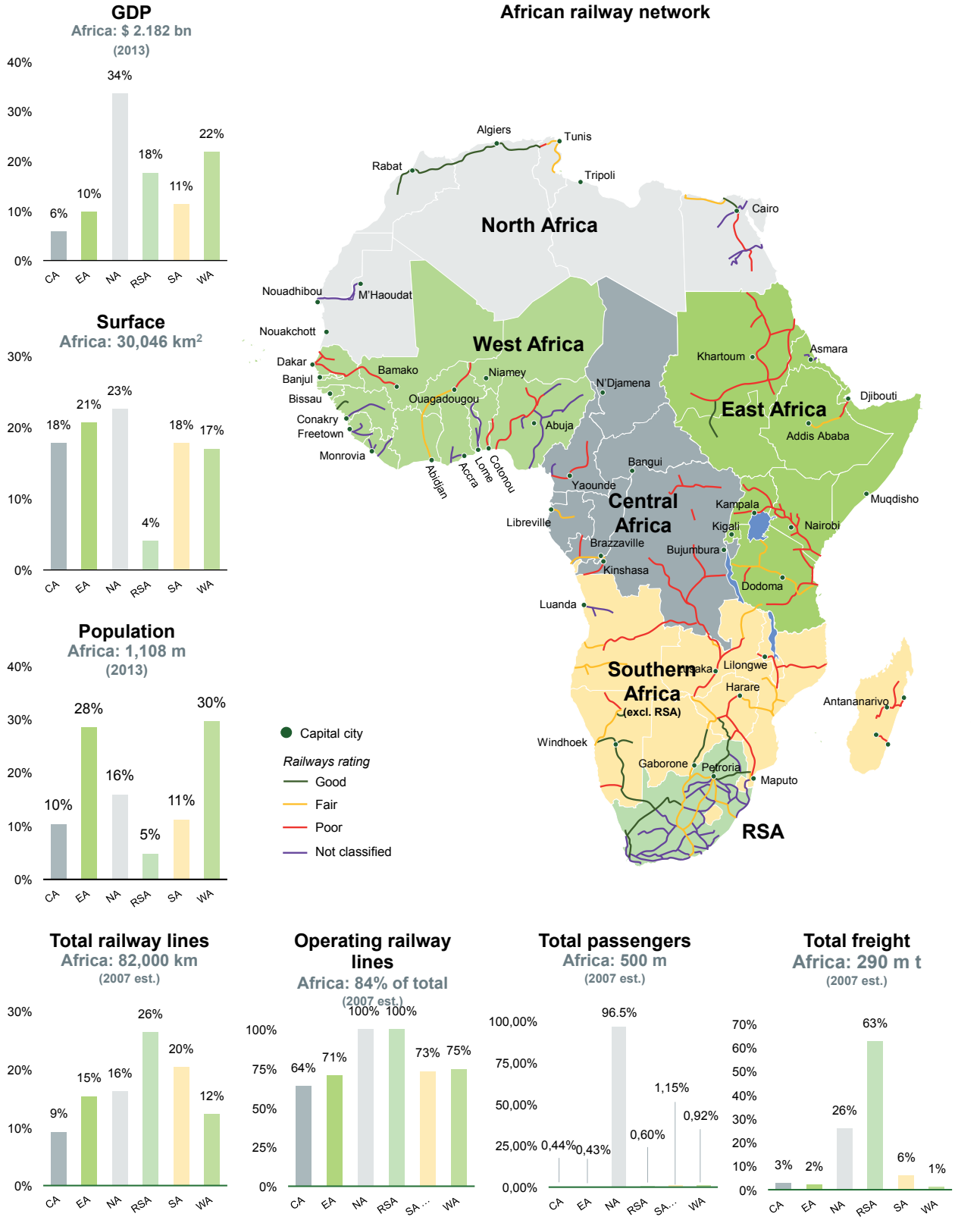
The state of rail transport in Africa varies enormously from region to region. The graphs in the following page show key data for rail in Africa as a whole and for each of its regions: Central Africa (CA), East Africa (EA), North Africa (NA), Republic of South Africa (RSA), South Africa (excluding RSA) and West Africa (WA). RSA is from the rest of South Africa due to the great differences that are visible both economically and in terms of railway development.
The following variables are graphed for the African continent: Gross Domestic Product (GDP), Land Area, Population, Total Railway Lines, Operating Railway Lines, Total Freight Transported and Total Passengers Transported.
The map included shows the African rail network, indicating the condition of the infrastructure as good, fair or poor.

From these graphs the following points can be highlighted:

1. The vast majority of rail lines connect inland areas with coastal areas. The areas with greatest density of lines are in RSA, coastal areas of NA (except Libya) and the countries located in the strip between Kenya and Mozambique.
2. SSA clearly lags behind the RSA and NA in terms of network and in terms of transportation, even taking into account that the Sahara Desert occupies a substantial part of NA.
3. A significant part of the SSA network is in poor operational state. This mostly reflects a derelict condition of the infrastructure, making it impossible for rail transport to be operated normally. Almost all SSA lines are single track and not electrified. By contrast, NA and RSA have rather modern rail networks, some of which are electrified and double tracked.
4. Passenger traffic is completely dominated by NA and, to be specific by Egypt, which accounts for nearly 85% of the passengers carried on the African continent. On the other hand, RSA is responsible for most of the freight, basically due to the transport of bulk goods (mining products). The quality of both rail systems is very close to Western standards, making them into references for the SSA countries.

Finally, it must be mentioned that there are 3 different rail gauges in Africa: narrow gauge, standard gauge and Cape gauge, which rarely cross from one country to another. In general, there is a lack of network integration. International connections are mostly found in the East and South of Africa, whereas there are only a couple of international railways in West Africa (Dakar-Bamako and Abidjan-Ouagadougou).
Several organisations are responsible for coordinating and promoting rail policies across Africa, among them the Union of African Railways (UAC), the African branch of the International Union of Railways (UIC) and specific programmes such as the Programme for Infrastructure Development in Africa (PIDA), led by the African Development Bank (AfDB), the African Union Commission (AUC) and the New Partnership for Africa's Development (NEPAD). But no single organisation is truly leading African railways transformation.

Figure 17 : Main facts of the African railways per region



Source : McIntosh, 2011

As the table on the right shows, the extent of railways in Sub-Saharan Africa countries (excluding RSA) is far below those countries' geographic, economic and demographic weight within the African continent.

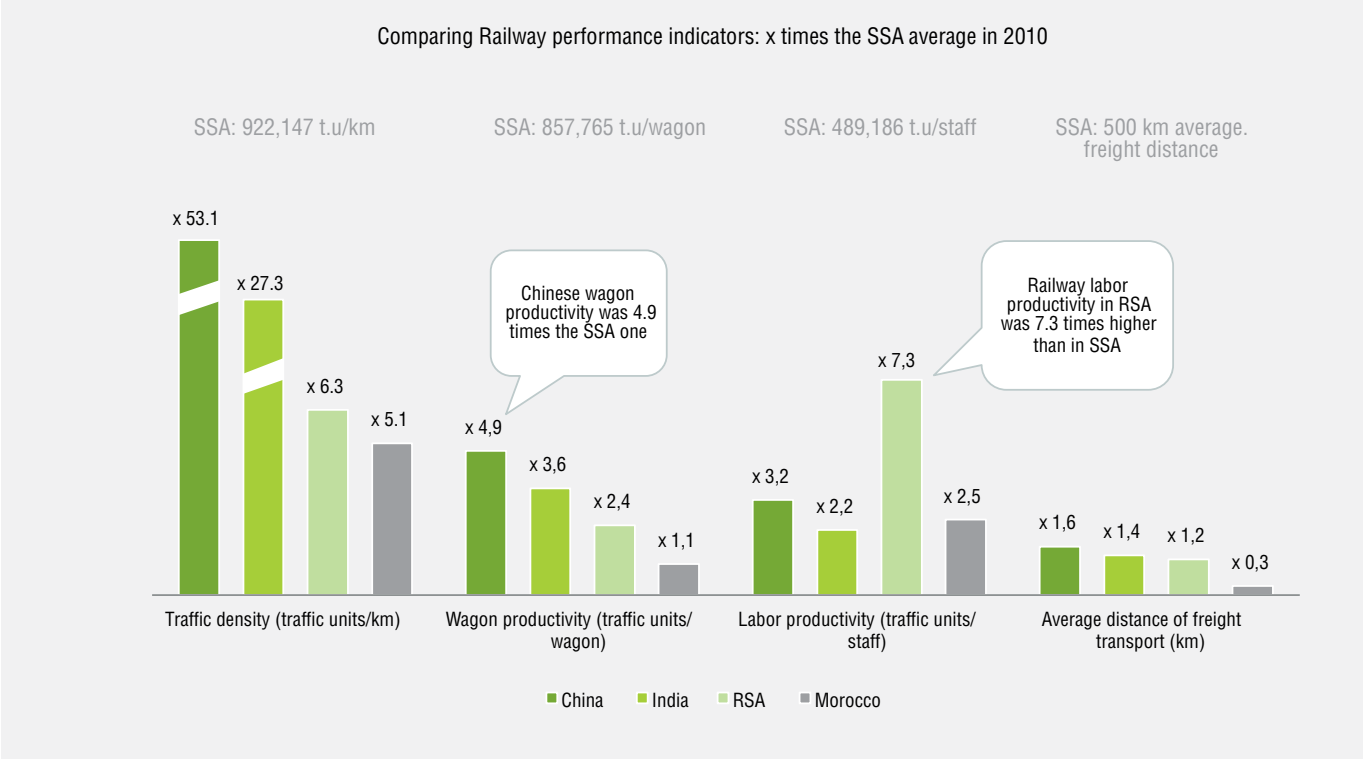
Table 9 : Weight of the SSA railways within the African continent

Weight of the SSA railways within the African continent (Excl. RSA)					
Surface	Population (2013)	GDP (2013)	Rail Lines (2005)	Freight (2005)	Passengers (2005)
73%	79%	49%	47,000 km	12%	3%

Source : McIntosh, 2011

Moreover, performance indicators in other world regions (China and India) and in other African countries are many times greater than the average performance indicators found in SSA countries. Particularly, traffic densities in SSA are much lower than in other areas. For instance, China's traffic density is 53.1 times the traffic densities in SSA. This represents a huge constraint for the development of SSA railways since high volumes and frequencies are the foundations of the operational sustainability of any railway system as discussed earlier.

Graph 6 : Main performance indicators of the SSA railways compared to other regions



Source : ALG based on SSATP and UIC

A combination of factors has led to this situation.

1. Governments have given priority to road transportation at the expense of rail and in conjunction with economic growth this has strengthened the road transport market position. In addition the absence of regulation and control of road transportation has impeded fair competition between the two means of transport. The dominant position of road transport, its implications in terms of employment, capacity to deliver goods everywhere as well as the political clout of road transport lobbies has influenced most transport policies so far.
2. The limited financial resources involved in railway undertakings have led to structural underinvestment in infrastructure (extreme wear of the track, insufficient ballast, deteriorating earthworks; poor condition of most structures such as bridges, tunnels and stations; obsolete signalling and telecommunications; bottlenecks and high accident rates) and rolling stock (poor technical state of the fleet, sometimes extremely old and too heavy to operate on the existing structures; chronic shortage of locomotives that impedes higher traffic densities).
3. There is a shortage of good railway expertise, which is not being addressed through specific training, and this lack of knowledge is evident throughout the industry from maintenance through to management. Moreover human resources tend to be of an older generation who are less receptive to change and this hinders the ability to improve the productivity of the SSA railways.
4. Extraordinary events such as political conflicts or natural disasters have seriously affected the existing railway lines in some places (e.g. Madagascar, Ivory Coast).

There have been several attempts to redress the situation of the SSA railways, mostly led by International Financial Institutions, bilateral agencies and international organisations. The most significant reforms took place during the mid-90s and the beginning of the 21st Century when several SSA countries introduced privatisation schemes in their railway networks and railway operations. However, the results have not met the initial expectations in most cases, as will be further discussed in following sections.

3.2 Current position of infrastructure financing in Africa

Railways in Africa have to be set in the framework of the wide infrastructure financing conditions in the continent. It is widely accepted that Africa is the world region with by far the greatest infrastructure investment needs, estimated at $ 93 billion per year with a shortfall of $ 32 billion according to the Program for Infrastructure Development in Africa (PIDA). Railways alone may need more than $ 100 billion in infrastructure investment to update the existing infrastructure and to build new railway lines (ALG estimation).

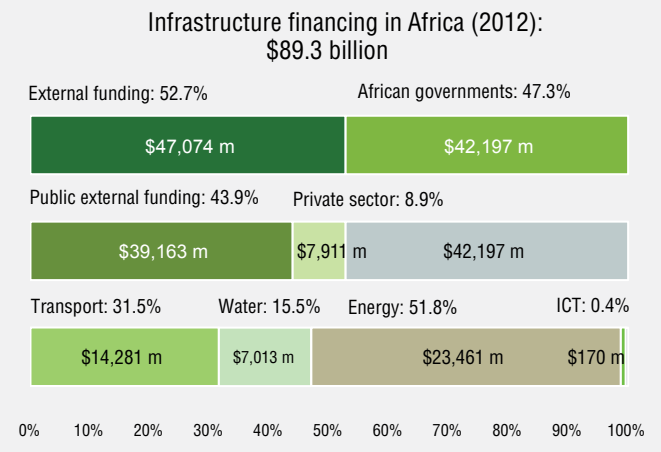
In order to obtain the financial resources required to develop, African infrastructure has been historically dependent on concessional financing from governments and IFIs due to the weak internal revenue generation and tax collection. Moreover, sovereign financing schemes for infrastructure have generally been very limited given the difficulties of several African countries to raise capital from capital markets at an affordable cost.

Nevertheless, this historical trend is changing thanks to solid GDP growth and improvements in the regulatory and legal framework.

This has led to increases in direct foreign investment in African infrastructure and the attraction of private finance.

The graph on the right shows the different contributors to Africa's infrastructure finance and the destination of these resources per sector.

Graph 7 : Origin of the African infrastructure sources



Source : ICA

In 2012, infrastructure investment was concentrated mainly in the energy sector, followed by the transportation sector. In the transportation sector, railway stands clearly behind road and port infrastructure investments.

3.3 Current railways models in Africa

3.3.1 Background

As mentioned in the first chapter, most African railways were built during colonial times, some of them by private sponsors as a result of mining, lumber or other extractive interests. Railways were institutionalized following the models of the colonial powers, which were based most often on public sector entities following the nationalization of most European railways in the years after WWII. This led to the creation of public sector agencies managing railways in Africa with the exception of some dedicated mining railways.

On obtaining independence, African nations transformed the colonial institutions into national ones, sometimes splitting integrated lines to reflect new national jurisdictions. Most young nations were influenced by socialist ideas, which led to creating a strong public sector. This resulted in overstaffing, inefficient and underfinanced railway agencies that were incapable of providing acceptable services and under maintained assets. Competition from a thriving road sector was an additional blow.

In the 90s, the situation became unsustainable and following guidelines from most donors (WB and other), concessions were introduced as a possible solution to take on investments and were increasingly replacing state-owned railways through different schemes. As of today, 70% of the railways in SSA countries are managed under PPP schemes. Nevertheless, public railways are still dominant in some countries, most notably in North Africa and in the RSA.

The search for competent operators interested in African concessions has proved challenging with few international private railways operators showing any interest in undertaking operations. Some international industrial sponsors with businesses related to logistics or maritime transport proved more interested, such as Bolloré Africa Logistics. They engaged in such activities under the assumption that specific railway corridors could provide opportunities to establish performance-cost equilibrium for economic operators. Those private operators cooperated with governments and IFIs to contract development loans through Project Finance schemes, creating dedicated SPVs. Other corporations showed interest in smaller lines, most often related to mining, and pursued activities with their own network with the aim to lower their logistic costs.

Figure 18 : Railways concessions in Africa

Source : ALG based on AfDB data

3.3.2 Recent railways reforms through PPPs in Africa

Some conclusions can be drawn from those concessions and their difficulties.

The outcome of railway reforms has proved to be mixed (both concession and non-concession railways). Apparently: staff productivity has increased in most cases; freight traffic has grown thanks to improvements in internal processes and better structures of costs; and better management and market-oriented views have increased level of service.

Nevertheless, several concessions underwent financial difficulties and three of them have been terminated (see map on figure 18). Moreover, two have undergone extraordinary events (war and disaster). The overall impression is that most concessions have not met initial expectations in terms of traffic and level of service. Furthermore, most concessions have not attracted the interest of mainstream private operators, which has led to difficulties in raising equity and finance, stakeholder instability and frustration on both public and private sides.

Investments had been repeatedly reported as being underestimated in concession contracts, concentrating on only the first 5 years, leaving private operators with unsustainable infrastructures in the long term. Traffic forecasts had been overestimated underplaying the strong competition posed by road transport, and resulted in insufficient cash flows to provide maintenance and renewal. Concessionaires mostly use IFI loans therefore to address urgent shortcomings derived from poor maintenance, thus impeding long-term investment.

In addition, political and institutional weaknesses shared by most SSA countries put off many international investors from involving themselves in African railways projects. Some of the factors usually cited are:

1. Private partners perceived most SSA countries as high-risk for infrastructure investment. Political, regulatory, partnership and credit/payment risks are main concerns.
2. There was little experience in PPPs and little understanding on how successful PPPs work.
3. Some countries already had a regulatory structure but too often regulatory frameworks were (and still are) poor and usually lack independence and transparency.
4. A poor impression about accountability of public employees, political instability and insufficient rule of law.
5. Legal systems appeared to be both too rigid and quite often not respected by their own enforcers.
6. Many officials lacked the adequate technical capabilities and understanding of the business. Mistrust in the private sector was, and still is, widespread across bureaucracies in most of Africa.

Nowadays, in response to the difficulties found during the first waves of railway reforms, many governments seem ready to engage in profound institutional and regulatory changes. Reforms have paved the way to thriving markets in other sectors such as that of Telecoms, and new railway and PPP laws are being introduced. Moreover, neighbouring countries are agreeing on new schemes to facilitate cross-border trade along transnational corridors.

As democracy consolidates across Africa, it will drive improvements in accountability and rule of law. A new generation of well-educated officers and decision-makers provides for more knowledgeable counterparts with prospective private partners.

A closer look at concession performance for a selection of countries is provided in next point and in Annex I.

3.4 Organizational and infrastructure financing in selected African countries

This section provides the results and conclusions of an analysis of the financing status of railways in eight different African countries. It is based on data collected, on-site interviews with public and private stakeholders and visits to the railway facilities of each country in the study.

3.4.1 Selected countries and methodology

The list of countries to visit was agreed with the AfDB so as to represent a wide spectrum of situations.

A team of experts travelled to these countries with the purpose of:

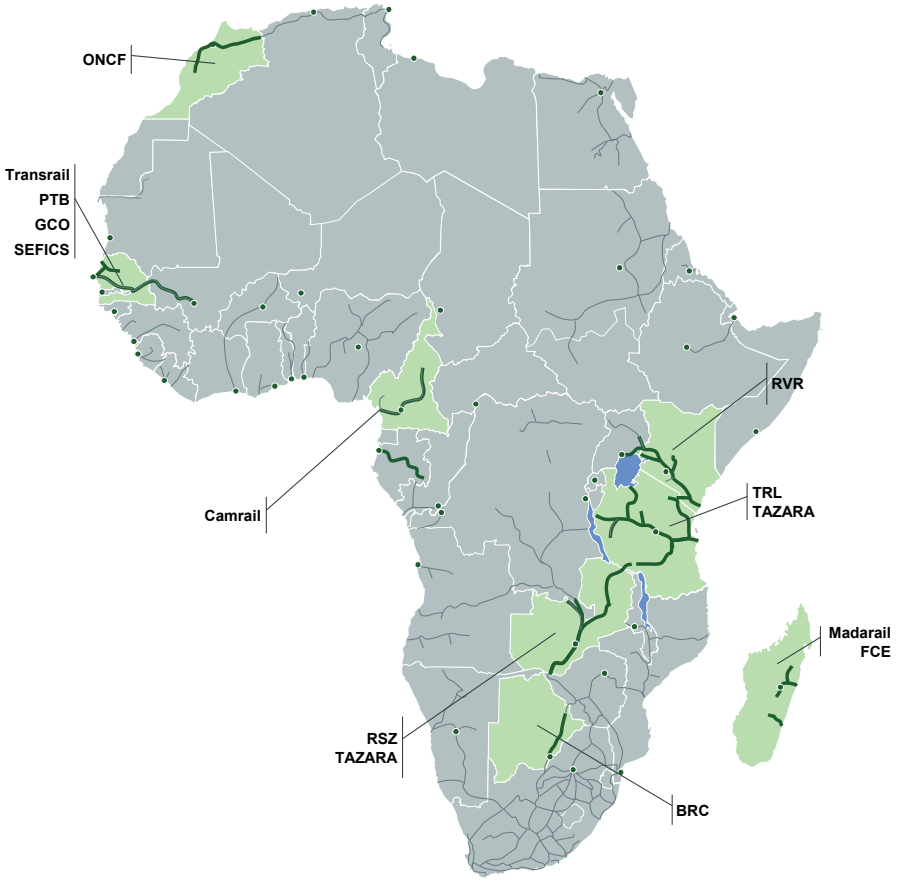
- Collecting relevant documents and data for the study from local information sources.
- Interviewing key local railway stakeholders: governments, railways agencies, railways concessionaires, railways operators, logistic

companies, mining companies and other relevant players.

- Visiting and assessing the current status of railways infrastructure and rolling stock in the given country.

These country visits have been complemented by an exhaustive review of literature on the railways in the targeted countries and across Africa in general. Nevertheless it has to be noted that the amount, quality and availability of information varies from country to country.

Table 10 : Criteria for the choice and list of countries

Selected Countries	Railways companies	Geographical distribution of the selected countries
Botswana	BRC	
Cameroon	CAMRAIL	
Kenya	RVR	
Madagascar	MADARAIL, FCE	
Morocco	ONCF	
Tanzania	TAZARA, TRL	
Senegal	TRANSRAIL, GCO, SEFICS, PTB	
Zambia	RSZ, TAZARA	

1. Concessioned and non-concessioned railways systems	5. Working concessions and cancelled concessions
2. Geographical distribution among Africa regions	6. Types of stakeholders in concession
3. Passenger transport and freight transport involved	7. Single country concession and multiple country concession
4. Coastal countries and landlocked countries	8. Publicly operated & PPP

Source : ALG based on SSATP and UIC

3.4.2 Overview of the railways business models in the selected countries

The selected African countries provide a wide range of business models, presented on next page.

The figure first illustrates the boundaries of responsibilities of public and private entities in the key components of railway models: Operation and Management of rolling stock, rolling stock investment, Operation and Management of infrastructure, infrastructure investment, and infrastructure ownership, in a similar manner as explained in section 2.4. Some additional characteristics of the studied railways such as the network length and the geographical context have also been included. The following pages illustrate the main features of their institutional and financial models that may provide some lessons for future railway financing policies.

At the end of the document, Annex I Further information on the selected African railways contains detailed information on each of the countries analysed hereafter. Annex II Investment environment of selected countries provides complementary information that may be useful for the reader to better understand the financial context of each railway system.

Figure 19 : Railways business model in the selected countries

Source : ALG based on country visits and WB

3.4.3 Regulation and institutional aspects

3.4.3.1 Institutional framework and its commitment with railways

As previously mentioned, regulatory and institutional frameworks play a key role in setting the basis for rail development and financing, however the level of commitment of Governments to adhere to these frameworks is just as important. Regulation and policies are better formulated and implemented when relevant government stakeholders are familiar with the structure of the railways industry. The following situations have been reported in the visited countries:

- Not all countries have a dedicated unit for railways in the Ministry of Transport. In Senegal there is not a proper directorate for railways at the MoT but rather a small agency (ANCF) dealing with new projects and in Morocco it is the public operator ONCF that acts as the railways unit.
- Although the official ministry supervising railways is, in theory, the MoT, some governments delegate the responsibility of monitoring to, for example, a board of the concessionaire (as in the cases of Senegal and Cameroon). Quite often the government's representative in the board of the concessionaire is not from the MoT but from the MoF as they "suffer" the most from subsidies required.
- Some countries have put regulatory bodies in place to monitor market performance, competition and even safety issues, however in some countries there is no regulatory body, as in Botswana, Morocco or Zambia, where railways are public-owned. In other cases, regulations are made by rather inadequate bodies, as in the case of Kenya and in the case of the international Dakar-Bamako concession, the transnational monitoring body has never formally met.
- Quite often, Government stakeholders involved in railways do not have a strong experience and background in the sector and the most knowledgeable people seem to have limited power or lack direct access to decision-makers. Additionally, some officials knowledgeable in railways have grown-up in the atmosphere of the legacy state enterprises and are therefore not familiar with modern railway management and are resistant to change. In a few countries visited, government stakeholders involved in railways have a clear and concise strategy for the development of railways.

Table 11 : Regulation and institutional framework in selected countries

Institutional bodies dealing with railways in the selected countries			
Country	**Does a dedicated railways unit exist within MoT?**	**Are regulatory bodies in place and operational?**	**WB doing business ranking and tendency 2014**
Senegal	Yes (ANCF) but with limited powers	No	178
Cameroon	Yes	Yes	168
Madagascar	Yes	Yes	148
Botswana	Yes	No	56
Kenya	Yes	Yes	129
Tanzania	Yes	Yes.	145
Zambia	Yes	No	83
Morocco	No	No	87

Source : ALG and Railistics based on country visits and WB.

The institutional bodies involved in the railway sector play a crucial role in the potential development of rail transport. However, the governments' commitment is not only reflected in the existence of the bodies but also in the role they are able to play.

A relative unfamiliarity with the railway industry brings the following risks:

- Poor evaluation of technical proposals for railway development projects, especially on the long term decisions which are typical in the railway sector.
- Poor understanding of how the private sector works and how a balance between risks and remuneration has to be struck.

There seems to exist a correlation between countries with relatively good DB ranking and those where railway services are provided by public undertakings. Although the background situations from Botswana, Morocco and Zambia are radically different, the simple fact is that where the public sector has better technical and managerial capacities it seems to feel more capable of running railways by itself. This is the case of the RSA as well.

3.4.3.2 Current prospects for railways reform

All countries surveyed are currently discussing various degrees of institutional reform in railways. This is the case both where there is private involvement in rail transportation and where state railways are still monopolistic.

In most cases reform projects envisage separation of infrastructure and operations as well as freeing up access to the infrastructure by third parties. In most of the schemes that are being considered by governments the mainstream wisdom is:

- **Provision of infrastructure by the State, which should be responsible for investment.** Most countries are thinking of an infrastructure holding company. Zambia and Botswana stand out as the exceptions where vertical integration and public sector operations remain as the preferred option, in the case of Zambia as a result of concession failure.
- **Private provision of transportation services.** The views from government stakeholders vary regarding the level of funding that should be provided from infrastructure usage fees. Some of them acknowledge that they should be expected to cover just a portion of infrastructure maintenance costs. Other stakeholders estimate rather unrealistically that even infrastructure capital costs could be recovered from railways operators' fees.
- **An improved regulation body should be put in place.** However in most places this body is not really designed as being independent but closely related to the MoT or to the infrastructure holding company.

In most of the countries visited, however, reform was not expected for the immediate future and most of the political agendas in the area of railways seem to be dominated by short-term urgencies.

Table 12 : Current prospects for railways reforms in selected countries

Country	Does reform include vertical segregation infrastructure / operation?	Government views on public/private provision of transport services	Government views on public/ private roles in infrastructure funding	Improved regulation proposed?	Factors hampering reform
Senegal	Yes	Private provision of freight services. But public provision for passengers commuting by rail	Public funding for rail infrastructure. But Gov. expects that fees may cover a substantial share of costs in freight business	Yes	Binational nature of concession. Cumbersome and slow bureaucracy

Cameroon	Yes	Private provision of services.	Public funding for rail infrastructure	No. Railways holding company and MoT proposed as regulator	Many ministries and agencies involved
Madagascar	Yes	Mixed: private provision on Northern Line but not decided on Southern line	Government in charge of infrastructure investment	No. Reinforcement of current agency	Economic and political instability
Botswana	No	Government has agreed recently to give BR a monopolistic position. Access to third (private) parties not expected soon	Public funding but ideas for PPP for new "Transkalahari" project	Yes	Small market. Competition from other countries railways.
Kenya	Yes	Private provision for commuting and freight	Public provision although expected private investment in existing infrastructure	Yes, independent regulator proposed.	Political preference for specific project with high costs and low returns
Tanzania	Separation already exists	Private concession failed and has been expropriated. Government already restructuring institutional arrangements to make them more attractive to investors	Public provision	Yes	Currently none
Zambia	No, separation and liberalization are not planned, after concession failure	No private provision expected soon	Public provision but private engagement is asked for mining connections in copper belt and other. TAZARA remains as a public undertaking	Regulation was improved for the concession time. But no advances regarding liberalization of the market expected	Bad experience with concession
Morocco	Gov. is thinking of reform but it is in early stage	The corporatization of ONCF is already agreed by Government and in early implementation. But privatization is not expected	Public provision	Gov. thinking in early stages	Central role of public sector not discussed

Source : ALG and Railistics based on country visits

3.4.4 Projects for new railways

Despite all the difficulties, a strong interest in railways can be perceived in most of the countries visited. A variety of projects have been prepared for many purposes and with different levels of ambition. Some of these projects are integrated in a comprehensive master-plan at national level e.g. Cameroon; or at regional level e.g. East Africa Railway Mater Plan proposed by the East African Community (EAC).

In other countries, projects originate through the initiative of mines, investors or as stand-alone government projects. A detailed description of new railway projects in the selected countries is provided in the country profiles in Annex I Further information on the selected African countries.

Table 13 : New railways projects in selected countries

Country	Is there a comprehensive railway master-plan setting a framework for new investments?	Does it include integrated road/rail approach?	Major road improvements made along the same corridor?	New standard gauge lines being proposed?	Could new projects eventually conflict with existing concessions (i.e. creating unforeseen competition or change the rules of the game)?	Has Government designed financial mechanisms to fund investment in new infrastructure and sustain it?
Senegal	Yes	Private provision of freight services. But public provision for passengers commuting by rail	Public funding for rail infrastructure. But Gov. expects that fees may cover a substantial share of costs in freight business	Yes	Binational nature of concession. Cumbersome and slow bureaucracy	No. Still under study
Cameroon	Yes	Private provision of services.	Public funding for rail infrastructure	No. Railways holding company and MoT proposed as regulator	Many ministries and agencies involved	No. Still under study
Madagascar	Yes	Mixed: private provision on Northern Line but not decided on Southern line	Government in charge of infrastructure investment	No. Reinforcement of current agency	Economic and political instability	No

Botswana	No	Government has agreed recently to give BR a monopolistic position. Access to third (private) parties not expected soon	Public funding but ideas for PPP for new "Transkalahari" project	Yes	Small market. Competition from other countries railways.	No. Under study
Kenya	Yes	Private provision for commuting and freight	Public provision although expected private investment in existing infrastructure	Yes, independent regulator proposed.	Political preference for specific project with high costs and low returns	No. Under study
Tanzania	Separation already exists	Private concession failed and has been expropriated. Government already restructuring institutional arrangements to make them more attractive to investors	Public provision	Yes	Currently none	No. Under study. Investigating an integrated transport fund (road, rail, ports)
Zambia	No, separation and liberalization are not planned, after concession failure	No private provision expected soon	Public provision but private engagement is asked for mining connections in copper belt and other. TAZARA remains as a public undertaking	Regulation was improved for the concession time. But no advances regarding liberalization of the market expected	Bad experience with concession	No
Morocco	Gov. is thinking of reform but it is in early stage	The corporatization of ONCF is already agreed by Government and in early implementation. But privatization is not expected	Public provision	Gov. thinking in early stages	Central role of public sector not discussed	Yes. “Contrat-Programme” between the State and ONCF

Source : ALG and Railistics based on country visits

The reviewed railway schemes and projects in the visited countries raise the following issues:

1. In most cases an integrated approach with road transport has not been made, with a few exceptions (Botswana and Tanzania). This means that the competition between road and rail transport are not fully considered which can lead to inadequate traffic forecasts.
2. Governments are simultaneously pushing road and rail projects along the same corridor. E.g.: Dakar-Bamako, Yaoundé-Ngaoundéré or Mombasa-Nairobi and Madagascar's government had to temporarily abandon an upgrading project for RN2 that was in direct competition with a new railway concession whose financing was prioritised by the WB.
3. In many countries new projects are planned in standard gauge, which will involve interoperability problems with the existing network. In some cases the approach is rather cautious and basically involves that any new structural work is made to conform to standard gauge (Tanzania). But in Kenya, work on a new standard gauge line has already begun. The East African Railways Master Plan proposes a cautious approach, with gauge being dependent on the connections proposed. Unfortunately, one feels that the full challenges of interoperability of different networks are not fully acknowledged in most countries.
4. In countries with concessioned railways, new lines may challenge the existing concession agreements as new competition or unforeseen changes in the rules of the game may occur.
5. Many new schemes still propose passenger services for political or social reasons. However, the long-term costs and implications of operating and subsidizing these new lines in the future have not been properly addressed.
6. In most projects discussed with government stakeholders, the impression was that the financial design for the infrastructure and operations stages has not yet been defined. Furthermore, the visions from the Ministries of Transport and Ministries of Finance were not aligned.
7. In conclusion, it is possible that the attention of decision-makers unfamiliar with railways and their operations and financial implications could be captured by appealingly presented new and ambitious projects, sometimes sponsored by export credit agencies or industry groups. This may distract their attention from other less appealing but eventually more important priorities such as introducing a systematic approach to infrastructure maintenance.
8. This analysis leads to one of the main conclusions of the project, the split of any financing project into new railway infrastructure projects and the financing of the existing system.

3.4.5 Analysis of concessions

3.4.5.1 Tendering process and shareholding structure

Among the aspects that are often cited as having hindered the success of most concessions are the following:

1. Shareholder Capability The lack of shareholders' experience and expertise has clearly had a negative impact on the concessions in Senegal and Kenya. On the other hand, the two expropriated concessions Tanzania (Rites) and Zambia (Transnet) had a rather stable shareholding involving experienced railways operators but it was the conflicting interests between the sponsors and the government that led to termination. It appears that the involvement of logistics and/or mining interests in the shareholding has a positive impact as they have a vested interest in using the railway, as has been the case of Bolloré in Camrail (Cameroon) or in Sitarail (Ivory Coast -Burkina Faso).
2. Delays in the tendering and awarding process, Procurement was long in almost all countries studied, typically no less than two years and sometimes up to five. During this period infrastructure and rolling stock were usually further neglected, staff morale dropped and business declined, making the situation more difficult for the newly arrived concessionaire.
3. Delays in closing and disbursing the financial package are problems associated with the

previous one. Some stakeholders have mentioned that meeting the diverse conditions required by different financing institutions has proved a long and cumbersome process. Additionally some actors have complained that finance is disbursed drop by drop over too long periods of time making it difficult to engage in major and long-term works.

4. Taking responsibilities from legacy state railways. Some of the concession contracts reviewed give the impression that both governments and private partners were more concerned about staff issues than infrastructure and operational issues. Concessionaires often perceive the legacy in terms of staff numbers, productivity, corporate culture, etc. as a major issue. New mining railways, even if they suffer from the same (or worse) infrastructure constraints, start better prepared to perform with more efficient, economic and even safer standards. Corporate culture differences are often cited as being one of the aspects of Rites failure in Tanzania. An ageing workforce and loss of skills are also cited as side effects of railway reforms.

Table 14 : Selected procurement and concession issues in visited countries

Country	Shareholder Capability	Logistics or mining companies involved in sponsors?	Delays in tendering and awarding process	Delays in closing and disbursing financial package	Does Concession include taking partial responsibility from legacy State railways?
Senegal-Mali (Transrail)	Very low	No	High	High	Yes
Senegal (GCO)	High	Yes	Moderate	Low	No
Cameroon	Moderate	Yes	Moderate	High	Yes
Madagascar (North Line)	Low	Yes at the beginning. No after 2008	Moderate	High	Yes
Kenya (RVR)	Low	No	High	High	Yes
Tanzania (TRL)	High	No (railways company)	Very high	Moderate	Yes
Zambia (RSZ)	High	No (railways company)	High	N/A	Yes

Source : ALG and Railistics based on country visits

The overall picture is that in most cases where railways have been awarded by concession, both government and privates have not been able to fulfil all their commitments and where they have it has been as a result of contract amendments. A sense of mutual distrust has often resulted and it has led to an opaque environment where neither party feels comfortable to provide factual information or contract documents that might illustrate their shortcomings.

3.4.5.2 Investment commitments and financial packages

A typical feature in most concessions is that the initial investment commitments and financial packages associated with the start of the concession hugely underestimated the investment needs. Accordingly the financing served only for the most urgent repairs that had only a limited impact on improving the average standards of service.

Measured in a crude ratio of investment commitments per route length, its seems rather evident that $ 12,300/km in Zambia, 32,300 in Tanzania, 39,800 in Kenya or 50,500 in Senegal-Mali line could hardly bring noticeable improvements to derelict lines, as is illustrated in table 18.
The Camrail initial investment commitments, although still small, doubled or tripled the ratio per km of the cases mentioned above. But even here, the concessionaire was on the brink of bankruptcy a few years after the concession was signed and the government had to retake responsibility for infrastructure. A similar case also occurred in Madagascar.
In comparison, the recent concession to the mining group GCO in Senegal has involved an investment commitment for 115 km of almost equal magnitude to that requested in the Transrail concession for 1,287 km ten years before.

Table 15 : Initial investment commitments and financial packages in selected countries

Country	Shareholder Capability	Logistics or mining companies involved in sponsors?	Delays in tendering and awarding process	Delays in closing and disbursing financial package	Does Concession include taking partial responsibility from legacy State railways?
Senegal-Mali (Transrail)	Very low	No	High	High	Yes
Senegal (GCO)	High	Yes	Moderate	Low	No
Cameroon	Moderate	Yes	Moderate	High	Yes
Madagascar (North Line)	Low	Yes at the beginning. No after 2008	Moderate	High	Yes
Kenya (RVR)	Low	No	High	High	Yes
Tanzania (TRL)	High	No (railways company)	Very high	Moderate	Yes
Zambia (RSZ)	High	No (railways company)	High	N/A	Yes

Source : ALG and Railistics based on country visits

Some new financial packages in recent years wisely involve higher amounts of finance:

- Kenya's RVR recently agreed a package with the IFC and other multilateral and bilateral donors for $ 287m.
- Tanzania is discussing an investment package to TRL of up to $ 711.5 m, which would include IDA commitment for $ 150m.
- Rehabilitation of the existing metric line Dakar-Mali border (644 km) is estimated at an amount of $ 1,050m and governments are in early discussions with donors.

Detailed information about the equity/debt ratios has not been available for all the countries analysed. From the information from Senegal, Cameroon and Tanzania it seems that a roughly 20/80 ratio has been common. The ratio is higher in Senegal but the concession audit notes that some private investors have not disbursed their share yet.

3.4.5.3 Capacity of railways operators to fund infrastructure-related costs

Most railways in SSA have very limited capacity to fund infrastructure-related investment. The picture revealed by the few available accounts of SSA railways operators show a struggling business at best with some concessionaires having been on the brink of default, being bailed out or protected from creditors.

From the concessions where accounts have been obtained, only CAMRAIL shows healthy results after the new passenger and infrastructure arrangements provided on the concession amendments.

For Transrail and Madarail the picture is gloomier. Transrail obtained positive results in only one year between 2004 and 2010 and since 2009 has been protected from creditors favouring restructuring. Madarail's net results have been erratic since 2004 with losses and profits alternating during the period. The impact of Madarail's concession amendment in 2012, when the government retook responsibility for infrastructure and engaged to compensate PSO, cannot yet be assessed.

Table 16 : Financial indicators of selected railway concessions

In $ million	Transrail (2010)	Madarail (2012)	Camrail (2013)
Turnover	33.82	13.6	119.40
Ebitda/ Turnover	-9.4%	14.9%	30.2%
Net profit	-3.37	-3.90	10.65

Source : Camrail, Madarail and Excelsium/Mazar: Audit of Transrail concession.

3.4.5.4 The role of the operator regarding investment and maintenance

In subchapter 2.4 (Figure 11), an overview of different railway business models that focus on the public and private sector responsibilities has been presented. When looking at African concessions, compared with other systems around the world, some interesting features can be seen:

Figure 20 : Illustration of demarcation of railways operations in different countries

Source : ALG

Initial railway concessions included the obligation of the concessionaire to take full responsibility for infrastructure investment and maintenance on top of railways operations, usually including public service obligations. This was the case of initial concessions in Cameroon, Madagascar and is the existing situation of Transrail (Senegal) and RVR (Kenya) concessions. This initial model of mostly vertically integrated concessions has largely failed. Concessions have been unstable from the beginning and struggled to last just a few years without amendments.

The inability of railways operators to fulfil their investment commitments has led to Governments retaking responsibility for infrastructure investment, leaving the concessionaire with the responsibility for maintenance. Camrail and Madarail concessions were amended to include these provisions. Current discussions for Transrail concession restructuring are going in this direction as well. Concessions in Tanzania and Zambia were slightly different and from the beginning gave the Government responsibility for infrastructure development. Nevertheless the experiences in both countries show that lack of commonly accepted definitions between the private side and the government regarding the boundaries of investment and maintenance responsibilities are inherent sources of concession instability and are often cited as key reasons for explaining their failure.

There is a risk that amended concessions in Cameroon or Madagascar may become unstable as well, since there is room for differing interpretation in the exact wording of responsibilities assigned to each party and how non-compliance by one party is addressed.

This hybrid model may explain why few internationally

well-known private railway operators have been engaged in African railway concessions so far. Instead, most concessions have been awarded to operators with strong synergies in other sectors (e.g. logistics, mining) or to opportunistic bidders with sometimes a (more or less) hidden agenda (e.g. construction interests, selling rolling stock, draining resources or market to other networks, etc.). While the first type of operators, those exploiting synergies may provide acceptable outcomes, the second type may explain some failures.

3.4.5.5 Coexistence of freight and passenger services

Often the importance given to freight and passengers by government and private partners when discussing a concession deal is radically different. To Governments, passenger services are a socially and politically sensitive issue, and therefore they typically look for a guarantee level of services. For private partners, passenger services provide a greater challenge as they are:

- More likely to be subject to social and political scrutiny and criticism.
- They are most likely to require financial support from the Government
- They potentially expose the company to substantially higher risks. As an example, an accident involving some fatalities in 2009 caused the termination of passenger services on the Dakar-Bamako line.
- Passenger trains may need to share tracks with freight trains requiring more complex planning.
- They require a more complex concession structure to cover aspects such as: setting fare levels, cost allocation to passenger services and compensation levels for delays or non-payment concession commitments.

At the end of the day, passenger and freight transportation are completely different types of businesses that are not easy to combine by a single operator.

In most of the developed and developing world, passenger services are still provided by public sector entities. The typical pattern in most national railways is that freight is a different unit with a varying degree of independence from the passenger unit. In most of Western Europe, freight units have evolved into fully independent companies, sometimes involving private partners or under a national railways holding structure.

In the countries visited, Botswana, Zambia and Tanzania now have public bodies operating railways and therefore the passenger-freight conflict is felt to be less of an issue.

In Kenya, passenger services are an uncomfortable issue between RVR and the government, and thus the operator is providing them only on a year-to-year basis. Moreover, the public entity KRCs is becoming increasingly involved in commuting train stations.

As mentioned above, Transrail discontinued passenger service after a serious accident. The public company PTB, providing commuting services in Dakar, is struggling to cope with derelict infrastructure, unwise government decisions and growing disaffection from users.

Cameroon provides one of the most interesting approaches. After some initial years, the concession was on the brink of bankruptcy because of a failure to agree on PSO compensations, among other shortcomings. Then a new imaginative approach was introduced with passengers operations are now being handled through Mobirail, which copies the model from French commuting trains where partnerships between SNCF and regional governments. Mobirail is not truly a separate company and is defined as a “partnership” but more closely resembles a differentiated management and costs unit within Camrail. The concessionaire describes it as a measure to insulate passenger operation deficits from the main source of activity, i.e. freight. But even here there is a sense of the limits of the model and that a fully independent undertaking to deal with passengers would make things more comfortable to all sides. A similar but less refined system has also been implemented in Madagascar.

In summary, after some years of experience, the sad reality that has emerged is that for most stakeholders, both privates and government, passenger services in Africa have not been successful.

Moreover, when governments have taken responsibility for operating them (e.g. Dakar’s PTB) or for funding passenger deficits, they have been obliged to face mounting bills and have therefore had to devote a bigger share of the budget to them or alternatively face that services will deteriorate or may even need to be cancelled.

Passenger services need a financing agreement as they are unlikely to be profitable. The development of such services requires a public interest, which should also include funding contribution. Furthermore, it requires a

good forecast of the costs and the income generated through such services in order to define the contribution that is required.

Looking to the future the urban population of Africa is set to more than double in the next 25 years with a number of cities having a population of between 5m and 20m (see Table 1 Chapter 1). With the continued growth in car ownership associated with improved standards of living, these cities will be subject to major congestion, which will in turn have a negative impact on GDP growth. Whilst providing passenger rail services is more challenging than freight, there are likely to be circumstances where commuter railways have a role to play as part of the overall mobility strategy for these cities. Very few areas in Africa are expected to generate enough traffic volumes in the short-medium term to support intercity rail services.

3.4.5.6 Poor implementation of measures to regulate road transport

Ensuring a balanced competitive environment for rail and road transport is a cornerstone for railways success. Three usual patterns highlight these types of problems:

1. First, at planning and infrastructure delivery level, the integration of road and rail needs to be addressed in the planning process. Railways schemes need to be proposed as integrated pieces of planning, not independently from national transport plans. Critical attention should be paid when road and rail projects are developed simultaneously, or rails proposed where roads are already available and capacity is not an issue.
2. The WB and other donors have required axle load control and weighing stations as conditions in most road and even rail project loans (e.g. Madagascar). Moreover, international regulations limit vehicle weights in order to protect roads. As an example, the CEMAC road code limits axle loads to protect road infrastructure: 13 tonnes for a one-axle vehicle, 21 tonnes for a tandem axle, 27 tonnes for a triple axle, and 50 tonnes for total loading weight. In Cameroon, multiple weigh stations have been built, and controls are performed. However day-to-day enforcement and compliance in practice raises many concerns, as corruption and bribes are still common in too many places.
3. Railways pay for infrastructure while road do not. In most concessions, operators are still required to fund infrastructure maintenance. By contrast, road transport does not usually pay for infrastructure maintenance. Where road funds have been set up (e.g. Senegal, Tanzania) they only partially cover maintenance costs and a particularly unfair situation appears when railway operators are charged fuel taxes which are earmarked for road funding, as is happening in some concessions. In Senegal, it seems to be the case even when the concession contract wording explicitly exempts the operator.

One could conclude that enforcement has to arrive on most African roads if safety[1] and trade are to flourish. Better enforcement and compliance of existing regulations as well as balanced market conditions for road and rail may lead to a major opportunity for the development of railways. But at the same time better roads will make road transport more competitive and attractive. This will be mostly felt in corridors where road connections used to be poor and thus rail was somehow protected from road competition, as in Yaoundé-Ngaoundéré or Dakar-Bamako. Table 17 below summarises some of the key concession issues in selected countries.

1 Road accidents are becoming the main cause of death in developing countries according to the WHO. See “The Economist” article on this issue on Jan 25th 2014.

Table 17 : Selected procurement and concession issues in visited countries

Country	Requirement to provide passenger services	Measures to regulate competition from road transport	Clear definition of responsibilities between Gov. and concessionaire regarding infrastructure investment and maintenance
Senegal-Mali (Transrail)	Concession provisions require pax services, but they have been suspended after an accident involving fatalities. Only some limited service in Mali. Commuting trains in Dakar operated by an independent public company on concessioned tracks.	Poorly implemented	At present the concessionaire has full responsibility
Senegal (GCO)	No passenger services	No	Currently concessionaire has full responsibility
Cameroon	Yes. Passengers and freight have separated costs and management units within concessionaire. Pax services funded by Gov.	Axle load controls exist along roads.	Yes, after the amendment is signed, but the exact wording not available. Responsibilities from both sides set in 5-year plans and monitored by COMIFER.
Madagascar (North Line)	Yes, subsidised by government	Axle load controls beginning to be implemented	Yes, after the amendment is signed, the government assumes all infrastructure investment.
Kenya (RVR)	Yes. RVR was awarded concession of passenger services for a period of five years but they run it now on a year-to-year basis. KRC progressively involved in commuter train stations.	No	At present the concessionaire has full responsibility
Tanzania (TRL)	Yes. Both TRL and Tazara (*) provide pax services. Currently both are public sector enterprises	Yes	Major source of disagreement between Gov. and concessionaire
Zambia (RSZ)	Yes. Both RSZ and Tazara (*) provide pax services. Currently both are public sector enterprises	N/A	It was a major source of disagreement between government and concessionaire.
Morocco	Passengers and freight are different business units inside ONCF	Yes	Investment carried out by ONCF which is currently a government arm, but funded from state budget

(*) Tazara has never been a concession but a bi-national public undertaking

Source : ALG and Railistics based on country visits

3.5 Conclusions and recommendations

Railways in Africa reached a critical point in the late nineties, which called for the deployment of a series of aggressive reform schemes, which prevented the definitive collapse of the industry in many countries, but they have not fulfilled all their original expectations. The picture now is that neither governments, nor donors, nor private partners seem to be comfortable with the results of this first wave of reform.
From the analysis of the experiences in the countries visited, some initial conclusions can be drawn:

- Most of the cases studied have consisted of concessions being awarded to holders who have either failed to perform as expected, or have become very unstable, or both. This has been due to them having been burdened with obligations that coexist uncomfortably with their core business and expose them to major challenges, costs, risks and scrutiny. Most concessions have required multiple restructuring and amendments to stay operative. However, freight concessions operators with strong logistic/mining synergies have performed better suggesting that this might be a more appropriate model moving forward.
- Most concessions require operators to be engaged in infrastructure renewal or maintenance to a greater or lesser degree. This means that most African concessions involve a hybrid business model that requires that operators be involved up to a certain level in civil works activities.
- Most concessions have underestimated the amount of investment required and the sums committed have had limited impact on improving railway performance. Some railway packages currently being discussed are several times bigger than the initial ones proposed in the late 1990s or early 2000s. However, even these may still underestimate the real magnitude of investment required to upgrade railways to a level that allows rail to compete effectively with road transport. Additionally, the competitive environment of railway transport with respect to road has not been adequately addressed in most cases, either at planning stage, at implementation or at enforcement level. This may also be the case regarding some current road and rail schemes being promoted simultaneously.
- Public Sector railways in Africa (Morocco, Botswana, RSA) have generally performed better than those that have been concessioned and whilst this does not mean that concessions are not a way forward there are basic lessons that can be taken from these public sector railways that are applicable to any concession railway namely: organisational and institutional reform, financial commitment from Government.
- Most countries have reached the conclusion that railway management and financing have to be reviewed but are still struggling to define the financial models, most notably how infrastructure maintenance should be managed and funded.
- Freight and passenger railways a very different and require different approaches. Future passenger operations are likely to be limited to commuter railways in the main African cities.
- Most of the countries visited have significant new railway projects, aimed both at freight (mostly mining) and passenger segments, as well as schemes at regional level. There is wide acceptance that PPPs should be explored to tap the huge amounts of funding that would be required but no new approaches have so far been identified.

Africa is becoming more and more attractive as a destination for infrastructure financing in many sectors such as energy, telecoms and transportation. Nevertheless, investment in railways is still small compared with other sectors.
Institutional reforms and more mature financial markets may help to implement new approaches to infrastructure finance that are common in developed countries such as project bonds.

4. International experience

Having reviewed the situation across the African continent in chapters 1 and 3, this chapter reviews some international experiences in financial models, putting them into perspective in the African context with the objective to explore best practises that may serve as a reference for new railways projects or policies to be developed in the continent.

4.1 Experiences from developing and emerging countries

Emerging countries have faced big economic challenges in the last decades, which lead to PPPs becoming increasingly popular and encouraged by IFIs. In Latin America, such PPPs took the form of concessions, leading the international move towards this financial model. Nevertheless, some countries chose to maintain their state-owned monopolies and have adapted them to a more market-oriented approach, via profound reorganization or by establishing public corporations.
Our selection of countries to be reviewed in the African context illustrates a wide range of solutions developed by different countries, and includes:

- **India**, which has managed to retain public management while involving private participation through PPPs and bonds;
- **Argentina**, the pioneer in concessions which discontinued long-distance intercity passenger services and suffered from political interferences;
- **Poland**, which has built a railways fund based on fuel tax collection to achieve more competitive prices;
- **Republic of South Africa**, which hosts the most developed and sophisticated railways in Africa.

4.1.1 Argentina

4.1.1.1 General Description

Financial constraints led Argentina to make one of the world's first moves toward private concessions in railways in 1991. Its low traffic density, extensive network and high number of employees were seen as responsible for the significantly unbalanced budget. Initial freight concession success was followed by commuter service concessions.

Table 18 : Financial indicators of selected railways concessions

Infrastructure	
Route	25,023 (km)
Track gauge	broad / standard / meter
Performance	
Traffic density of passengers	26,623 (pax annually / km)
Traffic density of freight	936 (tonnes annually / km)
Employee productivity	1.66 (m tonne-km +m pax-km / employees)

Source : ALG based on World Bank data

4.1.1.2 Relevant financial mechanisms for the railways system

Regional 30-year freight concessions were awarded under a bidding process that largely encouraged investment plans, highlighting the need for infrastructure. Existing tracks, stations and rolling stock remained state property, and were leased to concessionaires. Although the most recent of these are benefiting from their exclusive use of the tracks, they still have to allow passenger traffic for a fee. Freight concession holders committed themselves to large investment that helped maintain and upgrade the existing network.
For commercially unattractive and expensive intercity passenger services, provinces were given the choice of maintaining those activities at their own expense. Today, almost all of such lines have been abandoned because of insufficient demand, poor levels of service and financial difficulties. Commuting services in dense areas such as Buenos Aires were put up for auction that primarily placed value on low subsidies required by the government and the quality of service to be provided.

Although concession holders have successfully committed themselves to large investments, the bidding process encouraged the minimization of costs that raised concerns in terms of employment and state subsidies. The high social cost (an 81% reduction of employees in the 10 years following privatization) and traffic inconsistent with the forecasts demonstrated the weaknesses of the contracts in terms of renegotiation.

Concession awarding has been accused of political interference and it is not rare that changes in Government involve changes in the concessions map. A further shortcoming is that investment has been neglected in some lines, which has led to accidents with fatalities. Furthermore, since the main source of income for concession is the Government rather than users, many concessionaires have seemed more interested in political relations than providing good levels of service to their users.

4.1.1.3 Lessons to be learnt

Argentina is a good example of a large country with low density (as is the case of African countries) where most intercity long distance passenger services had to be discontinued because of little demand and unwillingness from regional authorities to re-subsidise them. At the same time, freight long-haul railways are performing rather well under private management.

Regarding urban and suburban railways, there is a mixed picture of good and poor management but too often suffering from political interference. Although responsible for infrastructure, most concessionaires have been unable to fund well-needed rehabilitation works, which have caused accidents. In these cases, "Emergency Groupings" (UGO) have been created, bringing together private and public bodies to address the most urgent works.

The major flaw in the system stems from the government (through grants) being the major source of income to concessionaires. They are little interested in improving passenger services and more interested in focusing on political affairs.

4.1.2 India

4.1.2.1 General Description

Indian Railway's (IR) large multi-gauge network supports the world's second largest passenger traffic volume. The network demands capacity expansion, both in freight and passenger traffic. Though the MoR owns IR, it operates as a distinct entity in terms of budget. Its public status encourages social policies that are reportedly in conflict with its commercial strategy to develop freight traffic, therefore preventing the generation of surpluses for its development and extension.

Table 19 : Main facts of India's railways network

Infrastructure	
Route	63,327 (km)
Track gauge	broad / meter / narrow
Performance	
Traffic density of passengers	98,205 (pax annually / km)
Traffic density of freight	11,492 (tonnes annually / km)
Employee productivity	0.84 (m tonne-km +m pax-km / employees)

Source: ALG based on World Bank data

4.1.2.2 Relevant financial mechanisms for the railways system

IR is a huge public enterprise characterised by its rigidity and big bureaucracy. Under the control of a Railway Board directly managed by the Minister of Railways, IR is split into both functional and regional units. To address the complex coordination that projects demand in such organization, the Government has set a variety of flexible and small market-oriented units to deal with rolling stock acquisition and finance, India Railway Finance Corporation Ltd. (IRFC) and with the public sector involvement in infrastructure finance through PPP schemes (Rail Vikas Nigam).

IRFC presents two interesting factors: First is its ability to keep a high investment grade score in Indian financial market. Second is it is a highly flexible instrument that employs a very small team of mainly financial and legal professionals. A key issue in its success is that IR, the

sole client that leases its rolling stock, has an excellent reputation for fulfilling its commitments.
Large dedicated corridors for freight transport encourage Private Sector Participation (PSP) in infrastructure investments through multiple concession schemes. Design, construction, maintenance and operation concessions are most used and allow the MoR to pass on risks to private and joint venture developers (SPV), who in return gain substantial strategic advantage. Rail Vikas Nigam (RVN) is major's example, funded as a public enterprise with 100 % shares owned by MoR. Its purpose is to undertake project development, mobilize financial resources and implement projects, Such SPVs allow government to build railway projects out of their balance sheet, and improve dynamism. It contracts loans from previously described IRFC. Recently, a High Speed Rail Corporation has been created under RVN subsidies to prepare technical and financial studies of HSR projects. Such SPVs are increasingly popular in logistic centers connectivity (ports, hinterland facilities, mines...), encouraged by the Asian Development Bank financing solutions, and provide an infrastructure financing scheme successful at raising resources.

4.1.2.3 Lessons to be learnt

India has been able to create a public sector in which market-oriented entities provide the necessary flexibility in a heavily bureaucratic and politically influenced railway institutional environment. IRFC and Rail Vikas Nigam provide some interesting aspects, such as:

- Credibility vis-à-vis the private sector, i.e. bondholders (IRFC) or private sector sponsor in an infrastructure SPV (RVN).
- Public sector control that is rather immune to the influence of politics, bureaucracy, unions or other interests.
- They are flexible entities with little staff
- Good track record of creditworthiness
- Capacity to being engaged in different types of deals (RVN)

4.1.3 Poland

4.1.3.1 General Description

Decline in both freight and passenger traffic due to structural changes in demand and high competition from road transport have demanded a transition from centrally to market-orientated planning. Very high levels of required investment suggested a specific regulation review.

Table 20 : Main facts of Poland's railways network

Infrastructure	
Route	19,507 (km)
Track gauge	Standard
Performance	
Traffic density of passengers	11,175 (pax annually / km)
Traffic density of freight	7,945 (tonnes annually / km)
Employee productivity	0.48 (m tonne-km +m pax-km / employees)

Source: ALG based on World Bank data

4.1.3.2 Relevant financial mechanisms for the railways system

Conversion from a public monopoly railway to an open market first introduced concessions, which were then replaced by more liberal licenses. Access granted to operators includes a fee that covers full costs of infrastructure maintenance, which led to high fares and decrease of competitiveness of rail transport.
To solve the situation of decaying infrastructure and declining market, it was necessary to build financial resources for network expansion, modification and repair. The Railway Fund was established for such goal in the National Economy Bank (Bank Gospodarstwa Krajowego), collecting 20% of income from fuel charge and issue bonds in the financial markets. The infrastructure manager in conjunction with the MoT regulates this Fund and it has allowed reductions in infrastructure access fees.
On the regulatory side, the Office of Rail Transportation (UTK) formed in 2003 under the Railway Transport Act has inherited its role from the former structure of the Chief Railway Inspectorate and it complies with the EU legislation

as a National Safety Authority, National Regulatory Body and National Enforcement Body for Passenger Rights.
On the operational side, the former state enterprise PKP was restructured into a new group to separate operating activities from infrastructure management. As part of the last step in railway privatization, the current public enterprise owner of the infrastructure (PKP) is to sell shares on the open market, but states its focus will remain on new investments and modernisation rather than profit making. Finally, international EU routes benefit from special EU funds that stimulate cooperation and therefore assist national budgets for construction and maintenance on the lines involved.

4.1.3.3 Lessons to be learnt

Although road funds raised from fuel taxes and other excise are common in both developed and developing nations, funding railway from fuel taxes has proven to be a rather sensitive political issue. Poland provides an example where the railway has received a substantial share of fuel taxes and that revenue has been used to reduce, although indirectly, access fees and thus has improved the competitive position of rail in face of road transport.
The reduced external costs of rail transport compared with road provides enough conceptual support to these kind of initiatives, although they may prove to have sensitive political implications

4.1.4 Republic of South Africa (RSA)

4.1.4.1 General description

RSA's large freight-oriented rail system (with 80% of total African rail lines) is experiencing capacity shortage and needs modernization, leading to the need for a large-scale capital investment plan.

Table 21 : Main facts of RSA's railways network

Infrastructure	
Route	19,507 (km)
Track gauge	Standard
Performance	
Traffic density of passengers	11,175 (pax annually / km)
Traffic density of freight	7,945 (tonnes annually / km)
Employee productivity	0.48 (m tonne-km +m pax-km / employees)

Source : ALG based on World Bank data

4.1.4.2 Relevant financial mechanisms for the railways system

RSA has chosen to keep an integrated railways model in line with its integrated strategy for freight. Although it separated passenger (PRASA) and freight operations (Transnet) in 2009, the ownership of rail tracks has remained in Transnet's hands and both services are dependent on Government for subsidies. PRASA is mandated by the National Department of Transport to ensure passenger services, whereas Transnet is fully owned and mandated by the Minister of Public Enterprise. Specific laws set down the regulatory framework.
Transnet is the strategic public enterprise that manages national railways, ports and pipelines. Two business units represent its activities in railways. The Freight business unit owns, builds, maintains and operates national railways. The Engineering business unit provides maintenance, upgrades, manufacturing and support services to the Freight unit, but also to other regional and international customers. Freight activities are large scale (traffic greater than most EU countries, for example) and profit making (increase of +10.4% EBITDA margin in 2008-2012). Traffic is concentrated on iron ore and coal exporting, which account for 60% of freight traffic on 7% of the railway lines. The network requires modernization and expansion. Transnet has developed a large capital investment plan and a Market Demand Strategy to tap private markets. The capital investment plan is part of the Government's infrastructure strategy and will involve a total of $7.5b over a five-year period, of which 48% will be used to expand services. To cover its financial requirements, Transnet uses a wide range of diversified financial instruments, including domestic bonds, African Development Bank loans, state-owned guarantees, derivative financial assets and more

recently Global Medium Term Note (GMTN) bonds. These solutions have accounted for $765m in financing in 2012.
The separation of passenger and freight operations has not led to the establishment of an Infrastructure Manager. PRASA can access Transnet's network by paying fees that are established in direct Legal Agreements between the two parties. PRASA has also contracted Transnet Rail Engineering to provide maintenance for its fleet.
Disputes arose in 2010 over a maintenance program that affected locomotive availability and eventually the full closure of some main passenger transport lines. PRASA claimed access fees to be too high, while Transnet argued over PRASA's due payments. The consequences for passenger service were considerable in volume transported, which fell to as little as half of the level for the previous year.

The Gautrain project

For building new railway infrastructure, RSA has sought to actively involve third parties after a new PPPs framework approved in 2000. The Gautrain project, led by the Gauteng Provincial Government, is the largest PPP yet launched in South Africa, amounting to $ 1.90bn. It consists of an 80 km suburban network merging two routes connecting Johannesburg to Pretoria on the North-South route and Sandton to OR Tambo International Airport on the West-East route. The scheme aims to support the outstanding economic growth of the region and reduce congestion on the N-1 highway. So as to provide door-to-door transport, it is associated with a bus service linking city centres with train stations.
The fostering of socio-economic development linked to job creation and black empowerment has significantly contributed to the project's justification, and has been analysed throughout project development.
The line was completed in 2012 under a 15-year build-operate-transfer concession. The vertically integrated concessionaire Bombela Concession has attracted foreign capital and has acquired locally unavailable knowledge, being owned 50% by international partners (Bombardier, Bouygues and RATP Dev.). A turnkey contract provides the civil and electromechanical construction of the railways, while a second O&M contract covers the operation of trains along the line, limiting financial risks in each structure.
Traffic-related risks are mitigated through a Patronage guarantee, which aims to ensure that the concessionaire has sufficient resources to pursue operations. It appears that the patronage guarantee is not only based on volume related parameters but also on cost-contributing factors such as distance of travel, number of ancillary services used, etc. However, the mechanism is not transparent, as it is not made publicly available. Patronage levels have recently been an issue, although traffic received is higher than forecasted (number of daily trips more than doubled in the first year). Therefore the project is in a contradictory situation with Government seeking to increase market share by implementing e-tolls along Gauteng's suburban highways to reduce its patronage costs, while the Concessionaire is experiencing capacity problems in the short term due to overcrowding at peak hours. Recently these tolls have received serious social challenge.

4.1.4.3 Lessons to be learnt

Transnet's business goes beyond railways, and extends to other logistics infrastructures (ports, terminals, etc.). Its profile is closer to that of an integrated logistics provider. Keeping a strategic position in developing and managing railways to assure coherence along the whole logistic chain is the key to Transnet's success. It explains why passenger and freight separation have not led to a vertically separated rail system.
Transnet provides a good example of a public-sector railway that has successfully evolved into a market-oriented corporation. Integrating maintenance and coach refurbishment in its activities has proven successful, and is made possible by large investment programs in training. The recent ALSTOM fleet renewable program stipulating a minimum of 65% local content is an example of Transnet's strategy to build knowledge and expertise. It is also true that Transnet has benefited greatly from the huge volumes generated by SA's mining sector.
The scope of responsibilities of PRASA and Transnet concerning the maintenance of fleet and other subjects has been the source of some discussions, and this is a reminder of the often-conflicting interests of passenger and freight businesses. The need to include Service Level Agreements in contracts has been raised by PRASA in solving such conflictive situations.

4.2 European Union experience in railways liberalisation

The EU is probably the most integrated region in the world. It has also followed a liberalisation package that has set a benchmark that other countries look at for inspiration. Nevertheless in practice most European railways are still controlled by State or former State railway companies, competition is limited, Government control is high and moving trains across borders involves plenty of interoperation headaches.

This section aims to briefly illustrate some of these issues as they may provide some interesting lessons for railway developments in Africa.

4.2.1 European Union railways liberalisation

EU legislative packages for railway liberalization have set the following framework:

Table 22 : EU railways liberalization framework

Framework component	Description of the framework component in the EU railways liberalization context
Separation of infrastructure and operations	It was left to the individual railway systems to separate operations either by organizing distinct divisions within a single undertaking or by having separate entities to manage infrastructure.
Non-discriminatory access to infrastructure	Guaranteed non-discriminatory access to the infrastructure and creation of an independent rail regulator.
Transparency	Separate profit and loss accounts and balance sheets of infrastructure managers are published to ensure that users can check that fees and fares are related to real costs. The idea is that the track operator charges the train operator a transparent fee to run its trains over the network, and anyone else could also run trains under the same conditions (open access).
Open to international market	Possibility for foreign operators to manage domestic freight traffic. But they need to follow communications and safety procedures set in the host state (see later on interoperability). Liberalization in the passengers market is expected to be compulsory in 2019.
Joint regulation	Joint regulations for the authorization of locomotive and train personnel as regards both passenger and freight traffic (e.g. licenses for engine drivers) are set as well as regulations on passengers' rights and minimum quality standards in agreements between rail companies and freight customers, among other topics.

Source : ALG

Before a train operator can provide rail freight services on any part of the European rail network, it must have an operating license and a safety license, it must procure or arrange the use of suitably-approved locomotives and wagons, recruit or hire drivers with the necessary skills and qualifications and have negotiated access rights on the network concerned. For international traffic, the operator must achieve the above for each part of the European network on which it wishes to operate.

New entrants in the private sector sometimes find it cumbersome and expensive to go through the complicated processes required by some member states to be allowed to run on their tracks. Track access charges vary between member states and there are examples of charging structures, which disadvantage new or small entrants.

Obtaining access rights to a train path can be difficult

where the same body as the national train operator who may manoeuvre to block access for its competitor or to take pre-emptive marketing action owns the infrastructure manager, who allocates capacity.
Most of the barriers to entry and operational constraints outlined above are clearly the result of inadequate or incomplete implementation of the open access directives. However, these barriers reflect the difficulties that may arise in the regulation of an open access regime. It is fair to say that the European examples demonstrate that it still has some way to go to achieve full open market liberalisation across the continent and that no single model fits all situations.

4.2.2 France

The state-owned French National Railways (Société Nationale des Chemins de Fer Français - SNCF) is one of Europe's foremost land transportation groups and includes over 640 affiliated companies. It is a fully public undertaking with an industrial and commercial purpose and a high degree of independence in its transportation activity.
To adapt to EU regulations French Government created Réseau Ferré de France (RFF). Consequently, SNCF remained in charge of railway operations while RFF assumed authority for investment, management and development of the national rail infrastructure.
Although SNCF makes payment of track access charges to RFF for the use of its infrastructure, the management and maintenance of the railway infrastructure has been delegated by RFF to the SNCF. Therefore, in practice SNCF remains in a very strong position as manager of the network, having responsibility for allocating train paths and approving new operators.
In this context many industry sources complain of SNCF still having a predominant position in the freight market and that it lacks the commercial approach and efficiency expected from the private sector. Total rail freight on French railways was 32,552m tkm in 2012. This is less than 30% of the freight volumes moved in Germany and rail is slowly but consistently losing market share in France.
An interesting feature has been the acquisition of the road transport and logistics operator Geodis by SNCF, which allows the rail operator to provide all the services along a logistics chain.
SNCF transportation business is largely passenger oriented. Revenues from passenger business account for about 60 per cent of total SNCF revenues and freight about 11 per cent. The remaining revenues had they origin in the provision of infrastructure related services and leveraging of SNCF assets and know-how. The French state and regional governments contribute very heavily each year to SNCF's accounts for passenger service compensations.
Development of high-speed trains in France has required substantial investments, and is still on-going. Recent projects include PPPs, and the regions (provinces) are encouraged to contribute to increased transport accessibility. A recent change now allows regional services' rolling stock to be full property of the region.
A specialized infrastructure investment institution was created (AFITF) to redistribute resources from taxes and Government infrastructure budgets across the different modes. A system of quota aims at redistributing 70 % of the total amount to railways development. As the highway system was concessioned in PPPs, the level of toll fees collected appeared lower than expected. The new E-toll system for HGV (Ecomouv') would transfer most of its tax collection to the AFITF, thus increasing its resources to better assess the unfair competition of highways. However, the E-toll system is currently suffering from political interferences.

Table 23 : Main facts of France's railways network

Infrastructure	
Route	29,286 (km)
Track gauge	Standard
Performance	
Traffic density of passengers	32,872 (pax annually / km)
Traffic density of freight	4,438 (tonnes annually / km)
Employee productivity	0.71 (m tonne-km +m pax-km / employees)

Source : ALG based on World Bank data

4.2.3 Germany

Germany's rail network, the largest in Europe, benefits from both high passenger numbers and freight density. Infrastructure costs are largely covered by government subsidies (80%), whereas access fees are used to finance operations and maintenance. The German Railway Corporation (Deutsche Bahn AG or DB) was established in Jan 1994 as a joint stock company wholly owned by the Government. It brought together the entire infrastructure and assets from former Eastern and Western Germany railways. To comply with EU regulations DB AG created the subsidiary DB Netz AG to manage the network on a commercial basis. DB Netz imposes access charges on users of the network, including DB AG and other transport operators.

In 1999, DB AG was converted into a holding company, the Deutsche Bahn Gruppe (German Railways Group), under which there are five subsidiaries: Infrastructure, Passenger Traffic, Freight Traffic, Passenger Stations and Property. Hence infrastructure and operations are functionally under the same top management and under Government control.

Under German Law, the Federal Government finances construction and replacement of railway lines. In addition, regional governments or third parties can promote investment and the DB AG can also raise funds in the capital market to finance investment projects in which it is interested. In the case of investments made in pursuance of DB AG's commercial interest, DB Netz must pay annual depreciation costs for railway lines financed by the Federal Government. For all other investments, depreciation payments will be reduced or completely done away with.

DB remains essentially a vertically-integrated railway where the incumbent operator is horizontally segregated by business activities, i.e., infrastructure, passenger traffic, goods traffic, passenger stations and property. Nevertheless although some issues regarding DB market predominance are sometimes mentioned, Germany is one of the European countries that is most open to new entrants and it is by far the biggest railway market in the EU with more than 110bn tkm transported in 2012.

Interestingly, DB pioneered in partnering with and eventually acquiring a major road and logistics operator, Shenker. DB freight operations and Shenker are fully integrated and provide the whole range of logistics services. Moreover it has served to allow DB to gain presence in many other European markets.

Table 24 : Main facts of Germany's railways network

Infrastructure	
Route	34,218 (km)
Track gauge	Standard
Performance	
Traffic density of passengers	52,177 (pax annually / km)
Traffic density of freight	8,037 (tonnes annually / km)
Employee productivity	0.71 (m tonne-km +m pax-km / employees)

Source : ALG based on World Bank data

4.2.4 Spain

The non-standard gauge of Spain's railway system has historically implied low international traffic and long term implications.

Institutional framework

The Spanish state-owned operator (Renfe) is the result of the European liberalization packages. Thus three different bodies appeared:

Administrador de Infaestructuras Ferroviarias (ADIF) is a state-owned company that manages all railway infrastructures on behalf of the State, its duties include authorisations and path allocation. The Government funds railway investment and ADIF's role is to manage and undertake railway maintenance. As opposed to other European countries, ADIF manages stations and freight terminals, with its own staff and through outsourcing. ADIF has a reputation for poor and inefficient management of freight terminals, and this is often cited as one of the main shortcomings explaining Spain's decline in freight traffic.

Renfe Operadora is the railways operator. It has no competition in the passengers market, although a few

new freight entrants (private or created by regional governments) have emerged. The freight division of Renfe Operadora has experienced streamlining to make it more market-oriented. Industry sources complain that the freight division benefits from indirect state aid. Thus, the inefficiencies of Renfe's freight division make railways little attractive to shippers but, at the same time, and since it can offer huge discounts; it impedes private operators to grow in the market.

Comité de Regulación Ferroviaria (CRF). It was theoretically the independent railways regulator. In fact it was a unit within the Ministry charged of transport (Ministerio de Fomento).

All three bodies were under the control of the Ministry of Public Works (Ministerio de Fomento). Both the Adif and Renfe boards are filled with political appointees from different ministries and the Minister directly appoints its chairpersons. However, the CRF was chaired by a senior civil servant with less political clout and was clearly the weakest piece in the system. In practice the three bodies, although technically independent, were under strict political control and under functional subordination of the same Ministry.

In 2013, the Spanish Government approved the reorganisation of all regulating bodies, which have been grouped into a single Comisión Nacional de Mercados y Competencia (Competition and Markets Commisssion), with a more clearly-defined independence from the Government. Moreover, ADIF has been split into two companies, one for the high speed rail (HSR) infrastructure and another for conventional railways. Despite these reorganisations, Adif and Renfe remain under the same political control.

The issue of gauge

Spain's railways gauge is 1,668 mm, i.e. wider that the standard 1.435 mm gauge. Portugal has a similar gauge of 1,665mm. Thus, transhipment at the French border has been necessary for all passenger and freight trains. Technologies to change axles at the border and vehicles that could change axle width automatically have been developed but they involve additional operating costs. International traffic has suffered from this shortcoming and, thus, freight is mostly moved by road across the border.

In 1992, the first HSR line between Madrid and Seville was inaugurated. A decision was made that it would be built in standard gauge as it has been for all new HSR lines since then. The logic behind was that new HSR (standard gauge) lines would be dedicated to passengers while old (Iberian gauge) lines should be left to freight. To bring this logic to its final consequences would involve such huge costs that it is widely accepted now that it will never happen.

However, that decision led to interoperability problems appearing within Spain, not only at the border. Trains using high speed lines could not continue their trip to final destination on conventional tracks, as it is the case in France. To solve this problem, gauge interchange stations had to be built, rolling stock adapted to different gauges and, more recently, three rail tracks are being built. All these are adding unforeseen infrastructure and operational costs that probably offset all expected advantages from the implementation of standard gauge.

The present situation has created a series of technical constrains that are hindering the growth of freight traffic as well. As an example, freight trains can operate on standard gauge or Iberian gauge lines from Barcelona north to the French border (170 km). But trains coming from France cannot operate on standard gauge south or west of Barcelona but only on Iberian gauge, making transhipment necessary.

Table 25 : Main facts of Spain's railways network

Infrastructure	
Route	14484 (km)
Track gauge	Iberian gauge
Performance	
Traffic density of passengers	42163 (pax annually / km)
Traffic density of freight	2071 (tonnes annually / km)
Employee productivity	1.71 (m tonne-km +m pax-km / employees)

Source : ALG based on World Bank data

4.2.5 United Kingdom

The UK pioneered railway liberalisation in Europe. In 1994. British Rail (BR), which was a vertically-integrated state-owned railway company with a statutory monopoly over the transport of passengers and goods by rail, was broken up into more than 100 separate entities, all of which were privatized between 1995 and 1997.

Among these entities were:

- Rail track that became the sole owner and manager for all railway infrastructure
- 25 train operating companies (TOCs) with franchises to run passenger operations
- freight train operators
- 3 rolling stock leasing companies (ROSCOs)

And more than 70 other companies connected with various aspects of railway engineering and operation.
While the train operating companies were franchises, the freight business was completely privatized through the establishment of private companies, which bought operating licenses, own their own rolling stock, and operate in an open environment.
The state-owned Rail track was privatized in May 1996. However, as subsequent events showed, there were flaws in the management of infrastructure by Rail track, which caused three serious train accidents that were blamed on neglecting maintenance in order to maximize return to shareholders. Rail track declared bankruptcy on October 2001 and the Government transformed it into Network Rail, a not-for-profit company.
The division of BR into almost 100 independent entities or companies replaced coordinated internal company relations with complex, formal, and costly contractual relationships. The break-up resulted in a heavy, inefficient bureaucracy, an opposition of interests and objectives, and a weakening of responsibilities among the many players. All this has led to some actors advocating for a more integrated approach.
The U.K. system has virtually no rail competition along individual corridors. It is a system of `horizontal monopolies' based on either geographic considerations (passenger services) or product considerations (freight services). The reforms have achieved some rail freight traffic increases whereas traffic has declined in most of the continent, although it still represents just 5 per cent of total freight traffic. Freight operations receive annual grants to encourage environmental benefits associated with a modal shift from road to rail.

Table 26 : Main facts of Spain's railways network

Infrastructure	
Route	15,810 (km)
Track gauge	Standard
Performance	
Traffic density of passengers	68,437 (pax annually / km)
Traffic density of freight	6,578 (tonnes annually / km)
Employee productivity	0.50 (m tonne-km +m pax-km / employees)

Source : ALG based on World Bank data

4.3 Conclusions and recommendations

4.3.1 Lessons learned for African railways from emerging countries

Faced with similar challenges in terms of the financing and development of railways, experiences in other emerging countries are particularly valuable on the following subjects:

1. Countries that pioneered in railways concessions and where a longer perspective can be seen such as Argentina provide mixed results. While freight transport has burgeoned and proves to be profitable, long-distance passenger services have been discontinued as subsidies required were unsustainable and urban and suburban trains remain crucial to Buenos Aires mobility.
2. The quality of the institutional environment is critical to ensure that users benefit from private sector participation. In poor institutional environments, private operators may be more interested in courting regulators and politicians i.e. the source of subsidies,

than to be really engaged in the improvement of safety and service standards to users, since fares are a minor part of the operator's revenues.

3. Big and bureaucratic public railways potentially have the resources and expertise to create special units to deal with the private sector under a wide range of PPP deals. This is the case of IRFC and RVN in India. These type of approaches merit the support from IFIs.
4. Public railways such as Transnet and PRASA may provide acceptable to good service delivery and sound financial performance under adequate institutional arrangements. Although it is a politically sensitive issue, the use of a share of fuel taxes to fund railway infrastructure is possible in emerging countries as Poland experience shows, and this fund can become an instrument able to issue bonds in the financial markets to finance railway projects.

4.3.2 Lessons for African railways from European Union experience in railways liberalization

Since financing of railways in Africa is often associated with a better institutional and governance framework, the European experience in railway reform provides some interesting lessons:

1. Government can circumvent the approval of a legal framework that neatly separates infrastructure, operation and regulations and railway incumbents unless there is a clear political will to push forward with liberalization and integration of national networks.
2. Partnership between railways and logistics and road transport operators have been successfully achieved in Europe. Some cases already exist in Africa as well. The strong synergies obtained seem to favour these approaches.

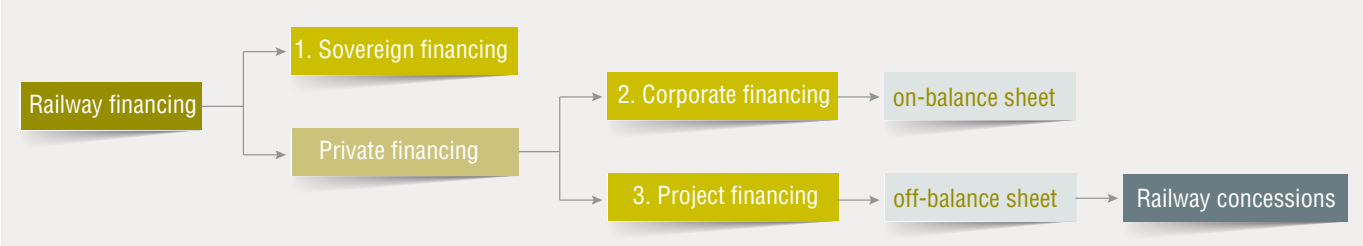
5. Typical rail infrastructure financing schemes

For a better understanding of how rail infrastructure schemes are built, this chapter reviews the main financing mechanisms available (public, private or partnerships), with a special focus on railway concessions. Examples for both greenfield and brownfield infrastructure projects are provided.

5.1 Railways financial resources and mechanisms

Similarly to other infrastructure projects, railway projects can be financed under three different mechanisms: sovereign financing, corporate financing and project financing; as shown in the figure below.

Figure 21 : Infrastructure financing mechanisms



Source : ALG

5.1.1 Sovereign financing for railways projects

Sovereign financing is the most commonly used funding solution for railway worldwide. A public sponsor (usually the Ministry of Finance or the Ministry of Transportation) borrows/guarantees the required loans for the railway project. Since the project promoter is a public body, the success of the project (or return on investment) is accounted based not only on the internal rate of return of the infrastructure but also on the social welfare generated for the country. This is the most common financing scheme in Africa.

In creditworthy countries, funds for railways are usually raised directly from the public treasury or from capital markets through multiple financial products, including railway infrastructure bonds. However, less developed countries with difficulties to access to capital markets usually have to rely on International Financial Institutions (IFIs) such as the World Bank or the African Development Bank to raise the required capital to undertake such projects at a lower interest rate. This is especially true for the SSA countries and only few of them have investment grade ratings and, hence, capital market debt is unaffordable at a reasonable cost.

However, IFIs have traditionally been reluctant to grant the entire loans needed for big infrastructure projects given that their core aim is not to act as a private investor but to act as a catalyst for the project development. As a consequence, their contribution is often limited to a certain percentage of the total credit required.

As a result, a substantial gap between the project financial needs and the loans available from the government and IFIs exists, preventing less developed countries from undertaking 100% of the infrastructure projects. This not a new issue for several African railways, which have had significant difficulties in covering their investment needs exclusively through public or multilateral funding. Further and extended information regarding IFIs and their action in the field of railways and Africa is provided in chapter 6.

5.1.2 Corporate financing for railways projects

An industrial sponsor (usually a railway-related private company) borrows the loans required for the railway project. Since the sponsor is a private company, the return on the investment will depend directly on the revenue generated by the project, which will be accounted for along with the rest of revenues of the firm. By using corporate financing, the sponsor guarantees the project loan with its own balance sheet (on-balance sheet financing), diluting

the project risk within the overall firm risk. In consequence, lenders' criteria are based on the overall creditworthiness of the firm rather than the standalone profitability of the project, resulting in a drop in the project's borrowing costs. Nevertheless, this type of financing often entails a high probability of risk contamination for the industrial sponsor, meaning that future loans may incorporate the risk added by the given railway project and consequently increase the cost of borrowing of the firm. This comes up in most of the concession arrangements worldwide but especially in Africa, where project risk is usually subject to additional risks such as highly fluctuating inflation rates, lack of country stability or market uncertainty, etc.

This financial mechanism is mostly used for especially dedicated railway lines, whose main (or only) user is the industrial sponsor as is the case of some branch lines connecting factories or mines to rail corridors.

5.1.3 Project finance and concessions for railways projects

In order to separate the project risks from their balance sheet, industrial sponsors may decide to create a legally and financially-independent project company (also known as special-purpose vehicle – SVP) which acts as a debtor for lenders in a way that their sole recourse in case of debt default is the balance sheet of the created company (off-balance sheet financing). This is, the Project finance mechanism.

As happens in any ordinary company, the capital structure of SVPs is made up of equity and debt in a variable distribution. The majority of Project Finance cases are usually funded under an 80-20 or 70-30 Debt-Equity ratio. As a consequence, the capitalisation of the SVPs is substantially lower than other financial mechanisms such as corporate finance. This instrument is widely known for being highly suitable for both public and industrial sponsors aiming at undertaking large and capital-intensive projects that require a high amount of upfront investment that will generate a revenue stream for a period of time. This is the case of most infrastructure investment deals governed under a PPP agreement.

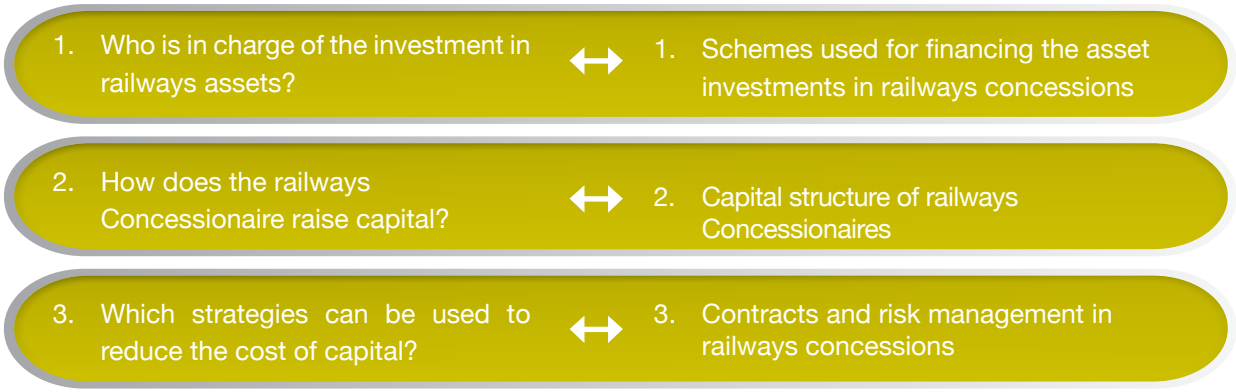
Railway concessions (including the Sub-Saharan Africa railway concessions) are clear examples of Project Finance where sponsors from multiple backgrounds constitute SVPs through which they are granted the right, for a period of time, to build and/or operate a certain rail infrastructure for freight and/or passenger services under specific conditions set by governments. The conditions of this agreement are set in the Concession Contract and the Contracts between the Concessionaire counterparties.

The next point presents the main financial aspects of railway concessions, as well as it mentions some features of the African railway concessions already reviewed in chapter 3.

5.2 Financial aspects of railways concessions

Three basic topics define the financial aspects of railway concessions:

Figure 22 : Financial aspects of railway concessions



Source : ALG

5.2.1 Schemes used to finance asset investment in railways concessions.

Financial investment in a railway concession is usually driven by two factors. Firstly, what is under concession? Rail infrastructure and/or rolling stock and maintenance (that is, the Railway Business model chosen, as shown in chapter 2). Secondly, what kind of railway project has to be undertaken? greenfield project (new infrastructure) or brownfield project (infrastructure renovation).

Depending on both conditions, the investment responsibility may lay upon the railway concessionaire or upon the public sponsor (usually the host government). The financial requirements and capital structure for the railway concessionaire (in terms of equity and debt) will be then set in accordance to the level of investment assumed by the concessionaire. Once the concession period expires, concession agreements normally establish the conditions regarding which assets must be returned to the host government and which pricing methodology will be used to calculate the payment for the returned assets.

In the case of brownfield investments assumed by the concessionaire, the criteria for the definition of what is considered railway maintenance or what is purely infrastructure investment (and thus the way it is treated on the railway concessionaire balance sheet) is sometimes an issue of conflict between host governments and concessionaires. Usually, railway asset investment has to be repaid at the end of the concession period, taking into consideration its depreciation.

5.2.2 Capital structure of railways concessionaires

5.2.2.1 Concessionaire equity

One of the main advantages of Project Finance in railway projects is that it gives the possibility of incorporating different stakeholders into the shareholding of the company in a way that means they share the risk of project. Railway concessionaires' shareholdings are generally made up of a consortium of one or more industrial sponsors such as industrial partners, transport companies and investors. Public sponsors, financial sponsors and contractors may also participate in the shareholding of the railway concessionaire. Since their backgrounds are completely different, their interests and goals may vary substantially, as is illustrated in the table below.

Table 27: Railways concessionaire shareholders

Shareholders	Interests and goals as Concessionaire shareholders	Possible railways concession shareholders
Industrial Sponsors	• Manage the Concessionaire activities • Share the investment risk • Obtain profits by way dividends or other distributions (mainly subsidies) • Benefit from possible synergies with other business activities of the firm (mining concessions, ports, logistic platforms…) • Provide services in its area of expertise to the Concessionaire (railway operations, logistic services, maintenance…), obtaining benefits from them: transportation fees or subsidies	• Integrated Logistic Chain companies • Mining companies • Oil companies • Railway Infrastructure managers • Railway operators • Other infrastructure managers

Public Sponsors	• Retain a relevant percentage of ownership of the infrastructure • Play an active role in the Concession management, ensuring the national interests and social welfare of its activities • Subsidise the Concessionaire activities while contributing to its capitalization • Monitor the concession performance	• Host governments: State, regional or local • Trans-border government consortiums • Regional institutions • International institutions • Railway national or supranational agencies • Other public bodies
Financial Sponsors	• Obtain profits by way of dividends or other distributions • Have control over key decisions of the Concessionaire • Monitor the concession performance • Strengthen the capital structure of the railway concessionaire	• IFIs and bilateral Agencies • Commercial banks • Private equity investors • Domestic investors • Infrastructure funds • Other private or institutional investors
Contractors	• Obtain benefits by providing services to the Concessionaire that cannot be fulfilled by the industrial sponsor, under specific contracts such as: - Engineering, Procurement and Construction (EPC) - Operation and Maintenance (O&M) - Supply and raw materials agreements (RMSAs) - Insurance policies	• Engineering and technical assistance companies • Construction companies • Railway operators • Equipment suppliers (rolling stock) • Rail Infrastructure maintenance companies • Others
Other stakeholders	• Interests closely related to the nature of each stakeholder	• Port Authorities, Chambers of Commerce, Railway staff, …

Source : ALG

In general, the return required by each of the main shareholders of the Concessionaire may depend, on the one hand, on the type and risk of the railway project to be undertaken, and on the other hand, on the interests and goals of each investor.

With regards to developing countries (including SSA), given the fact that the investment environment is still in its infancy, private companies may require high rates of return or high synergistic benefits such as the right to operate other infrastructures or natural resources.

5.2.2.2 Concessionaire debt

Railway Concessionaires' debt is usually made up of syndicated loans from different bank lenders, as happens in other infrastructure projects. The most common lenders include Commercial banks, Public lenders, International Financial Institutions and Bilateral Agencies (Development Agencies and Export Credit Agencies). They are shown in

Table 28 : Railways concessionaire lenders

Lenders	Interests and goals as Concessionaire lenders	Possible railway Concessionaire lenders
Commercial Banks	• Obtain benefits from the debt **interest rates** and fees • Sometimes, provide advisory services to the Concessionaire	• Purely commercial banks • Investment banks • Merchant banks • Private banking • Leasing companies
Public lenders	• Offer loans/grants to the Concessionaire at **an attractive interest rate** in order to facilitate the project development due to the strategic value for the country/region • **Monitor** the concession performance • Have a relevant role in the Concessionaire **key decisions**	• Host governments: State, regional or local • Regional institutions • International institutions • Railway national or supranational agencies • Other public bodies
International Financial Institutions	• Offer loans at an attractive interest rate for projects in countries **where commercial banks** and capital markets are **not willing to lend** at a reasonable cost • Ensure a **legal and regulatory framework** that encourages other private institutions to invest in /lend to the Concessionaire • Monitor the railway concession performance • Have a relevant role in the Concessionaire key decisions • Provide financial **assessment** to the Concessionaire • Provide **grants for the preliminary** phases of the project	• World Bank Group: • International Development Association (IDA) • International Finance Corporation (IFC) • International Bank for Reconstruction and Development (IBRD) • Regional Development Banks: • African Development Bank (AfDB) • Asian Development Bank (ADB) • European Investment Bank (EIB) • Islamic Development Bank (IDB)
Developmental Agencies	• Provide grants/loans at favourable rates of interest with aims linked to foreign economic policy or commercials promotion and **internationalisation of businesses** in the agency's home country	• Developmental agencies from most developed countries
Export Credit Agencies (ECAs)	• Provide political **risk coverage**, total coverage or loans **to exporting companies** operating in the ECA's home country at subsidised interest. • **Rolling stock financing** provided by the ECA's home country manufacturers	• Export Agencies from the OECD Consensus signer countries • Export Agencies from emerging countries

Source : ALG

5.2.3 Project bonds for infrastructure financing in Africa

Debt can also be raised through project bonds issuing, a financial mechanism widely used for infrastructure projects in most developed countries with access to capital markets. Project bond issuers are usually rated by the international rating agencies in the same way as other bond issuers. In the case of railways, the criteria used for this evaluation often considers the size of the company in revenue and passengers/volume transported; the market position, the operating environment; the cost position and profitability, including EBITDA margin; the capital structure and the cash flows and interest coverage. The availability of reliable financial statements and detailed operating data is a must for railway companies to issue project bonds.

Low private capital investment in African infrastructure is often attributed to the relative lack of maturity among African domestic financial markets and the lack or inconsistency of current legal frameworks.

There are encouraging signs that this situation is at a turning point in some African countries, which have begun to attract capital markets. In particular, 9 countries stand out for having better conditions for private investment through capital markets according to the African Financial Markets Initiative developed by the AfDB (Kenya, Uganda, Tanzania, Ghana, Nigeria, South Africa, Namibia, Botswana and Zambia).

In these countries, some utilities and parastatals have successfully issued bonds[2] to fund infrastructure in the water, energy, ICT and transport sector. Prior to issuing project bonds, these countries had focused on setting an appropriate financial environment to make project bonds an attractive mechanism for private partners.

The integration of market capital into project finance requires a strong legal framework and a stable macro environment to reduce interest rates and inflation, and to improve credit ratings in the global market. These measures are not expected to be achieved in the short term but are key in supporting a global strategy to open up infrastructure investments to private capital. As a first step in enlarging non-banking domestic funds, some African countries have regulated pension funds and encouraged their participation in infrastructure financing through tax incentives.

Regarding the railway sector, only Transnet, the South African railway public company, has been successful at issuing corporate bonds, with multiple issuances in recent years. It is worth pointing out that Transnet is easily one of the most developed railway companies in Africa, with a high level of corporatisation and transparency that enables capital markets to treat it as very reliable. The possibility of using bonds in other African countries remains open and is reviewed for the countries visited in Annex II, but it will be subject to the consolidation of both railway and financial sectors.

For purely bankable projects, obtaining the required debt at a reasonable cost may not represent an added constraint for the project development. Nevertheless, in the case of railway concession projects, several difficulties may arise since their bankability is not always clear cut, particularly if the Concessionaire assumes the infrastructure investment. This has proved especially true for Sub-Saharan African railways, where this issue represents a major restriction for their development since, as shown in chapter 3, they sometimes have serious difficulties achieving even positive EBITDAs through their operations alone.

5.2.4 Contracts and risk management in railways concessions

The success of any PPP initiative largely lies in the capacity of the project to raise both equity and debt at a low capital cost. As previously mentioned, this fact is closely linked to the risk perception that investors and lenders have of the railway project itself, including its ability to repay costs, debt service or dividends.

Thus, the identification and analysis of the project risks as well as the strategy chosen to mitigate them becomes an essential point of a PPP development. Of course, this also applies for railway concessions. In order to mitigate risk, railway concession sponsors may proceed as shown in Figure 23:

2 More details can be found in Structured Finance: Conditions for Infrastructure project bonds in African Markets, African Development Bank (2013)

Figure 23 : Risk management process in a railway concession

Source : ALG

Risk management is especially necessary in countries with a high investment uncertainty due to lack of economic stability or a solid regulatory and institutional framework that protects railway investment.

Table 29 : Risk mitigation provided by counterparties contracts

Risks	Description in a railways concession framework
Railway-related risks	
Rail infrastructure Construction	• **Construction or renovation** of the railway infrastructure may **not be completed properly**, delayed or simply not finished due to several factors, affecting the beginning of the railway operations.
Risk from railways operations	• **Unexpected underperformance** of railway operations due to technical issues or higher maintenance costs may lead to an increase in operating costs and thus affect the EBITDA of the Concessionaire.
Market risk	• Risk that revenue generated by the railway concessionaire is less than expected due to **overoptimistic traffic forecasts or underestimation of railways competitors** (i.e. road or inland waterway transportation).
Transversal risks	
Transversal risks are those than can be found in any project finance deal, including: **interest rate** risk, **exchange rate** risk, inflation rate risk, **environmental** risk, **regulatory** risk, **political** risk, **force majeure** risk, **legal** risk and **counterparty** risk. Some of these risks may be especially relevant in **developing countries** with a lack of economic and political stability, or exposed to adverse climate events (e.g. cyclones, floods…).	

Source : ALG

Finally, insurance products can provide railways Concessionaires with coverage for the part of the project risk that it has not been possible to externalise through the abovementioned counterparty contracts. Among the existing underwriters, multilateral insurers stand out by offering guarantees that cover a wide range of risks, which are rarely available on the market at reasonable cost, especially with respect to developing countries.
In the case of railways, multilateral insurances may be an essential protection tool since railways are often seen as strategic assets for the national interest and thus can be subject to expropriation (nationalisation), sabotage or even complete destruction during armed conflicts.

5.3 Conclusions and Recommendations

1. Including appropriate stakeholders in the concessionaire's shareholding improves project performance.

PPPs enable the public and private sectors to share risks and obligations. One way to reinforce the benefits of this mechanism is including the most appropriate stakeholders in the composition of the concessionaire's shareholding. Different types of projects may recommend the involvement of different kind of shareholders in the concession company. It is of the utmost importance that contracting authorities identify the type of partners most suited for each project.

2. Project bonds are an opportunity to finance railways projects in Africa but require more developed capital markets

Bond issuance for rail infrastructure financing requires highly-consolidated capital markets as well as the corporatisation of railway companies, in order to provide enough confidence for local and international investors.
At this stage, only few railway systems in Africa are in good position to become candidates for bond issuance in the short mid-term. The example of Transnet's bond issuances are a benchmark for the rest of railway systems. Details on market situation and PPP development for each of the countries reviewed in chapter 3 are provided in Annex II Investment environment of selected African countries.

6. Role of International Financial Institutions

The transport sector is acknowledged by International Financial Institutions as a key enabler of economic growth. IFIs participate in the development of transport infrastructure in Africa on such grounds. Their institutional mandate give them the adequate status to offer financing options for railway development at attractive prices in countries where such financing is not available at reasonable costs.

Whilst road transport has benefited from most IFIs finance in transport so far, African railways have attracted more attention from multilateral development banks in the last couple of decades. The World Bank and the African Development Bank are the most involved in the African railways and recent development of local railways has been greatly shaped by their vision of the sector, especially through the process of moving towards concessions.

Their contribution is not only based on loans and other financial products, but also on helping Government set up an adequate environment for rail sustainability. They have also committed themselves to monitoring the results of their action and to disseminate the conclusions of their work and best practices.

The European Investment Bank, the Asian Development Bank and the Inter-American Development Bank play similar roles in their respective regions. Focusing on each one of them in the following review will allow a better understanding of their vision and the tools they have developed to reach it.

Even though they are not included in this study because of their smaller contribution, bilateral agencies can also play a key role in railways development of emerging countries.

6.1 African Development Bank

6.1.1 Overview

The African Development Bank (AfDB) is Africa's premier development financial institution operating since 1964 to support economic development and social progress in African countries. The AfDB is one of the three institutions of the African Development Bank Group, along with the African Development Fund (ADF) and the Nigeria Trust Fund (NTF). The Bank accounts in its shareholding 53 African countries and 25 non-African countries.

The AfDB offers a wide variety of financial instruments to regional country members. Those that are most fitted to infrastructure financing are summarized in the following paragraphs. Financial products contributing to enhance the infrastructure development of Africa issues by the AfDB are:

- Loan products
- Guarantees
- Equity and quasi equity
- Risk management products
- Trade finance
- Special funds and technical assistance

6.1.2 Loan products

Loans offered by the AfDB Group to public and non-public borrowers. They include:

Table 30 : Types of loans offered by the AfDB

1. Sovereign Guaranteed Loans
Lending terms
• **Eligibility :** RMCs and public sector companies with a sovereign guarantee from Blend and ADB countries • **Maturity :** up to 20 years including a 5-year grace period • **Currency :** EUR, USD, ZAR, JPY • **Disbursement profile :** based on project need and pre-set conditions of loan agreement • **Repayment :** equal instalments, annuities, bullet, step-up or step-down amortization

Comments

Apart from the standard sovereign guaranteed loan, the AfDB offers a Fully Flexible Sovereign guaranteed loan to embed risk management features. Fully Flexible Loans introduce a maturity based pricing structure that gives more options to borrowers. In particular, it can increase maturity up to 25 years and grace period up to 8 years, entailing more risk capital to be locked in. A maturity premium is applied on longer loan maturities.

2. Non-Sovereign Guaranteed Loans

Lending terms

- **Eligibility :** Public Sector Companies of ADB and Blend countries without a sovereign guarantee and Private Sector Companies in all Regional Member Countries
- **Maturity :** up to 15 years including a 5-year grace period
- **Currency :** EUR, USD, ZAR, JPY and any lending currency approved by the Bank
- **Disbursement profile :** based on project need and pre-set conditions of loan agreement
- **Repayment :** equal instalments, annuities, bullet, step-up or step-down amortization

3. Nigeria Trust Fund Loans

Lending terms

- **Eligibility :** Regional Member Countries, for public and private sector projects. The loan ceiling for both public and private sector operations: $ 10m.
- **Maturity :** 3 options: long term (up to 27 years), short term (20 years) and 15 years for private sector.
- **Currency :** USD

Comments

The Nigeria Trust Fund was established in 1976 at the initiative of Nigeria, to provide concessional financing to the Bank's RMCs with particular focus on the poorest among them. NTF resources are provided in co-financing operations with ADB and ADF, as well as in standalone operations. Supplementary loans for Bank Group financed projects can also be considered.

4. Local Currency Loans

Lending terms

- **Eligibility :** Borrowers eligible to access AfDB window
- **Maturity and Grace Period :** Up to 15 years & up to 5 years grace period
- **Repayment :** Payment of equal instalments of principal after grace period Other principal repayments terms (annuities, bullet, step up/down) may be considered subject to project requirements / availability of hedging solutions
- **Funding methods :** Domestic bond issue, Synthetic Local Currency Loans (non-deliverable forwards or "NDF"), Cross currency swap
- **Currency :** The Bank currently has 10 approved African lending currencies: South African Rand, Egyptian Pounds, Uganda Shilling, Nigerian Naira, Kenya Shilling, Zambia Kwacha, Tanzania Shilling, Ghana Cedi, CEMAC region CFA and WAMU region CFA.

Comments

Local currency loans help reducing client foreign exchange risk and overall economic risk exposure. Funding via local currency loans can participate in promoting domestic capital market development.
The Bank has developed a cross currency swap funding that provides loans in countries where local capital market conditions are not conducive for local currency bond issuing but where market meets Cross Currency SWAP conditions.

5. Syndicated Loans
Lending terms
• Eligibility: Public Sector Companies without a sovereign guarantee and Private Sector Companies • Maturity: depends on the underlying project and participants' risk appetite • Currency: USD, EUR, JPY, ZAR • Disbursement profile: based on project need and pre-set conditions of loan agreement • Repayment: equal instalments, annuities, bullet, step-up or step-down amortization.
Comments
A syndicated loan is provided by a group of financial institutions / lenders (syndicate) and is structured, arranged, and administered by one or several Arranging financial institutions. The financing can be structure according to a parallel co-financing or to a A- and-B-loan structure. The latest solution extends the Bank's Preferred Creditor Status to commercial banks that co-invest in the transaction. In those loans, the Bank enjoys a Preferred Creditor Status (PCS) that help mitigating country risk by giving the Bank preferential access to foreign exchange in the event of a foreign exchange crisis. Furthermore, such status can be extended to participating banks in an A/ B-loan structure. To improve its transportation network, South African freight operator Transnet has benefitted from a syndicated loan. AfDB has participated with $ 400m along with Commercial lenders at a level of $ 200m.

Source : AfDB

6.1.3 Guarantees

The AfDB offers two types of Guarantees: Partial Risk Guarantee (PRG) and Partial Credit Guarantee (PRC). Their characteristics are summarized below:

Table 31 : Types of guarantees offered by the AfDB

1. Partial Risk Guarantee (PRG)
Risks Covered:
Currency Inconvertibility and Non-transferability : protects against losses arising from inability to convert local currency into foreign exchange within host country and transfer funds out of the host country **Expropriation, Confiscation, Nationalization and Deprivation :** Protects foreign investor against host government's interference with investor's fundamental ownership rights **Political Force Majeure Risks and Breach of Contract**
Comments
A PRG is a financial guarantee, which covers debt service defaults on commercial debt, normally for a private sector project, when such defaults are caused by a government, or government owned entity's failure to meet its specified contractual obligations to the project.

2. Partial Credit Guarantee (PCG)
Comments
A PCG covers "part" of debt service defaults regardless the cause of default. PCG supports the borrowing of the government or public sector entities in investment operations. Beneficiaries are commercial financiers lending to African States and non-sovereign entities (public and private).
Since very recently, Partial Credit Guarantees are also available to ADF countries providing they have low or moderate risk of debt distress and adequate debt management capacity.

Source : ALG

Guarantees from AfDB play a key role in reducing risk and overall cost of project's credit. They become an essential tool for infrastructure financing in Africa, since it enables both private and public sector to obtain larger financial packages under lower interest rates. A summary of the main benefits of such solution is provided below.

Table 32 : Main benefits of Guarantees according to the AfDB

1. Mitigate political risk
In the case of PRGs, significant leveraging by backstopping government's commitments and obligations to projects, thus addressing a major constraint to attracting private investments in high–risk countries with critical investment needs
In the case of both PRGs and PCGs, provides comfort to investors and debt providers for risks that are beyond their control and that might otherwise be unwilling to assume
2. Mobilize private investments
Both the PCG and PRG help governments attract private financing to projects in infrastructure and other sectors The PCG, for example directly supports the borrowing of the government or public sector entities in investment operations
Avail greater amount of capital, enabling governments to share risks/financing with the private sector
3. Enhance projects' financial feasibility
Improve commercial borrowing terms to meet the requirements of infrastructure , other development operations and public / private projects
4. Flexibility in structure
Bank guarantees can be structured flexibly to meet clients' financing needs (local currency guarantee)
Operational policy on guarantees provides flexibility in structuring guarantee operations to fit specific client needs and project circumstances, which substantially enhances the applicability of Bank guarantees beyond traditional loan. In the case of the PRG for example, innovative structures are employed: Letter of credit (L/C) structure and "Deemed Loan" structure
5. Stimulate policy dialogue
Provides opportunity for Bank to incentivize dialogue with governments about how to reinforce their investment climate
Reduces risk of default and attracts private financing
Bank's strong relationship with governments and direct involvement in projects can mitigate risks of default on non-guaranteed portion of financing

Source : AfDB

6.1.4 Equity and quasi equity

Equity and quasi equity aim at promoting the emergence of a dynamic private sector in participating countries. Through equity and quasi equity, the Bank takes an ownership stake in the business and by doing so accepts part of the business risks. Unlike loans, the Bank does not expect a fixed payback but returns through dividends and sale of shares.

Equity and quasi-equity investments allow the bank to promote the emergence of a dynamic private sector. It gives the Bank a catalytic role in drawing financial sources from other investors and lenders. Investments in equity are either performed directly or indirectly through appropriate funds, other investment vehicles or quasi-equity (subordinated, mezzanine, convertible loans, etc.). It is eligible to financially viable companies and financial intermediaries, as well as to public sector companies in the process of being privatized and sub-regional institutions / companies.

The Bank mainly invests in infrastructure funds to diversify equity investments, target specific regions and industries, and to reduce transaction costs. The African50 fund is one of the AfDB's vehicles for equity investment and is covered in more detail on the next page.

6.1.5 Risk management products

The AfDB's portfolio of financial products include usual Risk Management Products (RMPs) to allow clients to transform financial risk characteristics of their obligation under a loan or other instrument without renegotiation or amending the terms of the original instrument. RMPs enable clients to hedge their exposure to market risks, including interest rate, currency exchange and commodity price, as previously mentioned in 5.2.3. Four products are available from the Bank: interest rate swap, cross currency swap, commodity swap, and caps and collars.

6.1.6 Trade finance

In early 2013, the Bank developed a specific $ 1bn program to be run over a four year period to support trade finance in Africa. Understanding the capital importance of trade finance in the development of African economies in a global context, the program aims to assist development of trade finance. In particular, it address the scarcity of affordable trade finance and the lingering effects of the global financial crisis resulting in reduction of liquidity and risk appetite of financial institutions. The Bank trade finance products include Risk Participation Agreement, Trade Finance Lines of Credit, and Soft Commodity Finance Facility.

6.1.7 Special funds and technical assistance

The Bank is responsible for managing a diversity of special funds to achieve specific goals. Apart from providing financial products, the AfDB provide grants to fund technical assistance to borrowers.

The goals of such funds are raising the effectiveness in project preparation as well as fostering and sustaining RMC efforts in creating a business environment that enable private sector investment and growth. Technical Assistance focuses on capacity building / training of government officials in project design, preparation and analysis. Some special fund examples are listed below:

Table 33 : Special funds offered by the AfDB

1. Fund for African Private sector Assistance
Created in 2006, the Fund for African Private sector Assistance (FAPA) is a joint initiative between the Government of Japan and the AfDB. It is now a multi-donor facility. The FAPA provides untied grants for studies, technical assistance and capacity building for private sector projects and African institutions. It takes part of a larger strategy of the Bank to promote private sector development in Africa. Beneficiaries include Regional Economic Communities, Business Associations, Market Regulatory Bodies, Business training and research institutions as well as public and private enterprise. This fund stands out for being one of the most relevant mechanisms for enhancing private participation in infrastructure development in Africa.

2. Climate Change Mitigation and Adaptation
The AfDB host 2 instruments: Sustainable Energy Fund for Africa (SEFA) and African Carbon Support Program (ASCP). It also participates in other external funds: Climate Investment Funds (CIF) – of USD 7.6 billion, AfDB committed to channel USD 1 billion to Africa out of sub-funds Clean Technology Fund (CTF); Strategic Climate Fund (SCF), among others; and Global Environment Facility – AfDB is the implementing agency for Africa
3. African Legal Support Facility
Came into force in December 2008, after signatory by 29 member countries and 1 international organization. Its main goals are: Alleviate Deficiency in capacity of Regional Member Countries to (i) negotiate complex commercial contracts, and (ii) prevents erosion of debt sustainability through vulture fund litigations. USD 400,000 agreement with the Gambia to provide legal assistance in the negotiation of IPPs
4. Middle Income Countries Trust Fund
Set up in 2001 by the ADB and funded out of net income demonstrating the Bank Group's commitment to enhance the quality, development effectiveness, volume of its operations in MICs. Among its priority areas, the MIC Trust fund focuses in Project preparation; technical assistance/capacity and institutional building; analytical work, regional integration, regional economic communities.

Source : AfDB

6.1.8 A new player for the African infrastructure financing: The Africa50 fund

The African Development Bank has recently launched an initiative to increase the delivery of infrastructure projects across the African continent, the Africa50 Infrastructure vehicle. This new vehicle has its origin in the Declaration of the African Heads of States on the PIDA program, where they called for innovative solutions to facilitate and accelerate infrastructure delivery in Africa.

Africa50 aims to mobilise private financing in the energy, transport (including railway), ICT and water sectors. In order to accomplish this goal, Africa50 will focus its action on two main business segments: Project Development and Project Finance.

The fund will be awarded with an investment grade rating of Single A, and is expected to need an equity investment of $10 billion in order to attract $100 billion, mainly from investors including African countries, the AfDB and other major IFIs and institutional investors.

The role of Africa50 in the railway sector

As has been repeatedly mentioned in this document, railways are currently one of the infrastructure assets with the greatest financial and investment gaps in Africa. Within this context, the Africa50 fund has already stated its intention to become a game-changer for the railway sector by providing its solid technical and financial expertise in parallel with the different financial products to be issued by the fund in the upcoming years. The main goal of the fund will be to act as a catalyst to attract other investors and lenders willing to contribute to the development of the railway sector in Africa. To do so, the fund envisages different strategies, mainly for high-impact projects at national and regional level:

- Africa50 may provide financial and technical assistance to both governments and private companies in the project preparation of railway projects in order to ensure that these projects are going to be sustainable in the long-term. Contributions from the fund would begin at the very early stages of the project, the feasibility and the development stages, the most critical points for the success and the bankability of any rail project.
- Africa50 is willing to actively participate in the financing of other phases of the project, such as the engineering and construction of railway projects, since they currently represent the higher risk for investors. By doing so, the fund aims to provide a more favourable environment for all the stakeholders, investors and lenders and consequently to reduce the cost of capital of the project.

- The fund is also examining alternative models for the evaluation of the social and environmental costs of railways and the positive effects that they may have on African countries. These models have the objective of reinforcing the commitment of governments to the development of railways and therefore reducing the risk of investment shortage from the public sector.
- Equity in railway concessions may be included within the asset portfolio of the fund. This would enable other shareholders to increase their confidence in railway companies and may also ensure better monitoring of the operations and performance of African railway systems.
- New risk mitigation mechanisms may be developed for both private companies and governments, mainly concerning the protection of off-take agreements and the insurance against force majeure events.

The Africa50 fund is already working in the development of new railway projects and is expected to increase its activity by the time it consolidates as a benchmark for new infrastructure projects in Africa.

6.2 World Bank

6.2.1 Overview

The World Bank (WB) is an international financial institution associated with the United Nations. It officially promotes the reduction of poverty around the world by providing technical and financial solutions to both public and private markets. It has a market-oriented approach in its mission by adopting a global vision, encouraging foreign investment and international trade. It has been operating since 1944.
The WB is composed of four main institutions: the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA). The first primarily provides loans and advice to middle-income and credit-worthy poor countries, and operates as a self-sustaining lending arm, while the second is dedicated to providing loans and grants for the 82 poorest countries, 40 of which are in Africa. IFC provides loans, grants and assistance to private sector led projects and MIGA provides multilateral guarantees that will be further explained.

6.2.2 Portfolio of products

The main function of the WB in its mission is to offer financing products to sovereign governments or for sovereign-guaranteed projects in developing countries. Such products include low-interest loans, interest-free credits, and grants to developing countries, supporting a wide array of investments including infrastructure. To increase the solidity of such loans and increase investments, many supported projects are co-financed by governments, other multilateral institutions, commercial banks, export credit agencies, and private sector investors. Debt and equity financing for private enterprise can in some cases be offered, but WB's strategy in the private market lies mainly in indirect impacts in terms of development associated with the projects it participates in.
Faced with high interest rates on the private market or the simple impossibility of contracting a loan given the high risk environment perceived by private investors, developing countries can also seek for risk insurances. The WB Group offers such solution mainly through its Multilateral Investment Guarantee Agency (MIGA) addressed to IDA countries and Partial Risk Guarantee for IBRD eligible countries. The main difference between IRBD's PRG and a MIGA guarantee is related to counter-guarantees. IRBD requires a counter-guarantee from the host government, and only insures debt instruments (loans, bonds…) while MIGA can also cover equity and only requires the host country approval.

6.2.3 WB activities in SSA

The WB accounted for 41% of total multilateral funding for infrastructure projects in Africa in 2012, with total commitments of $ 4.4b (ICA 2012, Infrastructure financing trends in Africa). The WB is noticeable for its fast growing infrastructure portfolio, multiplying by 10 its commitment in 2010-2013. The WB has been actively involved in promoting railway reform in developing countries through the PPIAF and it has published a series of reports and toolkits to help countries to improve railway performance and reforms. A set of recent publications is listed below:

- SSATP (2003); Railways concessioning toolkit – application to African network.
- AFTTR (2006); Sub-Saharan Africa: Review of selected railway concessions.
- AICD (2009); Off-track: Sub-Saharan African Railways.

- PPIAF (2011); Railway Reform: Toolkit for Improving Rail Sector Performance.
- SSATP (2013); Rail transport: Framework for improving railway performance in SSA.

The WB has directly assisted many of the railway concessions implemented in SSA from the late 90's or, where not, the Bank's documents and guidelines have been a major source of inspiration.

The WB has enabled governments to secure low debt financing terms in concession contracts. This is the case of the Sitarail concession, where up to 89.6% of private operator financing has come from governments' sovereign debt issued by the WB and other IFIs. Since 1996, more than $1b has been invested by the WBG (through IDA and IFC) to support concessions and private operators in African rail transport.

6.3 Asian Development Bank

6.3.1 Overview

The Asian Development Bank is an international development finance institution founded in 1966 providing assistance, mostly to the public sector, through loans, technical assistance, grants, guarantees, equity investments and policy dialogues. It also manages various infrastructure funds.

6.3.2 Approach to the railways sector

With the exception of China and to a lesser degree India, rail transport in Asia has experienced a general decline in market share in recent years in favour of road transport, a pattern that is also common to SSA countries. The Asian Development Bank (ADB) has allocated 75% of its transport lending programme in the 1970-2009 period to roads, followed by only 15% to railways.

Major concerns in terms of sustainability and safety encouraged ADB to develop the Sustainable Transport Initiative (STI), which by 2020 will significantly reduce ADB's participation in road infrastructure to the benefit of urban transport and railway. Given Asia's need for investment in railway infrastructure (limited traffic capacity and ageing network), ADB emphasizes the opportunity that PPP offers in its railway strategy, thus also complying with its 2020 objective to raise to 50% annual operations supporting private sector development.

Such focus on PPPs has led to the publication in 2006 of the Best practices for private sector investment in railways report. ADB considers PPPs as an innovative tool to face both Asian demand for railway infrastructure and the adaption of the role of the states in changing economic environments.

ADB's role in Asian railway development amounts to $544m per year in the 2010 – 2012 period, through technical assistance and loans. The STI encourages competitive long distance railways by providing additional technical assistance in policy making, public transport participation, logistics and emission measurements. ADB offers financing options to such projects provided they comply with national strategic plans and sustainable orientations. Recent strategy also emphasizes the potential of Climate Change Funds mobilization for railway projects, with ADB offering advice in the contracting of these financing solutions. In addition, ADB has provided strong guarantees for that market, and so has helped to raise the required investments and solve possible disputes between governments and private operators.

In its strategy report[3], ADB underlines the importance of building a special fund to finance infrastructure projects in Asia. Although the region's large domestic savings appear to be sufficient to finance infrastructure projects, such savings are usually not within governmental reach. The capital of an Asian Infrastructure Fund made from a variety of sources, including governments and bilateral agencies, can help in filling the gap by raising money for railways. At present, such a fund is still to be developed.

In the past years, mainly China, India, Bangladesh and Uzbekistan have benefited from ADB loans to railway projects. ADB's recent support to railway development has focused on sustainability and PPP. Cambodia's railway rehabilitation provides an interesting example, with a $ 57m loan granted, in addition to technical expertise to assess involuntary resettlement involved. The restructuring, aiming at improving transport efficiency, complied with ADB policies by awarding a 33 year concession under a PPP arrangement. The outcome is currently positive with the opening of the Southern Line in December 2012, enabling 393,000 tonnes of freight in the first full year of operation in 2013, which played a major role in the 85% increase in rice exports from the connected port of Sihanoukville.

3 Mid-term review of strategy 2020, Asian Development Bank (2014)

6.4 European Investment Bank

6.4.1 Overview

The EIB is a piece of the European Union institutions and its activities around the world reflect EU external priorities. Thus it is active mainly in the pre-accession countries, in eastern and southern EU neighbours as well as in African, Caribbean and Pacific countries (ACP), Asia and Latin America. The bank focusses on supporting local private sector development, social and economic infrastructure and climate action projects.

The EIB provides direct loans to public sector bodies and private companies in projects that typically cost over EUR 25m. Small and medium-scale projects are financed through local partner banks. The Bank never lends more than half the total project cost and rather aims to be catalyst drawing in other financing from other public international financial institutions, the European Commission and private investors. The EIB has recently developed the concept of "blending" which involves combining traditional finance with innovative financial instruments as well as other sources of investment and grants.

The EIB is financially autonomous raising the bulk of its lending resources from the international capital markets through bond issues. Its capital base is currently EUR 242bn. The EIB Group consists of the EIB and the European Investment Fund (EIF), which provides risk finance to private sector, with a particular focus on SMEs. The EIF is not active outside Europe.

6.4.2 Portfolio of products

Lending is the EIB's principal activity, accounting for around 90% of its total financial commitment. A summary of the financial instruments in its portfolio is listed in the following page:

Table 34 : EIB's main financial instruments

EIB's main financial instruments	
Project loans for large developments in excess of EUR 25m	**Green-tech demonstration (NER300) :** A funding programme for carbon capture and storage demonstration projects and innovative renewable energy technologies support.
Intermediated loans made via local banks.	**Risk-sharing** for complex, long term research, development and innovation projects (RSFF)
Structured finance	**Infrastructure project** advice for new EU members (JASPERS)
Guarantees	**Urban development** technical assistance (JESSICA).
Project bonds. The Project Bond Initiative, which is still in pilot phase, will be further explained below.	**Transport infrastructure** cash-flow guarantees (LGTT): They are further explained below.
Equity & fund investment	**Public-private partnership Expertise Centre (EPEC)**. Makes its members available to share experience and discuss best practice. It is limited to public sector members so as to ensure a free and open exchange of information.
Venture capital	**Flexible SME funding** (JEREMIE). Provides small and medium-sized enterprises with finance and financial engineering products
Microfinance	**Sustainable energy** (ELENA). Support to local authorities to implement large energy efficiency and renewable projects

Source: EIB

Two of the instruments provided by the EIB merit further explanation for its interest regarding this study: The Project Bond Initiative and the Guarantees for transport infrastructure cash-flow (LGTT).

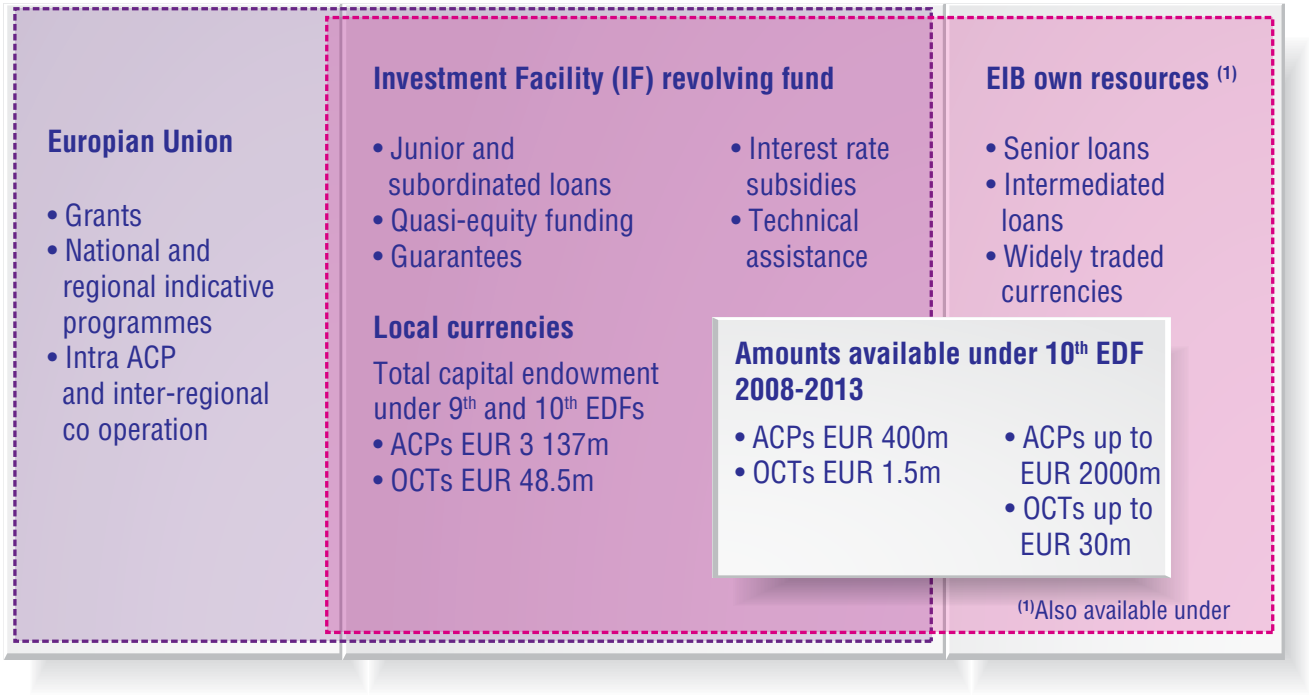
6.4.3 EIB activities in SSA

About 90% EIB lending is attributed to promoters in the EU countries. Outside the Union, EIB lending is governed by a series of mandates in support of EU development and cooperation policies in partner countries, which currently cover most of the World.

The most interesting for this study are the Facility for Euro-Mediterranean Investment and Partnership (FEMIP) and the Africa, Caribbean and Pacific (ACP)/Overseas Countries and Territories (OCT) Investment Facility. The ACP/OCT activities are further explained.

The EIB operations in the ACP/OCT countries are carried out under the ACP-EC Partnership Agreement (the "Cotonou Agreement", 2000-2020), and the Overseas Association Decision (2000-2013). Financing under these agreements is provided from the European Development Fund (EDF), EU Member States' budgets, and EIB own resources, which the Bank borrows on the international capital markets. The Bank is entrusted with the management of the Investment Facility, a revolving fund that meets the financing needs of investment projects in the regions with a broad range of flexible risk-bearing instruments. To support the preparation and implementation of the projects it finances, the EIB is also able to provide grants in the form of interest rate subsidies and technical assistance to its borrowers and final beneficiaries.

Figure 24 : Diagram of funds managed by the EIB under the Cotonou Partnership Agreement & Overseas Association Decision



Source : EIB

The Investment Facility constitutes a "blending" instrument in itself, which, through its risk-bearing nature, acts as a catalyst for funding from other investors for projects in ACP countries. For infrastructure projects with a regional dimension in sub-Saharan Africa, the EIB also combines its loan finance with grant funding from the EU-Africa Infrastructure Trust Fund (ITF).

The ITF was launched in 2007 to finance infrastructure programmes to facilitate interconnectivity and regional integration on the African continent. It aims to support synergies between European development agencies for the benefit of Africa, leveraging additional funds by combining grants from the European Commission and EU Member-States with long-term loan finance made available

by eligible Financiers. The EIB and EU development finance institutions, as well as the African Development Bank provide technical and lending capacity to the EU-Africa ITF.

Since 2003, the IF has invested EUR 3.4bn in the ACP/OCT regions in projects costing a total of EUR 18bn. Nevertheless EIB involvement in railways projects in Africa has been very small in the same period. Almost the only experience has been in the Beira corridor project and even here the Bank's lending was to the port component of the project. Before 2003, the EIB had also been involved in Cameroon Railway concession. This is in sharp contrast with its portfolio within the EU where it is very active financing railways, especially those on corridors prioritised by Union under the TEN-T Schemes.

6.5 Inter-American Development Bank (IDB)

6.5.1 Overview

The IDB was established in 1959 and is the leading source of development financing for Latin America and the Caribbean. Its shareholders are 48 member countries, including 26 Latin American and Caribbean borrowing members, who have a majority ownership of the IDB. The IDB also manages specialised trust funds from several donors. The IDB lends to national, provincial, state and municipal governments as well as to private sector companies. Civil society organizations are also eligible for IDB financing.

6.5.2 Financial instruments

The IDB provides the standard finance products and assistance common in most development banks: loans (including concessional lending), grants, guarantees, equity investments, technical cooperation, financing solutions, and access to funds under its administration. One of its characteristics is that it is rather active producing research and publications on a wide range of development issues.

The Bank's lending and its grants to member countries are funded from four sources: member countries' subscriptions and contributions, borrowing from capital markets, equity accumulated since the Bank's inception, and co-financing ventures. These resources are available to borrowers via the Bank's Ordinary Capital (OC), the Fund for Special Operations (FSO) aimed at less favoured countries, the IDB Grant Facility (GRF), the Intermediary Financing Facility (IFF) and various trust funds, established by individual countries or groups of countries. The IDB offers three types of loans to the public sector:

Table 35 : Types of loans offered by the IDB

1. Investment loans	
Loans for specific projects	**Innovation Loans (ILs) :** Loans support the testing and piloting of new approaches and emphasize capacity-building and learning.
Loans for Multiple Works Programs	**Multiphase Loans (MLs) :** These loans expand the Bank's ability to provide continuous support for programmes that require more time to achieve fruition, encompassing more than one project cycle, and to forge a sustained and systemic effort in a particular area or sector.
Global Credit Loans : Loans granted to intermediary financial institutions or similar agencies in the borrowing countries to enable them to on-lend to end-borrowers (sub-borrowers) for the financing of multi-sector projects.	**Sector Facilities:** Loans that help support rapid and tangible action in specific sectors without the delays associated with a long preparation period. There are six sector facilities: health, education, trade, institutional development, disaster prevention and transnational infrastructure.

Time-Slice Operations : Loans in which the investment programme for a sector or sub-sector is adjusted from time to time, within general criteria and overall objectives that the Bank and the borrower agree upon in advance.

Sector Wide Approach (SWAp) : An approach in which all development partners involved in a sector collaborate to support a single government-led sector policy and expenditure programme, adopting common approaches across the sector, and progressing towards relying on government procedures to disburse and account for all funds.

Performance Driven Loans (PDL) : Investment loans that disburse once the project or programme's actual developmental results or outcomes are achieved, and the Bank has verified the expenditures incurred by the Borrower to reach the outcomes.

2. Policy-based loans

These provide flexible support for institutional and policy reforms at sector or sub-sector level, through fast-disbursing funds. At the request of the borrower, a sector adjustment loan may include an investment component, in which case it becomes a Hybrid Loan.

3. Emergency Loans

Loans to support national, regional or municipal institutions facing financial or economic crisis can be provided if a macroeconomic stabilization program has been established. In the case of natural or other disasters, dedicated loans give access to financial resources to help covering immediate expenses for recovering basic facilities.

Source : IDB

6.5.3 Investment

The IDB does not make direct equity investments itself, but the Multilateral Investment Fund (MIF) and the Inter-American Investment Corporation (IIC), both members of the IDB Group, do invest in private businesses. The MIF invests in equity funds and microfinance institutions that in turn, provide assistance to micro and small businesses. The IIC is a multilateral investment institution that is an independent affiliate of the IDB Group. It invests in small and medium-size private projects, either directly or through equity funds. The IIC makes equity investments of up to 33 per cent of a company's capital. It does not take on managerial or administrative roles in the companies in which it invests, but it may request representation on the board of directors.

6.5.4 Strategies for IDB involvement in railways

IDB has been active in the railway sector both at urban level (metro and suburban rail) as well as in long distance railways both for passenger and freight. Although the Bank has no written policy on railways, a recent publication sponsored by the IBD may give a glimpse into the challenges and opportunities for railway financing in Latin America. According to the IDB, the recommended medium and long term strategy for Latin America is to work proactively in the freight and urban and suburban passenger markets and not prioritises involvement in the passenger intercity market, as the following table[4] shows.

4 Jorge Kohon: "Más y mejores trenes. Cambiando la matriz de transporte en América Latina y el Caribe". IDB Technical notes. October 2011

Table 36 : Recommendations regarding the railway in Latin America

1. Freight recommendations
Promote intermodality and widespread use of intermodal freight units. To consolidate demand using intermodality and the widespread use of containers and other intermodal freight units. It is acknowledged that the shift to intermodality is a challenge too big for railway companies and that it requires the support of governments in the framework of trade logistics schemes.
A leading role of Governments in infrastructure funding It is acknowledged that most concessions made so far have not achieved the ultimate challenge of upgrading pre-existing infrastructure to acceptable levels of performance. The larger and unresolved task for most Latin American railways requires structural improvements, higher axle loads, bridges and tunnels, improvements in gradients and bends and implementation or restoration of international connections. Despite the potential of PPPs where a balanced allocation of public and private benefits could be found, it is understood that at this stage the largest share of funding should come from public budgets.
Widen the financing sources for infrastructure and for rolling stock as well. Railway companies are sometimes too small and too weak to obtain private finance. Moreover, private banks are usually unfamiliar with the railways industry and offer only short term finance or require guarantees that are difficult to provide by operators.
2. Urban and suburban passengers
Further explore the opportunities of railways to provide cost-efficient mass transit systems in major cities Demand for railways will be further increased where fare integration systems as a result of comprehensive public transport schemes are implemented. Nevertheless side-effects of fare integration on the revenue of the different transportation providers have to be assessed cautiously as well as impacts on Government budgets as a result of subsidization
Positive externalities of railways in major cities cannot be appropriated from fares Hence the need to set public subsidies. Nevertheless some mechanisms to mitigate the need for contributions to sustain public railways can be explored such as real estate developments, taxation, PPPs and carbon bonds, as some cities in North and Latin America have shown.
The development of urban rail systems requires strong support from national governments and to lesser extent local ones.
3. Long distance passengers
Long distance passenger services require high demand to make them viable in social, economic and financial terms The population density of the countries of Latin America is, in general, many times lower than in European or Asian countries and therefore they usually do not generate the highly concentrated demands required to provide the number of frequencies adequate to make rail services feasible. From a socio-economic perspective, only the existence of severe bottlenecks or congestion on alternative roads would bring some positive externalities that could make a long-distance rail service socially profitable.

Source : IDB

The report also underlines the need to invest in more human resources training in the railway sector, one of the major challenges in SSA.

6.6 Conclusions and recommendations

1. IFIs are decisive contributors of railway financing in developing countries

The active involvement of IFIs in the last decades has had a deep impact in the development of railways worldwide. IFIs have assisted and monitored the railway reforms that have taken place in most of the developing countries where limited expertise and access to capital markets were hindering the implementation of railway projects. With this aim, they have supported local governments and railway actors in their transition towards PPP approaches to improve railway financing and operations.

Thanks to their expertise as well as their wide range of financial products, IFIs are in the best position to assist developing countries as those in Africa in setting up a viable model for their railways.

2. A large diversity of their products may be useful to support railway development

A wide spectrum of products can be useful to support railway development, from risk management products to loans. Multilateral guarantees and political risk insurance are essential to enable private participation in countries without stable macro-economic environment or with political instabilities. Those instabilities are said to be the main cause for the low private participation in the African market.

As explained in chapter 5, off take agreements secured by IFIs may play an active role in further reducing risk from both the private and public side. Offering loans to both sovereign governments and private entities contributes to the financing of the sector at low rates. Additionally, investment in equity may also encourage additional private participation.

In conclusion, most multilateral banks seem to have a wide range of financial instruments that can be useful in railway finance. Thus, improving railway finance is not a matter of creating new particular financial instruments but to develop a new policy approac

3. Action from other regional IFIs may serve as a reference for future development in the African region

In other regions, IFIs have gained significant experience in railway development, which could serve as the benchmark in the African continent. Experiences from other regions rich in resources and with low density such as Latin America should be closely watched, in particular the view that IDB will work proactively in the freight and urban passenger markets but not inter-city rail. This maybe an appropriate model for IFI's in Africa.

In Asia, the Asian Development Bank is already adopting a cross-cutting vision of transportation through its Sustainable Transport Initiative. The plan integrates sustainable development issues, which are also critical arguments in Africa's case, and offer a comprehensive set of criteria for transportation choices.

4. Specially-dedicated units for railway development may provide further assistance to countries

In their desire to develop railways, emerging countries may encounter difficulty in finding sufficient managerial or technical skills to conduct reforms in the long term. IFIs can support these countries by providing technical and reform expertise.

To make sure such expertise is available, the creation of a dedicated railway unit among the IFIs would be highly instrumental. Building such type of units has proven successful in other parts of the world, such as, for example, the TEN-T office in the European Union

7. Rail infrastructure financing policy options

This chapter summarises a list of lessons learned from previous African railways experience over the last twenty years. They have been grouped into three areas of improvement:

1. **Project identification and selection**
2. **Railways finance**
3. **Institutional framework**

These lessons have implications both at national and at multilateral financial institutions level, particularly regarding the AFDB. The Bank seeks to play a leading role in the finance of infrastructure in Africa.

To address the issues raised, some policy options have been proposed. Some of them aim at addressing one of the issues, while others are rather more transversal. They cover various issues. Twelve policy options are proposed as the result of the research and assessment made for this study. Some of them are addressed at national level (i.e. individual governments) and some are addressed to the most active IFIs regarding infrastructure financing in Africa. Policy options are explained in the boxes, and the policy is briefly described along with the expected results.

It should be stressed that this is not an exhaustive list of measures for improvement, since many more have already been written in the abundant literature on the matter that already exists.

We recommend that new approaches in several fields are experienced, since the current practice has proved disappointing in many ways. It would be wise to start with pilot actions so as to check that they actually improve the existing situation.

Areas of improvement		Lessons learned	Policy options
1. PROJECT IDENTIFICATION AND SELECTION	1	Railway financing should prioritise projects that focus on identified markets generating high volumes (7.1.1)	1. Introduce a new systematic approach to railway projects identification and preparation 2. Include railway financing as part of a broad sustainable transport policy
	2	Freight railway projects should take into account the whole logistics chain (7.1.2)	
2. RAILWAYS FINANCE	3	A new approach to passenger services is required (7.2.1)	3. Establish clear and stable commercial agreements for passenger service 4. Set up Railway infrastructure maintenance funds 5. Larger financial packages and long term involvement is required 6. Develop monetisation methodologies for social, economic and environmental benefits derived from railways 7. Adapt finance solutions to different railway business models 8. Explore alternative PPP approaches including separation of infrastructure and operations
	4	A systematic approach to maintenance is mandatory as the cornerstone of railway performance (7.2.2)	
	5	Insufficient funds and financial commitment to concessions (7.2.3)	
	6	Railways' economic, social and environmental contributions should be monetised (7.2.4)	
	7	New approaches to railway concessions should be explored (7.2.5)	
3. INSTITUTIONAL FRAMEWORK	8	Enhanced technical and business capabilities should be encouraged (7.3.1)	9. Promote capacity building and training centres to increase railway know-how among all levels of decision and operations 10. Improve regulation and monitoring bodies 11. Co-ordinate acquisition rolling stock and maintenance and alignment of operating procedures among African countries 12. Set up a task force for African railways
	9	Railway industry should be corporatized and regulated (7.3.2)	
	10	Larger railway markets in Africa should be promoted through increased cross-border cooperation (7.3.3)	

7.1 Project identification and selection

7.1.1 Railways financing should prioritise projects that focus on identified markets generating high volumes

Railway is a mode of transport mostly appropriate to move high volumes over long distances. When identifying and assessing projects, railways will only make economic sense where high volumes are found, and thus the development of rail infrastructure must be linked to the presence of such volumes, which are typically found in the following areas:

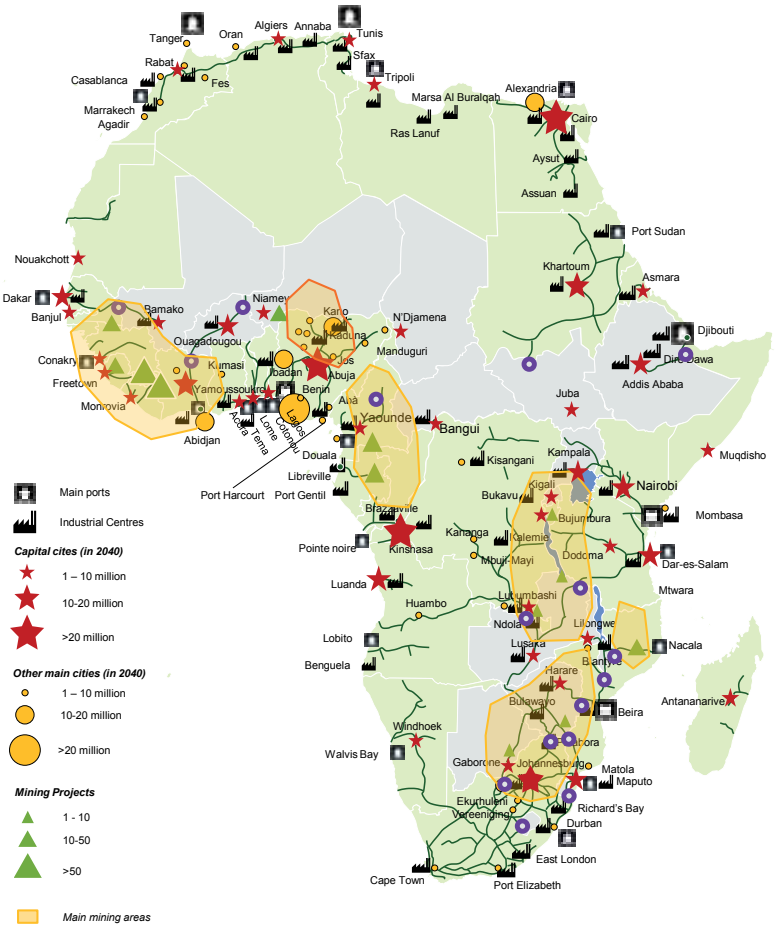
- Large mines and mining areas
- Major ports and intermodal corridors
- Major metropolitan areas and high population-density areas

Most African countries cannot afford to build or sustain expensive railways that exist in some wealthier places in the world. Moreover, further failures in African railways may irreversibly discourage mainstream investors and operators and definitively leave the field attractive only to opportunistic and niche players **(see Policy option 1 and 2).**

The figure on the right hand, which combines the location of major metropolitan areas, major new mining basins and major ports provide an approximation to the areas with the highest potential for railway projects. This figure can also be found in higher resolution at the end of chapter 1.

Mining railways are more likely to attract private investment since an already identified customer will typically grant volumes. Intermodal railways linking ports to inland hinterlands involve higher commercial risks and in these circumstances private investment is unlikely without some government support.

Figure 25 : Areas with potential to host new railways projects



Source : ALG

Finally, passenger services in metropolitan areas will most likely require full public investment although private operations should be encouraged so as to bring efficiency.

7.1.2 Freight railways projects should take into account the whole logistics chain

Railway transport is almost always a link in broader logistics chains that involve other transport modes, notably maritime and road. In many cases road transport is an essential complement of railways-based logistics chains to ensure the delivery of freight to its final destination. In other cases rail and road compete for the cargo along a single corridor.

Finance institutions must not consider railway projects as stand-alone projects and must take into consideration all the implications and competitive environment of transportation. This has among other the following implications:

- The interrelation between road and railway has to be adequately assessed in planning and projects and an adequate competitive balance between road and rail has to be assured.
- The existence of efficient points for intermodal exchange (maritime-rail and road-rail) is critical for rail performance.
- Intermodality is made easier by the widespread use containers and other intermodal freight units in all modes of transport.

Policy option 1: Introduce a new systematic approach to railways projects identification and preparation

Recommendations for Implementation

The identification and the preparation of railway projects at national level should take into consideration the following recommendations:

- **Railway schemes to be included in wider transport master-plans.** National railway schemes should be included in wider transport master-plans that consider all appropriate modes (rail, bus, road). In the case of commuting and metropolitan railways, they should be considered in the frame of comprehensive metropolitan mobility schemes.

- **Robust financial and economic assessment.** An assessment framework should be established which considers both the financial and economic aspects of projects to enable them to be accurately assessed. A key component of this should be accurate demand studies as they are paramount to ensuring that projects generate enough demand to justify rail as the most suitable mode of transportation. An independent review of the demand studies is also recommended.

- **Prioritisation of brownfield over greenfield.** Before engaging in greenfield projects, governments should double-check that upgrading existing infrastructure will not be a most workable and economic alternative. Brownfield projects are more appropriate in less developed market such as Africa where there are many uncertainties on their evolution.

- **Freight and urban/suburban passengers prioritised.** Projects for new railways should prioritise freight (bulk and intermodal). Opportunities for commuting, urban railways may also exist in major metropolises. As a general pattern, medium and long distance passenger railways are not to be prioritised except in very particular circumstances.
- **Separation of passenger and freight operating businesses.** The sharp differences in the passenger and freight businesses and the different level of engagement required by the public sector makes it advisable that they are awarded to different operators.

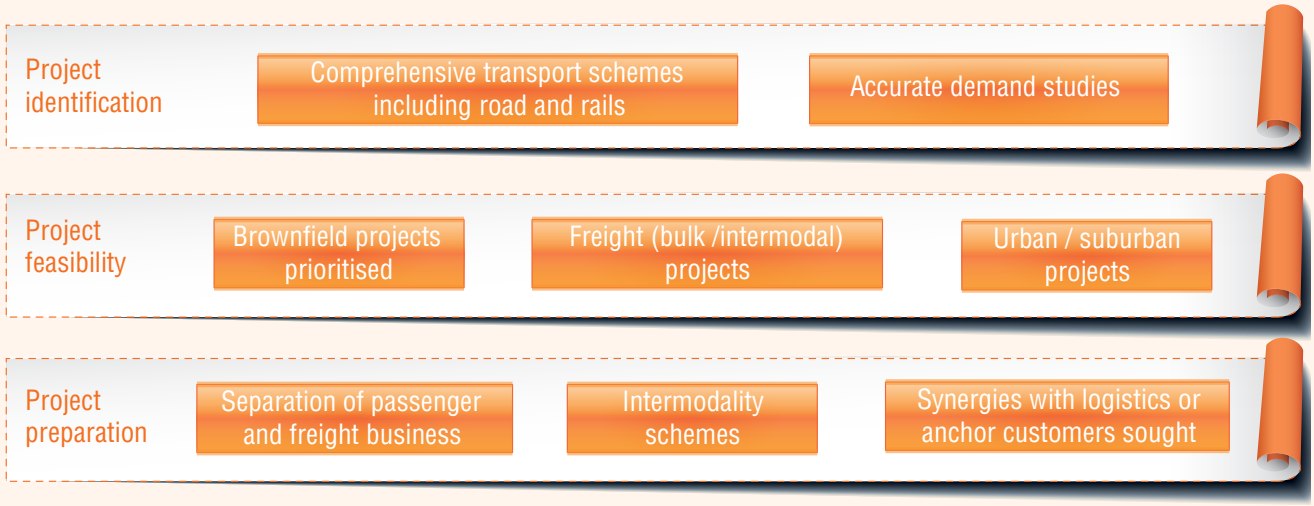
- **Separation of passenger and freight operating businesses.** The sharp differences in the passenger and freight businesses and the different level of engagement required by the public sector makes it advisable that they are awarded to different operators.

- **Promote intermodality.** Freight railway promotion should be linked to intermodality schemes, i.e. development of intermodal logistics centres and inland ports, where the modal change between road and rail can be made in an efficient, competitive and safe way.

- **Synergies with logistics or anchor customers to be sought.** Freight railway projects should try to exploit synergies with logistics and road transport. This should be encouraged when designing projects or selecting railway operators. Identifying and engaging anchor customers that ensure a substantial demand for transport is a key element in the success of railway projects. However it is important that the concession company has railway operating expertise and is not purely logistics/customer driven.

Projects that have successfully emerged from the logic process illustrated below will be better prepared to be successfully financed and have better chances to be sustainable in the long term.

Figure 26 : Building blocks for railways project identification and preparation at national level



Source : ALG

Policy option 2: Include railways financing as part of a broad sustainable transport policy

Recommendations for Implementation

Most international experiences show that funding railways makes sense when overall economic, social and environmentally considerations are considered. Many international organisations and regional groupings have set up their supporting schemes for railways under broader sustainable transport strategies. Promoting railways is not an objective in itself. Railways should be promoted, especially in developing countries, because they may be more energy efficient and less environmental impact than other transport modes.

In the case of IFIs these broader schemes may make it easier to combine transport considerations with other environment and social ones. This implies involving other departments within the organisation (e.g. environment or urban affairs) in railway projects and that a wider pool of resources may be mobilised.

- Two critical objectives in such policies should be ensured: (i) that projects funded by donors do no further damage the competitive position of rail versus road and (ii) that the market for railway is developed.

Some practical recommendations aligned with these objectives are cited below

- **Manage competition road-rail in corridor projects** Corridor projects usually include road and railway interventions. So as to reinforce intermodality and the use of rail it would be wise to have an adequate strategy and timeframe so as to manage how parallel and mutually competing rail and road projects are implemented.

- **Loan contracts include mechanisms to ensure and monitor the competitiveness of the rail environment vis-à-vis road.** Development objectives and indicators that are usually set in loan contracts should pay particular attention to aspects that ensure that railway is not penalised by ill-conceived measures or inadequate enforcement that favours road transport in competition in the same corridor. Performance monitoring in finance contracts should include indicators measuring road regulations enforcement and notably axle load control. This monitoring should be maintained throughout the life cycle of loans and if possible even beyond.

- **Foster interconnections and interoperability.** As some national markets may be small, it is recommended that opportunities should be explored to increase volumes through cross-border interconnections and foster interoperability between national networks. Rail projects to be assessed by IFIs should also take into consideration whether the introduction of some technical elements, such as different gauges, may generate an interoperability hindrance that could impact negatively on the overall network performance**.**

- **The promotion of railways has to be included in wider intermodality schemes.** These should include measures such as promoting the use of containers and other intermodal freight units in road transport and developing a network of intermodal platforms and “dry ports” in the hinterlands of major ports.

- **Foster synergies with logistics and road transport operators.** Experience and synergies in logistics and road transport are to be encouraged when designing projects or selecting railway operators. Europe has witnessed some relevant examples of the integration of large logistics (road) companies with rail operators: DB-Shencker in Germany and Geodis-SNCF in France. The involvement of a logistics operator such as Bolloré is among some of the long-lasting railway concessions in Africa (Sitarail and Camrail).

- **Promote coordination and integration initiatives among different railways.** IFIs should promote initiatives that help African railways achieve a bigger critical mass, making the African market more attractive and competitive. As examples: mechanisms to introduce equipment pools available across borders and to extend the use of leasing of rolling stock should be explored. Another interesting initiative would be to promote and sustain training and capacity-building institutions at regional or pan-African level.

7.2 Railways Financing

7.2.1 A new approach to passenger services is required

Medium and long-distance passenger train services in Africa may rarely be economically sustainable, except in high-density corridors between some city pairs. Accordingly most medium and long-distance passenger train services should not be prioritised and in fact they are more likely to be dropped in the medium-long term as has already happened in many emerging countries where growing subsidies to little used services became unsustainable.

On the positive side, rail may become a mass transit option in some African mega-cities where roads are already congested and with the doubling of urban population over the next 30 years and the increase in car ownership associated with economic growth, this situation will only get worse.

Commuting/metropolitan railways may complement other mass transit innovations such as Bus Rapid Transit (BRT's) and other solutions and should be considered as a potential element in a comprehensive metropolitan mobility plans which should involve governments at the national as well as municipal, metropolitan or regional levels.

Passenger services need subsidies, and clear, long-term and stable financing schemes should cover them. A clear set of rules regarding PSO and robust monitoring is paramount when service is delivered by private operators so as to ensure that all partners fulfil their commitments and are clearly focussed to improving service to users **(see Policy option 3).**

Policy option 3: Establish clear and stable commercial agreements for passenger services

Recommendations for Implementation

The decision to provide passenger services is usually part of the overall transport policy of any country and it must be recognised that the operations will require a subsidy. However, most often the costs associated with delivering the service are not transparent. which can lead to Governments not knowing the level of deficit to expect every year and service providers not knowing how much they will receive from the annual budget. This uncertainty may be exacerbated in an environment of regulatory instability and corruption. A sound understanding and evaluation of the economics of passenger railways is required to provide transparency, so that obligations can be understood and informed decisions can be made by Governments and the private sector.

It is important to point out that although these recommendations focus on the model of private sector involvement in the operations of passenger railways, the recommendations below can equally be applied to a public sector railway, much as has been done in South Africa and Morocco.

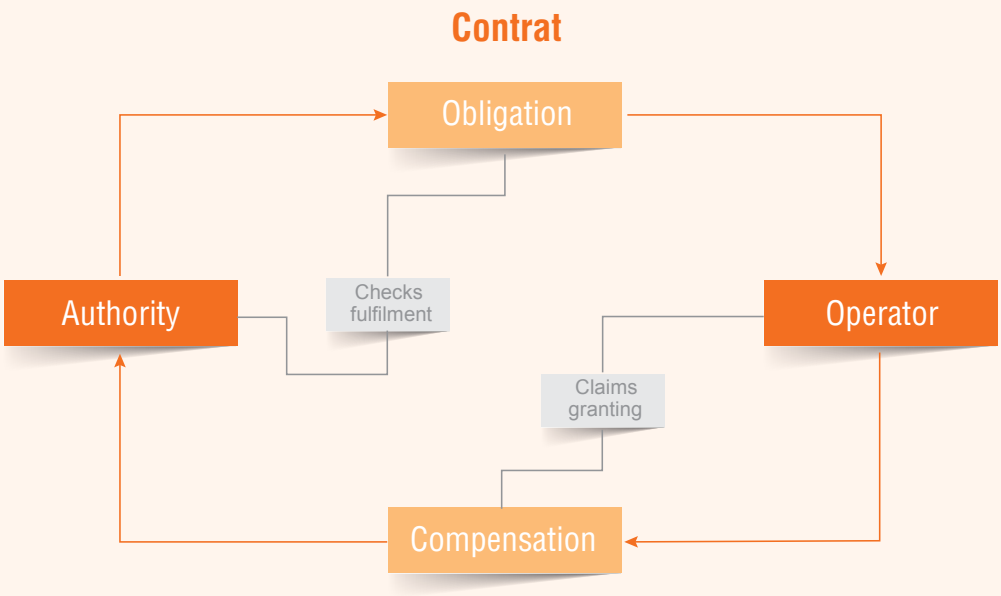
- **Robust evaluation framework :** The evaluation of metropolitan mobility schemes should include financial, economic and environmental impacts, so that the subsidy required can be assess against the broader economic (congestion, accidents, time savings etc.), environmental (noise and air pollution) and social benefits (accessibility, affordability) to society, thus enabling a like for like comparison to be made with other modes of transport.

- **Railway business transparency :** In order to implement a Passenger Service Contract it is necessary to understand the true commercial/financial status of both passenger and freight railways. They should be separated into different business units (infrastructure, freight and passenger) and have a transparent accounting system that allows direct cost calculation and evaluation and enables separation of accounts for infrastructure, maintenance, operations, passenger and freight services.

- **Prioritisation of brownfield over greenfield.** Before engaging in greenfield projects, governments should double-check that upgrading existing infrastructure will not be a most workable and economic alternative. Brownfield projects are more appropriate in less developed market such as Africa where there are many uncertainties on their evolution.

- **Operations performance framework:** The introduction of commercial agreements similar to the Passenger Service Contracts within the EU is a useful tool, as it enables the government to understand the costs of the services it purchases with its subsidy and provides incentives so that passenger services are provided efficiently. It should also clearly set out the contractual risks and responsibilities of both the Government and the private sector. An Independent Rail Regulator should be established to monitor the contract on behalf of both parties to decide on bonuses and on penalties.

Figure 27 : Basic scheme of a Passenger Service Contract



Source : Railistics

Benefits : The benefits of such commercial mechanisms when accompanied by the regulatory framework are

- The budget can be fixed over a longer period (not just year on year)
- The government can make informed decisions on the transport offer
  - Which criteria are important for their country
  - Which criteria fit with the transport policy
- Transparency of the consequences of an increase or reduction in the available budget
- Reduces misunderstandings and normalises the expectations from both sides
- A fixed contract can be very attractive to private operators

The stability of a contract, which is typically over 5 to 15 years, is very reassuring to investors and can contribute to lowering the cost of capital.

7.2.2 A systematic approach to maintenance is mandatory as the cornerstone of railways performance

Infrastructure maintenance is the key driver for operational performance and reliability. Thus it would be very useful to remove political influences from the financing of rail infrastructure maintenance through instruments such as rail infrastructure funds that introduce a long-term approach.

Budgets for maintenance and renewal should be planned over a rolling period of more than one year to allow for the planning of larger infrastructure projects.

Policy option 4: Set up railways infrastructure and maintenance fund

Recommendations for Implementation

Setting up railway funds is recommended as a mechanism that brings together different revenue sources that are earmarked to railway infrastructure maintenance. These mechanisms are also useful tools to monetize the external benefits of railways in terms of environment, safety, avoidance of road damage, avoidance of congestion, etc. An additional advantage is that the purse for railway maintenance is less exposed to political discussions regarding budget allocations.

Many countries have already set up road maintenance funds, which are typically funded from specific fuel taxes, from other excise (vehicle import duties, etc.) and from government budgets. Similarly a railway fund is recommended as it may contribute to address relevant shortcomings in rail maintenance as mentioned in this study.

The main advantages of a railways infrastructure fund would be:

- Select some systematic sources of revenue earmarked for railways maintenance
- Ring-fence these sources of revenue from other potential uses in the government budget
- Implement value-capture mechanisms
- Visualize and monetise railway's contribution to the reduction of transport external costs
- Introduce governments into the routine of systematic maintenance of infrastructure assets
- Money for urgent repairs or maintenance is available without need of complex budget approvals and procedures
- Present and future revenue may be capitalised or used as collateral for borrowing

The allocation of a share of fuel taxes to a railway infrastructure maintenance fund would theoretically be the easiest to implement and the most environmentally-friendly way to feed the railway fund. However this option proves to be very delicate in political terms in most countries, since road transport lobbies typically object loudly to any cross subsidies from road to rail.

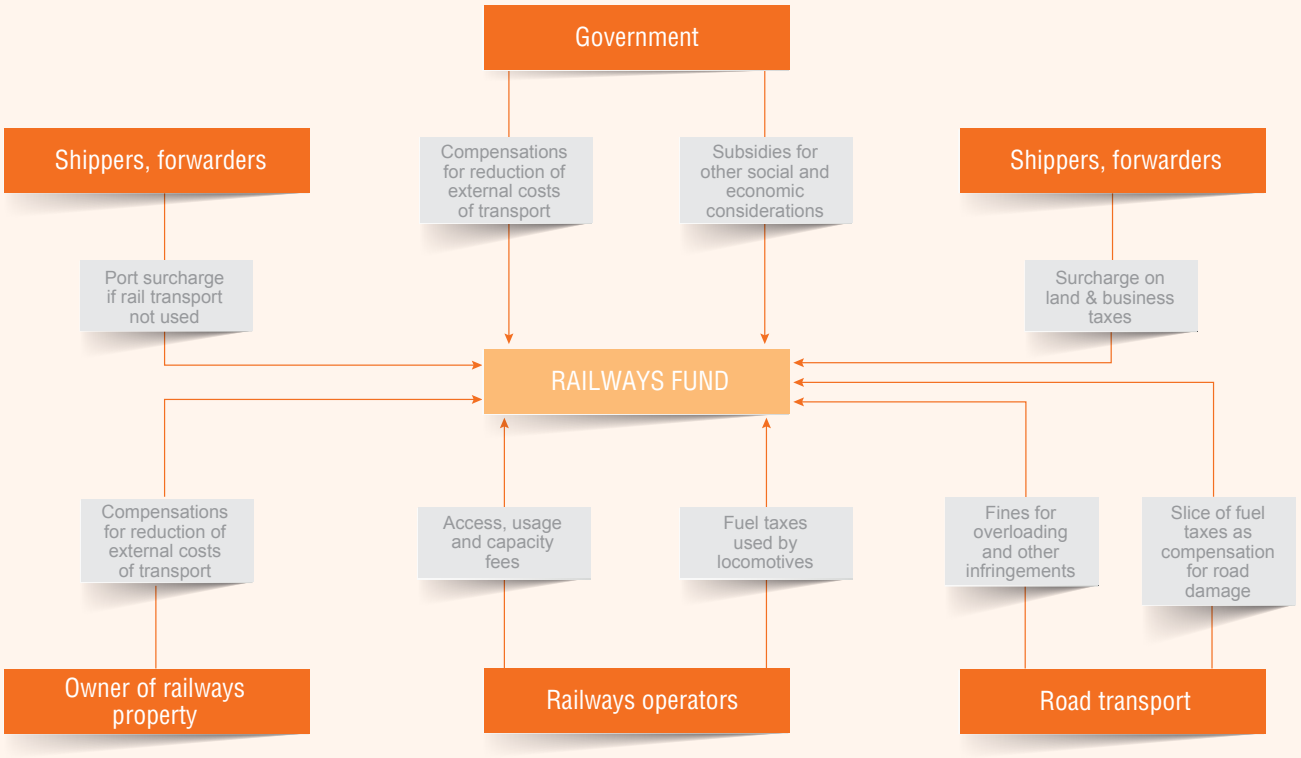
The response could be angrier still if the road fund is already insufficient to cover basic road maintenance needs. Discussions about this issue with government stakeholders during our country visits have shown that Africa is no exception to this pattern. Thus alternative sources of revenue have to be sought and it would make sense if they are as closely correlated as possible with the external benefits provided by railway transportation.

Bearing this in mind some potential sources of revenue for railways infrastructure maintenance funds can be proposed:

- Rail infrastructure fees paid by railways operators

- Taxes paid by railways operators for fuel used to run their locomotives
- Revenue from commercial exploitation of railways properties (stations, yards, other real estate assets)
- Penalties (fines) imposed on road hauliers for overloading or other infringements of traffic regulations
- A fee could be levied in ports where a railways connection exists for every container (or ton of bulk cargo) that is transported onward by road at a distance where railway could be an appropriate alternative, say 300 Km
- A surcharge on property and business taxes on premises directly benefited from the proximity of new (passenger) railways stations
- A slice of fuel taxes from road users (see Poland's experience in chapter 4). This could be calculated as proportional to road repair costs reduced by railways use
- A slice of the government budget estimated as a proportion of external costs reduced, e.g. number of hospital patients and fatalities avoided because of fewer accidents, less time spent in traffic jams because of the congestion that is avoided, etc. Subsidies to low emission transport modes
- Other government grants

Figure 28 : Suggested revenue sources to railways infrastructure fund



Source : ALG

An independent unit could manage the Railway Infrastructure Maintenance Fund as most road funds are or just be managed by the public entity charged with the ownership and management of rail infrastructure. A possible drawback of this type of fund is that the plurality of sources of revenue, unlike typical road funds, may make its management somehow more complex.

7.2.3 Insufficient funds and financial commitment to concessions

Infrastructure maintenance is the key driver for operational performance and reliability. Thus it would be very useful to remove political influences from the financing of rail infrastructure maintenance through instruments such as rail infrastructure funds that introduce a long-term approach.

Budgets for maintenance and renewal should be planned over a rolling period of more than one year to allow for the planning of larger infrastructure projects.

Policy option 5 : Larger financial packages and long term involvement are required

Recommendations for Implementation

Greater investment : The magnitude of investment required means that long term commitments are recommended from investors and financial institutions. This means that railway finance deals in the future will need:

- Long-term credits required.
- Introduction of other financial instruments with long term maturities, e.g. infrastructure bonds where financial markets are mature enough (see Policy option 5).
- Minimum targets of equity/debt ratios above the standard 20/80 should be encouraged since African railway projects may require a higher percentage of equity as proof of a long term commitment from sponsors.
- Participation of IFI in the equity of projects would also strengthen their involvement in a long term basis and reassure that adequate internal monitoring is maintained.
- New financing instruments for rolling stock, should also be explored, e.g. lease of rolling stock. As will be discussed later, larger more integrated markets and increased cross-border cooperation could help.

Financial Instruments : Major railway projects are suited to the use of financial instruments with long-term maturities such as infrastructure bonds. Those debt instruments have regained interest in investors' appetite around the world, providing long-term stability to them and a large volume financing for infrastructure projects.

Usually, the main targets for such long-term maturities are pension funds, life insurance companies and sovereign wealth funds, particularly suited to the long-term management of their books. Those kinds of clients are more typical of developed financial and economic environments. The use of these financial instruments could be found in a few developed countries.

However, the retail market has repeatedly shown its appetite in infrastructure bonds, particularly if they are free of tax. Such is the case of India, as has been analysed in the document, which exhibits that structured debt in railways can be financed by capital markets under certain conditions, such as strong commitment of the government and specific credit enhancement.

Cases of infrastructure funded through bonds in Africa are rare and limited to the most macro-economically developed countries. In railways, the market of infrastructure bonds is almost non-existent. However, it represents a real potential for development of the host countries financial environment, and a solid source of financing.

This type of finance should be promoted by IFIs in the more suited markets and projects, in coordination with local governments and railway agencies. The following aspects should be explored by IFIs :

- The development of a set of criteria for project eligibility would provide a suitable guidance and increase of visibility in foreign markets.
- Encourage governments to develop financial and economic frameworks accordingly.
- Develop and adapt credit enhancement mechanisms to improve the attractiveness of project bonds, such as those being employed by some IFIs (see example of EIB in chapter 6).
- Partial credit guarantees for bonds could be specifically developed for railways projects, taking into account the particularities of such assessment.

A wide range of project bonds can be developed. For railways, maturities could range from 8 to 30 years.

7.2.4 Railways' economic, social and environmental contributions should be monetized

One of the major strengths of railway lies in its contribution to reducing the overall external costs of transport, especially road transport in terms of energy-efficiency, reduced emissions of GHG, reduced congestion and damage to roads and improved safety. Accordingly, the economic assessment and business case for railway funding should include the monetization of these contributions, either in the form of dedicated revenue streams earmarked to rail infrastructure or as a justification for public sector financial support **(see Policy option 6 and 3).**

Policy option 6: Develop monetisation methodologies for social, economic and environmental benefits derived from railways

Recommendations for Implementation

The development of the road sector, to the detriment of rail, has neglected the serious externalities that the road industry incurs. In particular, the mortality rate on roads in Africa is extremely high and brings serious social concern. Environmental issues such as high emission of greenhouse gases and particles or noise pollution are increasing the total external cost of the road industry. Furthermore, road maintenance is consuming large portions of state budgets and road funds.

Other world regions have already evaluated these impacts – see the European Commission study shown in chapter 1.

The external character of those costs has led to the misjudgement of the overall cost of road compared to railways. The analysis conducted of those costs among different modes clearly highlights the real potential of railways as a sustainable means of transportation. The renaissance of railways worldwide has been based on such a claim and is why it is very important to develop a methodology that monetises those costs and integrates them into the decision process between competitive modes in Africa. Such methodology should include:

- A cost-benefit analysis including social, economic and environmental criteria
- A monetary assessment of the effects of the investment on the environment (including health) in order to integrate them into the calculation of the cost-benefit analysis
- Highlight the importance of investment cycles in the decision process
- Illustrate the role of social, economic and environmental criteria in economic-performance indicators, such as the Economic Rate of Return

IFIs are particularly suited to develop such methodology and assist in the implementation. Indeed, they show a clear understanding of the role of social, economic and environmental issues in the process of developing the economy. Such understanding is particularly valuable in the road industry, for which there is extensive experience in studies concerning external costs.

The potential benefits brought by such methodology would include:

- A better economic value of rail against other transportation systems, based on the social and environmental benefits they can deliver
- Better investment choices, made by adopting a wider vision of the drivers and effects of transport systems
- A certain standardization of the decision-making process, which would allow better coordination and understanding between regional members

At the end, these methodologies should improve governments' commitment in contributing to railways and sustainable development.

7.2.5 New approaches to railways concessions should be explored

The business and institutional model of most first-wave concessions has proved to be unstable, as it allocated excessive financial burdens, complexities and risks to private sector. Although some concessions have been restructured so as to adjust the allocation of risks and responsibilities, there still exist many challenges and risks regarding passenger services, maintenance, and rolling stock.

It should be noted that most freight-driven railway operators are basically transport companies that usually operate in markets with low margins and high competition. Construction, maintenance and civil works activities are not their core business so they are usually outsourced.

The complexity and risks associated with concessions (exacerbated by the overall political and regulatory risks in most African countries) may explain why African railways have struggled so hard to attract mainstream partners for infrastructure construction and for railway operations.

Full integration of infrastructure and operations seems only to work where demand is concentrated by a single customer e.g. a mine. These dedicated railways have a different type of business model and require different finance solutions from other medium-to-low density railways. In this second case, it is recommended that railway concessions are structured in such a way that rail transport companies performed operations with few additionally-added complexities (see Policy option 7). If private participation in infrastructure and maintenance is needed, civil works specialists should manage it (see Policy option 8)

Policy option 7: Adapt finance solutions to different railways' business models

Recommendations for Implementation

Instability in many concessions is the result of the incapacity of railway operators to deal adequately with infrastructure responsibilities. The recommendation is that a clear separation between responsibilities in infrastructure and in operations and service is made. Governments need to be encouraged to keep the private sector engaged in railway construction and maintenance, but they should seek engineering and construction companies for this job, not transport operators.

So far, most railway concessions have proved to be unstable and some seeds of future instability have also been identified. At the heart of this lies the fact that railway operators, who are mostly freight-driven, take responsibilities and risks in areas such as infrastructure and passengers, regardless of their lack of expertise. According to the type of railways and market size, different business and infrastructure finance models involving PPPs should be encouraged:

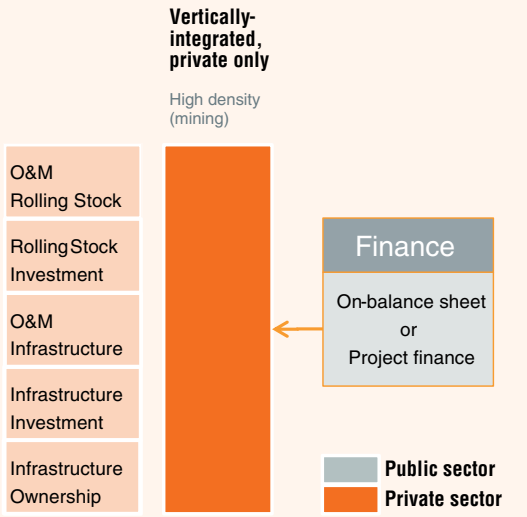
High density (usually mining) freight railways

In this case, vertical integration and private ownership and operations seem appropriate, since the railway serves a single customer, who is typically directly involved in the operations. This is the typical case of mining railways in other resource-rich countries such as Australia or the USA. Typically, the land and right of way may ultimately be Government-controlled, although all infrastructure above ground will be owned by the developer. From the countries visited, the GCO mining concession in Senegal provides an interesting example of how this can be performed using private funding and delivering relatively good standards of infrastructure and safety.

The private sector may choose to finance the project on balance sheet i.e. though direct equity and corporate debt, or off-balance sheet, thus involving an SPV that will operate under project finance schemes. IFIs in these cases may assist with loans, partial guarantees and even with quasi-equity products.

An interesting issue would be to make these kinds of arrangements work in order to provide service to a group of mines within a mining basin, even if they are owned and operated by different companies and sometimes even located in different countries[5] . In these cases, the most suitable option would be that the infrastructure and operations are provided by the leading mining company or perhaps by a private operator who is detached from any mine.

Figure 29 : Recommended financing options for high density freight railways



Source : ALG

Medium/Low density freight railways and passenger railways

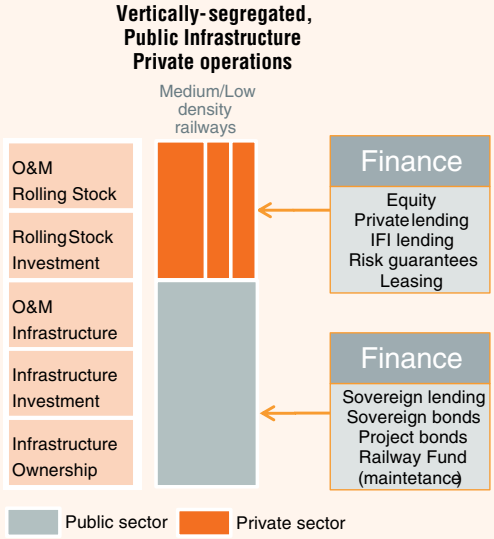
Intermodal freight railways typically provide connectivity to major ports and traffic is unlikely to be as dense as in mining railways but may develop, driven by economic growth and road transport regulations. In most countries, intermodal freight is a very cost-sensitive business that is unable to fully internalise infrastructure costs, as is also the case with urban passenger railways. These costs have to be covered by the Government to compensate railways' contribution to the reduction of external (economic, social and environmental) costs of transport.

In these cases, investment in infrastructure should fall on the Government's side, and operations on private railway operators. This is the model being implemented in the EU at present. Nevertheless although publicly-owned, the infrastructure should be managed in a commercial way by an efficient Infrastructure Managing Agencies.

5 World Bank, International Finance Corporation (IFC). 2013. Fostering the Development of Greenfield Mining-Related Transport Infrastructure through Project Financing.

Where infrastructure is shared by passenger operators or a mixture of freight/passenger operators an adequate set of rules and financial mechanisms to fund passenger services should be guaranteed.
Finance in these cases should take different approaches for infrastructure and operations.
Generally public finance mechanisms such as sovereign loans and bonds should be used for infrastructure. It could be interesting to explore project bonds (even if backed by the government) to fund new railway infrastructure.
Nevertheless, alternative options to involve private sector participation for financing railway infrastructure may be explored. This is discussed in policy option 8.
Private sector operators should be able to access IFIs' funding and risk guarantee products, especially when entering weak and unstable markets. Furthermore, mechanisms would need to be introduced to add flexibility and optimize fleet size, such as creating shared pools of rolling stock and the widespread use of leasing

Figure 30 : Recommended financing options for medium/low density railways



Source : ALG

Policy option 8: Explore alternative PPP approaches including separation of infrastructure and operations

Recommendations for Implementation

Alternative PPP approaches to railway finance could include splitting construction and infrastructure management/ maintenance from operations thus limiting the responsibilities of railway operators to transporting goods and people. The figure on the next page illustrates an example where infrastructure, although government owned, is managed by the private sector under a PPP scheme.

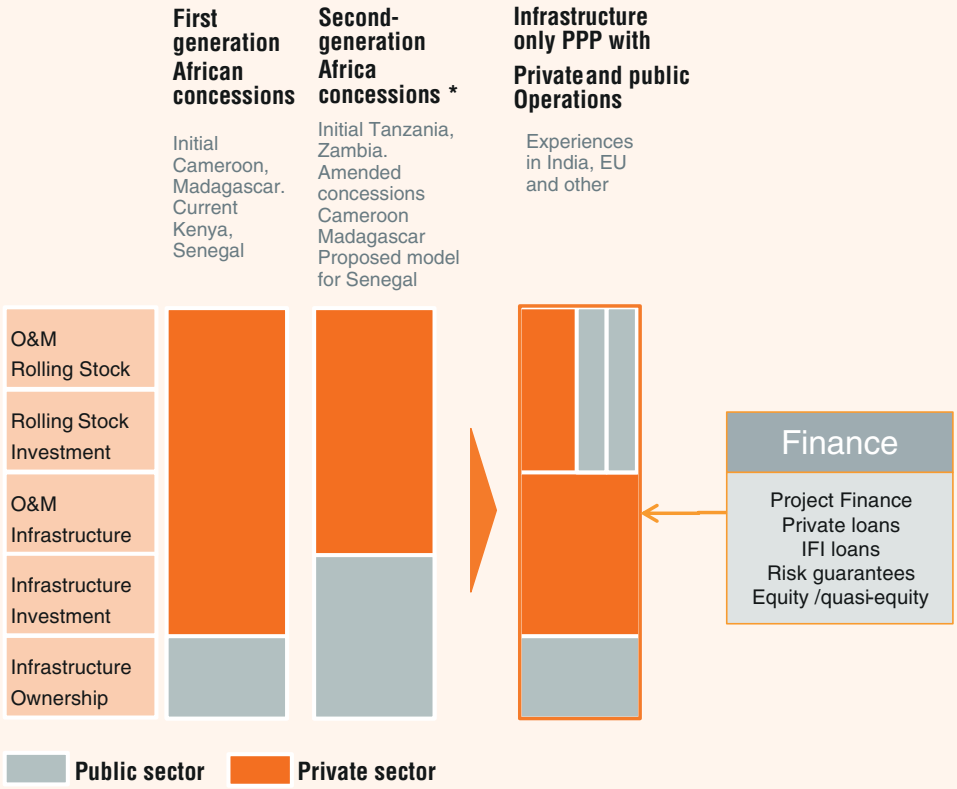
This type of concession could be either a BOT type, i.e. the private partner has been involved in major investment, either greenfield or brownfield, and maintains and operates it for a period of time; or an O&M type, i.e. investment has been made by government but maintenance and operations are charged to a private company that bears some traffic or commercial risks. In both cases, the government will typically award the concession to a construction or infrastructure contractor.

In this example, the operators would be exclusively transport companies. The figure illustrates a case where there are several operators using the infrastructure. Potential advantages of this model are:

- Operators concentrate on transportation alone
- Infrastructure and maintenance are carried out by a civil works specialist
- A long term commitment to maintenance is ensured by a concession contract
- If operators are alleviated from the burdens and complexities of infrastructure, more proficient international operators could be attracted
- Permits PPP in countries with vertical integrated and publicly operated railways such as Morocco or Botswana

The most significant drawback of this model is its complexity and the need for strong regulation to deal with disagreements between the infrastructure concessionaire and the operators. This implies that it should be tested first in countries with a more developed institutional framework.

Figure 31 : Example of an infrastructure concession with a competitive market of transport operations



* Refers to the concessions analysed in 3.4. See accordingly for details.

Source : ALG

Possible PPP mechanisms to be used

a. Turnkey + maintenance contracts

Government procures infrastructure works with an attached obligation of maintenance for a determined period of time, although it takes full responsibility for the infrastructure after completion. This has the following advantages:

- It ensures that from the beginning the contractor takes care to use materials and methods that will keep maintenance costs low.
- It ensures maintenance for a period of time.
- Maintenance responsibilities are directly allocated to a civil works specialist.

In this case the government pays the private contractor for maintenance costs throughout the period under agreed terms and conditions to ensure that adequate standards of service are met. Government would grant franchises to railway operators to use the infrastructure and would receive user fees from them.

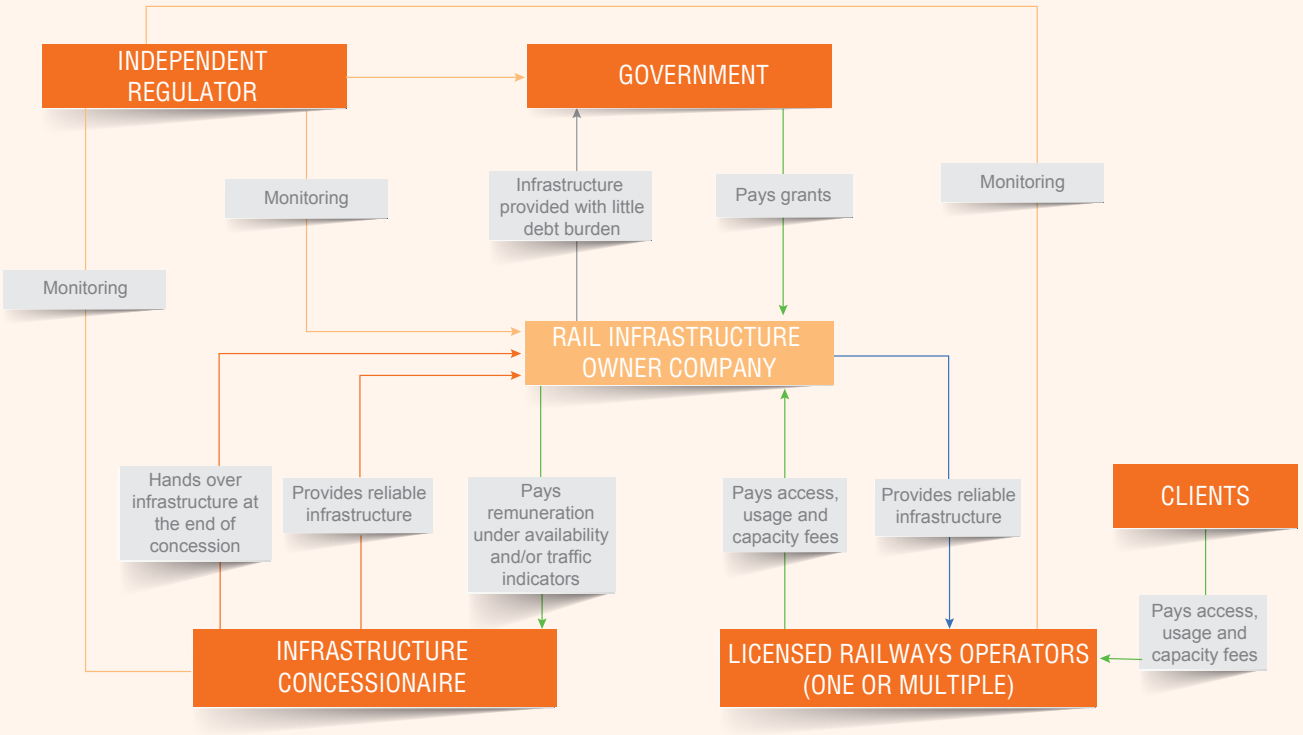
In this type of PPP, the private contractor bears full construction risks but no operational, traffic or commercial risks.

b. Availability-based concessions

Here construction, renewal or upgrading is awarded to a company that takes full responsibility for the infrastructure and ensures that it will be available under pre-set performance conditions for a period of time. The government pays remuneration. Two types of criteria to determine remuneration may be applied. The chart on the next page illustrates how this example of availability-based concession would work:

- **Pure availability-based criteria :** These are indicators directly related to the effective availability of the infrastructure with a stated level of service, regardless of level of use. Thus, deductions could be made for the occasions when the infrastructure has not been operational for any reason (i.e. accidents, landslides, derailments, etc.), or when a determined level of service has not been attained (delays, information or communication systems not working adequately, etc.). Here the concessionaire bears full construction and operational risks but no traffic or commercial risks. These types of concessions are common in roads and other infrastructure in many EU countries such as the UK, the Netherlands, Spain, Finland or Portugal.

Figure 32 : Illustrative chart of an availability-based concession in railways

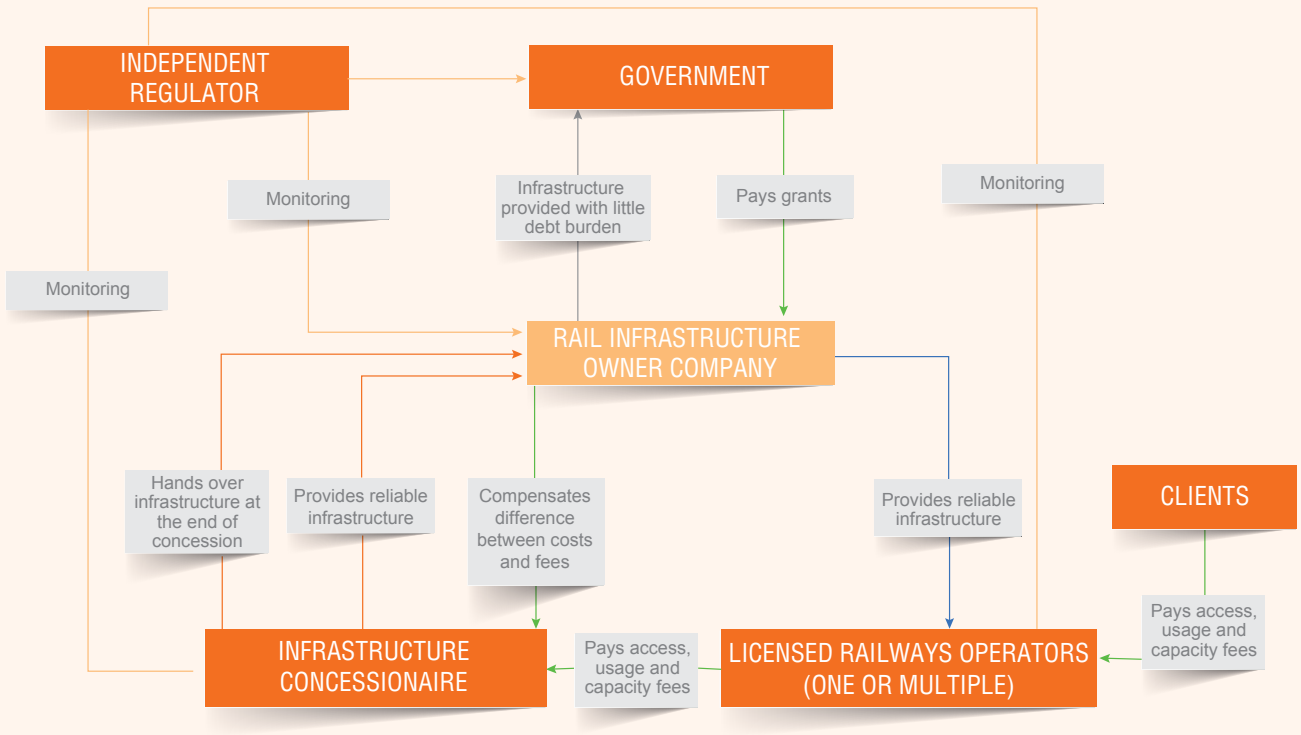


Source : ALG

c. Build, Operate, Transfer (BOT) concession

In this case remuneration will not come from the government but from the users of the infrastructure. In the case of railways this would mean capacity, access and usage fees among other aspects. Under BOT, the concessionaire will bear most commercial, i.e. demand risk. Nevertheless it is quite common for minimum levels of revenue to be guaranteed by the government if not achieved through commercial operations and this would most likely be the case in the African context.

Figure 33 : Illustrative chart of a BOT concession in railways. Infrastructure concessionaire takes demand risks



Source: ALG

These types of schemes are common in the highways sector and have just recently been introduced in railway infrastructure in Europe and in India. For instance, the 380 Km HSR Bordeaux-Tours line is a 50-year concession that involves the building and operation of a high speed line. Here the train operating companies that run rolling stock on the line will make payments to the concessionaire. Nevertheless it is to be remembered that the incumbent operator, the SNCF, is a heavily subsidised public sector undertaking

7.3 Railways Institutional framework

7.3.1 Enhanced technical and business capabilities should be encouraged

Knowledge and familiarity with modern railways is to be encouraged in Africa in order to have better-designed projects, more effective implementation and robust and independent monitoring. There is a shortage of trained professionals in railways across the whole spectrum of railway jobs. Thus, multilateral donors should consider engaging in this field to build capacity.

During project assessment and preparation stages, it would be useful that the government bodies enhance their technical and business capabilities, thus allowing the assessment of all of the financial, economic, environmental and institutional implications of railway projects **(see Policy option 9).**

Regarding project implementation and financing stages, certain interesting experiences such as the Rail Nikas Vigam (RVNL) and Indian Rail Finance Corporation (IRFC) show that it can be useful to create specialised units to deal with finance, PPPs, procurement, construction and maintenance. These units are run on a professional basis, are ring-fenced from day-to-day politics, and have become credible and creditworthy interfaces with the private sector. Most of the Asian Development Bank's funds for rail infrastructure in India are channelled through the RVNL. AFDB could also encourage the emergence of such units in some countries. Although the national scale may be too small in most of Africa and therefore the units could be envisaged at regional scale. Further investigation and pilot projects in most advanced countries could prove that this strategy is worth trying, possibly with financial support from IFIs.

Policy option 9: Promote capacity building and training centres to increase railway know-how among all levels of decision and operations

Recommendations for Implementation

One of the main topics currently hampering the development of railways in Africa is the relatively poor familiarity with railway sector know-how, particularly in Sub-Saharan Africa. This issue affects all levels and position within railway bodies, from the top management and policy makers to the more operational employees. Moreover, strong legacy and age are constraining the modernisation of managerial skills and the efficiency of operations.

The main reason for this has been the lack of continuity in railway programmes in those countries for the last 25 years. It has involved limited hiring policies, lack of technical preparation and, in some cases, the closure of existing railway training centres. Consequently, railway companies (both public and private) have suffered from a lack of a qualified workforce that could improve, on the one hand, productivity and, on the other hand, project planning and execution.

- Provide skill-building for top management positions and policy makers
- Develop railway training centres for operational positions

In order to provide solutions for this problem, IFIs are in a good position because:

- They already have experience in granting this type of projects as well as in hiring consultancy services to develop them when required.
- They may benefit from economies of scale, promoting both capacity building and training centres at regional level.
- They may combine these measures before or during the implementation of railway projects.

The skill-building programmes to be offered may include topics such as Market trends and traffic forecast, Railway financing and PPPs, Railway operations, Railway infrastructure planning, Railway safety, Railway signalling or Maintenance of railway vehicles.

The main potential benefits of undertaking such measures are the following:

- Overall improvement of the competences in African countries
- Gaining of independence for future decision making
- Increasing the attractiveness of the railway system in the country for private railway companies or investors.
- Improve transparency in decision-making

At the end, it upgrades the railway institutional framework in those countries that sets the foundations of any further action from both public and private sector.

7.3.2 Railway industry should be corporatized and regulated

The experience in most railway reforms in Africa has proved that poor regulatory frameworks have led to opaque or insufficient monitoring of concessions. When an IFI such as the WB has been involved in finance, monitoring has been undertaken during the period that the donor considers that the project is "open", but this commonly comes to an end after the project is "closed". Thus it is recommended that effective and transparent monitoring of concessions is maintained throughout the lifecycle, and this can be better achieved if the donor is involved in the project for the long term, such as an equity partner.

The role of the public sector in railway infrastructure is expected to remain strong in the coming years as is the pattern in most countries, but public railway agencies are usually crippled with bureaucracy, legacy interests and political interference.

Railway public sector bodies should be corporatized and allowed a high level of autonomy in their decision-making. Corporatisation is a prerequisite to accessing the financial markets and lenders and investors will like to assess the borrower's financial performance and its ability to generate revenue before any deal is closed. Moreover, any public railways wishing to access international financial markets should be prepared to be scrutinised by international credit rating agencies and other issuers of finance intelligence.

Although many public railways, even in SSA, have already adopted a corporate form, only a few of them fulfil most of the conditions that would be expected in the private sector such as: professional directors and top management staff; or published and independently audited annual reports and financial statements.

A key issue is that a clear delineation between Government and company roles is set down and that objectives and financial commitments are formulated on a medium-long term basis using mechanisms such as the "contract-program" which exists in many jurisdictions.

Policy option 10: Introduce improved regulators and monitoring bodies

Recommendations for Implementation

The limited compliance of off-take agreements, public service obligations, investment and maintenance plans and poor communication between railways stakeholders have repeatedly hindered the correct development of many railway concessions. Furthermore, this failure has increased the risk for private sector interested in African railways, increasing the cost of capital for governments and concessionaires.

A few countries (particularly in the study, Cameroon, Madagascar, Kenya and Tanzania) opted for the creation of monitoring bodies or commissions in order to perform better tracking of the concession performance. However, the success of these entities has varied. In many cases, they have not even become operational or their actions have not been recognised by the concessionaire. It is worth pointing out that at the time concessions were awarded, PPP and railway expertise was still too immature among most African governments to support these structures in a transparent and independent manner.

Thus, an in depth review of regulators and/or monitoring bodies is proposed in order to provide a better institutional framework that enables both capital markets and privates to increase their confidence in the railways investment environment in the given country.

Composition of railway regulators and monitoring bodies

Since political background and laws regarding PPPs or public companies differ substantially from country to country the composition of regulating/monitoring bodies may have to be defined according to the context of each country. Notwithstanding, some recommendations for the creation of these bodies are presented:

Case of railway concessions

Taking into consideration the abovementioned issues, the creation of more robust and independent regulators/steering committees/commissions for railway concessions is suggested for current and new railway concessions in Africa. These bodies or commissions should be set in order to:

- Monitor and enforce contract compliance by all signing counterparties as well as establish the required sanctions or compensations in case of breach of contract. This includes the compliance of public service obligations, investment obligations, maintenance, payment of grants, off-take agreements, among other contract specificities.
- Monitor and regulate cash-flows between government and concessionaires.
- Ensure continued publication of financial and operations reports by railway concessionaires that enable the correct monitoring of concessions by all counterparties. This would also result in better transparency and attractiveness with respect to potential new investors, clients or suppliers.
- Set down and evaluate the achievement of relevant Key Performance Indicators by both government and concessionaire in terms of level of service, safety, investment or financial performance among others, to be set in concession contracts.
- Provide an improved communication framework where all stakeholders can discuss their demands or objections regarding contract ambiguities or gaps and arbitrate if necessary between the different parties.
- Regulation and enforcement of the safety standards to be provided by the infrastructure manager and the operator.
- Regulation of slots allocation while guaranteeing fair competition in the case of open market concession contracts.
- Regulation of infrastructure fees in order to protect operators from the monopolistic position of the infrastructure manager.
- Regulation of specific services offered by public operators (if they exist), in order to guarantee fair competition with services offered by private firms.

Case of public railways

If no railways are to be granted in concession, specific monitoring bodies that ensure the correct performance of public railway companies should substitute the figure of the independent regulator. These bodies should guarantee to clients and suppliers that railway services will be performed at the agreed quality standards.

The introduction of Contract-programmes such as those used in Morocco could also be a reference for other public railways in Africa. In these forms, governments and public railway companies set out common goals, expected results and managerial issues, among other aspects. They may also establish obligations of both parties in order to prevent shortages of public funding from the government or underperformance from the public railway company.

7.3.3 Larger railway markets in Africa should be promoted through increased cross-border cooperation

Most national railways in Africa are too small to benefit from economies of scale and larger markets. For this reason it would be sensible to explore opportunities that could arise from:

- Interconnecting different pits in large mining basins even when they are spread across national borders.
- Improving transnational networks, e.g. landlocked countries, where volumes and distances make rail economically feasible.
- Facilitating the interoperation of railways.
- Coordination of different railway operators may give them a larger scale and more negotiating power for the acquisition of rolling stock **(see Policy option 11)**.
- Most national railways are too small to sustain training and capacity-building institutions, which make more sense at regional or pan-African level **(see Policy option 12)**.

At the end of the day, the bigger the market, the more attractive to investors and operators it becomes. For all these reasons, African institutions should promote cross-border coordination, sometimes from pilot experiences, so as to progress to wider integration and benefit from larger scale. This is not expected to be an easy nor a quick exercise. Railway integration in other regions such as the European Union is proving a difficult task hindered by reluctant state and incumbent operators. But undoubtedly this is the way forward.

Policy option 11: Co-ordinate acquisition of rolling stock and maintenance and alignment of operating procedures among African countries

Recommendations for Implementation

The analysis of African railways has pointed out the poor state and neglect of the rolling stock. The fleet is out-dated and has not been sufficiently maintained over the course of the years to provide reliable and efficient transport. The main consequence is that railways cannot be competitive towards road transport, which has greater fleet availability and a more flexible solution for international transits.

The low efficiency of maintenance tasks and the lack of expertise in this field are two common causes for the under-maintenance of rolling stock. The scarcity of financial resources to acquire new vehicles has prevented railway operators to replace and upgrade the fleet. Finally, the poor or inexistent coordination between countries has implied technical difficulties in terms of interoperability.

To address the situation, economies of scale are necessary. Economies of scale can be exploited through larger procurements by grouping rolling stock acquisition between countries or operators, which would reduce the unitary cost of wagons and locomotives.

IFIs are best suited to coordinate and assist large rolling stock procurement thanks to their wide vision of the market. Being involved in many of the African railways, IFIs have a clear picture of supply and demand at regional level, and beneficiate from deep knowledge of local institutions. They can detect situations where economies of scale can be exploited and help operators in negotiating terms with manufacturers.

The experience of IFIs in financial mechanisms as well as the expertise they could provide would help overcoming the shortcomings of local resources. Also, IFIs are very suited to attract more private investors in the process.

Once the procurement is facilitated by IFIs, in collaboration with local railways institutions and operators, the rolling stock could be either transferred to incumbent railways or leased by a Rolling Stock Company (ROSCO), with underlying management plans and training for maintenance tasks. The potential benefits brought by the commitment of IFIs to a common management of rolling stock through acquisition, leasing or maintenance operations would imply:

- Better coordination of regional railways, resulting in more integrated railways better suited to compete with roads

- Better management of the regional fleet by planning acquisition and renewal and introducing maintenance terms and training programs in coordination with IFIs and private parties
- A better-maintained and unified fleet which improves availability, reliability and can help railways to better compete with road
- Better opportunities for new competitors to enter the market with a lower entry ticket and lower risks thanks to the leasing of rolling stock.
- The total cost of rolling stock is lowered due to economies of scale, IFIs credit enhancements, involvement of private parties and the extension of the useful life of equipment.

Policy option 12: Set up a task force for African railways

Recommendations for Implementation

In order to conduct investment policies and complementary actions, most IFIs have allocated specific units for each of the fields in which they operate. These units, sometimes task forces or vehicles within their structures, facilitate better project development, implementation and tracking. Generally in Africa, other infrastructure sectors such as roads, water, ICT or other investment divisions already have such specialised units.

Currently neither the AFDB, nor any other major multilateral donors active in infrastructure finance in Africa have any specialised unit for railways. This is probably a consequence of having had less participation in and exposure to railway projects than to other types of infrastructure.

At this moment, many African governments are currently dealing with a number of proposals from bilateral export agencies, mining companies, construction companies, and other stakeholders lobbying for railways, not to mention their own citizens' expectations as well.

It could be useful if the AFDB, as a leading player in financing infrastructure in Africa, could set up a railways technical unit, task-force or temporary agency so as to help governments assess these projects. The potential roles for this task force could be to:

- Identify opportunities for railway developments in Africa and their best associated schemes (for instance, PPPs)
- Provide a framework for the assessment of railway projects, which takes into account the commercial, economic, social and environmental impacts
- Coordinate policies and technical compatibilities within projects financed by IFIs at supranational level, considering regional integration
- Assume monitoring roles at all stages of projects
- Promote policies aligned to best practices for railways in the Africa continent
- Assess the better financial products and guarantees for each project

This task force should be able to play an active role in all the measures suggested by this document and aimed at the improvement of railways in Africa. The ultimate goal would be to act as a catalyser for railway projects that provide long-term economic, social and environmental return, enabling a higher involvement of the private and public sectors.

Overarching Conclusion

The current condition and performance of most African railways is generally poor, however they have an important role to play in the growth and sustainability of the African continent over the next few decades, particularly in relation to freight and urban passenger movement. The renaissance of the railways will need to be underpinned by the recognition that greater funds are required to bring the infrastructure up to an acceptable standard and that a higher degree of professionalism, regulation and expertise is required within the industry to ensure that the previous mistakes with involvement of the private sector are not just repeated. The AfDB has a key role to play in the delivery of this renaissance by providing strategic guidance, introducing new approaches through pilot experiences and funding.

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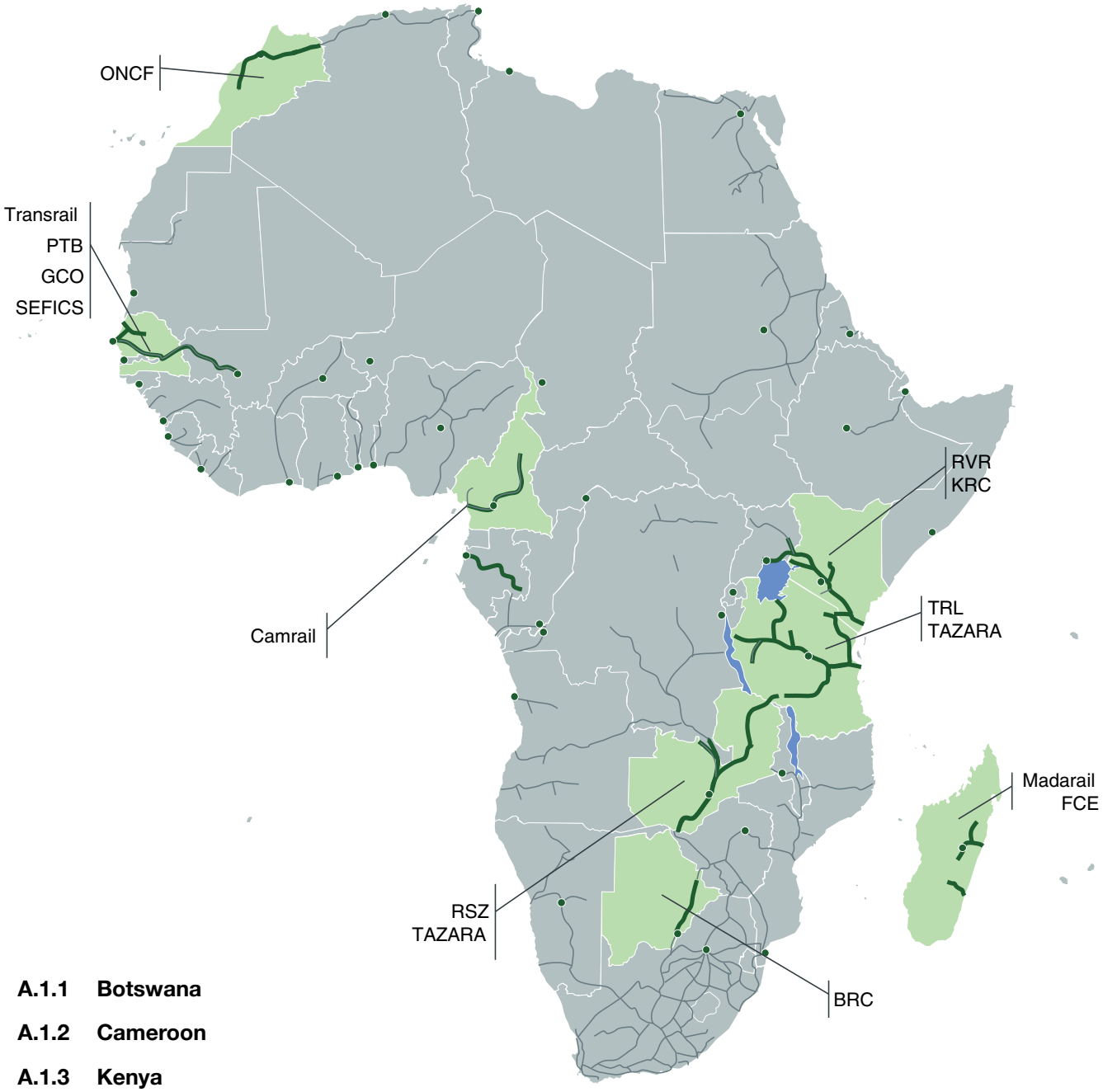
Appendix I: Further information on selected African railways



A.1.1 Botswana

A.1.2 Cameroon

A.1.3 Kenya

A.1.4 Madagascar

A.1.5 Morocco

A.1.6 Senegal

A.1.7 Tanzania

A.1.8 Zambia

A.1.1 Botswana

a. Main lessons from Botswana's experience

1. Botswana currently has no concessions and has had no concessions awarded in its past. The country is, however, planning new lines through the country and are considering different funding options.
2. The current plan is to build a new line from the central and eastern parts of Botswana to Walfisbay in Namibia, namely the TransKalahari.
3. The discussion about the gauge of the new line is still open. The advantage of higher-axle load of the conventional gauge compared to Cape gauge is obvious. However, the risk of a single gauge dedicated line has been discussed. The monopolistic situation of the port in Walfisbay and of the Namibian operator is a risk to be considered, especially in such long term investments. A cape gauge would support the idea of combining the options also for other countries (Zimbabwe, Zambia) to use such a line in future.
4. A dedicated railway fund is regarded as critical. But a portion of the general state budget is not seen as realistic. The government is not intending to split up responsibilities or "does not like to do so". However, in the discussion about the long-term features of railway investments, the interviewees expressed an interest in the potential positive impact of such a development. Nevertheless, those in charge are not railways experts. They do not have a lot of experience in railways financing or construction funding mechanisms.
5. The government of Botswana is interested in "models" to finance infrastructure and in how BOT, PPP etc. can be used in their national railways sector to the benefit of the future maintenance costs.
6. There are no options to lease locomotives at present. Botswana Railways (BR) rented a few locomotives, in the 90s, from South Africa. But this option is no longer possible. Some manufacturers have already considered this approach. But they have not drawn up concrete plans. Meetings between Sub Saharan Countries have taken the form of a forum to discuss these ideas. BR would be interested in the idea of a loco-pool.
7. Gaborone Container Terminal (Gabcon) used to operate up to two trains per day, instead of the current 2-3 trains per week. 99% of products are imported and containers are usually empty in the other direction. Operations started in 2009 as a joint venture made up of 64% BR and 36% Transnet. It is a dry port with customs services, which operate a mobile container scanner.
8. The terminal has some expansion plans consisting of new warehouses in the area close to the terminal. No reefer containers operate as of today. There are two tracks in the terminal, with two reach stackers (Kalmar) in operation.
9. MSC is the biggest shipping line that is currently active, but Maersk and CMA CGM are also represented. New markets are highly appreciated.
10. Overall impression of high-quality in the container terminal. All workers wear warning shirts with helmets. A new fence has been installed with a gate and check point.

b. Botswana's railways data sheet

General information			
Area	581,730 square km	Main Urban areas	Gaborone : 202,000 (2011) Francistown : 100,079 (2009) Source: CIA World Factbook and Central Statistic Office
Population	2.004 Million (2012) Source: World Bank Country Homepage	Main corridors	Gaborone - Francistown
GDP	$ 14.50 billion (2012) Source: World Bank country homepage	Natural resources	Diamonds, copper, nickel, salt, soda ash, potash, coal, iron ore, silver Source: CIA World Factbook

Railways information		
Railways network	888 km 1.067-m gauge (2008)	
Infrastructure technical data	640km 50kg/m CWR 230km 40kg/m CWR (these are high specs for African rail)	
Railway operators	Rhodesia/Zimbabwe Railways formerly operated it. Due to the impact of Beitbridge-Bulkawayo Concession in Zimbabwe, Botswana Network negatively affected since granting independently negotiated concession, which included obviously anti-competitive clauses and articles. Declining performance in specific areas, declining state of infrastructure and decreased railway cooperation were observed in Botswana.	
Type of operations	Freight (No passenger service since 2009)	
Performance freight	631 Million t/km (2005) and 674 Million t/km (2011) According to source, performance had remained stable since 2006 Source: World Bank.	
	Trend : Static	
Performance passengers	No passenger service since 2009.	
	Trend : The discussion to restart passenger train operations is on-going. All passenger coaches has been sold to Mozambique. For new services new equipment is required. No public Service Contract or obligation procedure is in place or has been discussed so far. Buses react very quickly with low price offers on any railway service introduction.	
Railways institutional framework	Botswana Railway (BR) is a state owned railway infrastructure and freight service company. The government of Botswana since 1987 has owned BR. The Minister for Finance supports it financially. There is a Ministry of Transport which has a department called the Transport Hub. This oversees an integrated transport policy implementation in Botswana. There does not appear to be a dedicated rail department. There is no independent rail regulator in Botswana	
Existing railways regulation	There is no specific railway law.	
Future railways projects	**TransKalahari** The current idea is a new line from the central and eastern parts of Botswana to Walfisbay in Namibia the so-called TransKalahari. It would allow a direct connection between Zambia, Zimbabwe, South Africa, Mozambique to the Atlantic Ocean via Botswana and Namibia	

	India as big coal importing country is strongly interested in the development. In 2 weeks time a bilateral agreement shall be signed between Botswana and Namibia for the development of this line incl. a new port facility for coal in Walfisbay. India will be part of this ceremony. The transport ministry and the Mining Ministry are driving the project. Today a prefeasibility study estimated $ 15bn as costs for such a line. It is intended that the bilateral agreement now leads to a conclusion to find a single "developer" of the line who integrates the interest of all stakeholders and beneficiaries for the financing of such a project. Obviously both governments are not able to fund this project completely. The coal market is today not involved, the discussion is currently (conference 11.-13.2.2014) on-going on Ministry level. But in future all related industries shall be involved somehow. The route shall open an alternative to the congested South Africa port connections. One idea is to create a common operator (this obviously means a contractor, not the rail operator) who is then organizing the common approach between the countries and the interested groups. The budget foreseen for the Transkalahari is $ 15bn total and around 50% of it for Botswana. This means a full annual state budget of Botswana only for this project. **Bridge to Zambia** Second Project is the direct link from the branch line to Sowa directly over a bridge into Zambia. Both projects would increase the network to more than 100%. The Bridge to Zambia is planned to be financed 50/50 between the governments. This second project is mainly planned for the Soda-Ash production in the north of Botswana to Zambia. Source: Country Visit
Current proposals for railways institutional reforms	The government has some ideas about opening of the railway sector to third parties but committed itself recently to give BR a monopolistic position for the near future. There is no railway law in place but decisions are made in government decrees.

Concession	
Concession beginning	There never has been a concession. Today no concession is given but for new lines this idea might come up again. "We would love to give away the railway sector completely to anybody to get rid of these costs" Source: Country Visits
Connection of the concession to mining/ logistic industry	Mining Industry plays an essential role. Company claims to have been transporting commodities such as coal, copper, cement, salt etc.
Present financial situation of concessionaire	The organization provides 29,113 000 Botswana Pula to the government. Overall Botswana Railways and Subsidiaries attributes 30,892,000 Botswana Pula to Government of Botswana. The last publically available annual report from year end March 2009 shows a drop in profit from $ 5.7m in 2008 to a loss of $3.4m in 2009. There is no publically available financial information since then. Other interesting development were the introduction of a 100% subsidiary Botswana Railways Property which is developing shopping malls and other real estate developments to increase the earning potential of the Botswana Railway Group –it made a loss of $ 460,000 in 2008/9 and it is unclear if this is profitable today. The container terminal Gabcon realised a profit in 2008/9 but currently run less trains than before and the current financial status is unclear. Source: Botswana Railways Annual Report 2009

A.1.2 Cameroon

a. Main lessons from Cameroon's experience

Cameroon serves as one of the examples of successful concessions in Africa. Some of the reasons for the success are:

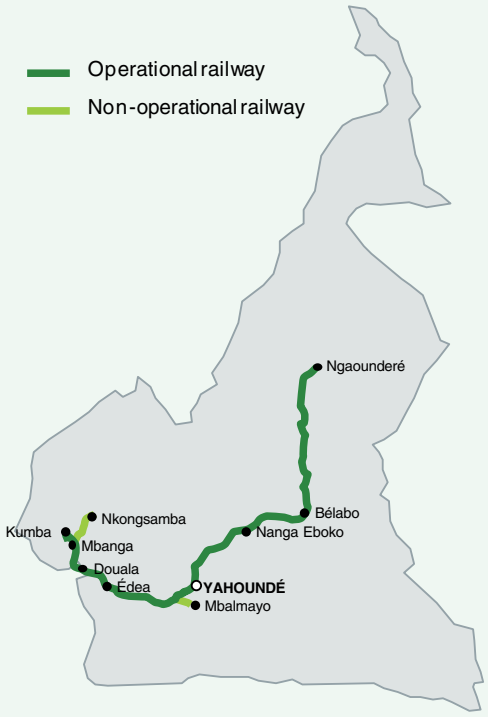
- For a start, some sections of the network were not in such a dilapidated state as in other countries.
- The financial package for the concession (about $150m) is bigger than in other African examples.
- Government and Concessionaire have been flexible so as to negotiate amendments that have allowed the concession to keep afloat. The most notable of these amendments are the arrangements to fund passenger services and the Government's retaking responsibilities for the infrastructure.
- The concession shareholding has been more or less stable, with the clear majority held by Bolloré. Moreover, Bolloré finds clear synergies between Camrail and their logistics operations.
- Since Bolloré has a stake in the country's imports and exports and in critical sources of Government revenues, it feels obliged to refrain from putting pressure on the railways concessionaire. Therefore, both partners are tied to look for win-win solutions at any time.

Other lessons worth mentioning from the Cameroon experience are:

1. Separating passenger activities within the operator through a differentiated-costs and management unit has its limits. Passengers and freight are different businesses that coexist uncomfortably. Full segregation should be envisaged in the medium term.
2. There lacks a coordinated strategy for roads and railway in the comprehensive transport plans, and the railway schemes for the mid and long term may seem over optimistic. In the short term, the implications of new roads to railways are poorly understood.
3. The Government's proposal for a change of gauge may become a major issue. The implications in terms of operations, costs, interoperability, impact on logistics chains, etc. cannot be fully understood unless one analyses the practical, day-to-day challenges. Any decision in this field should not be made until the views of the operators, shippers and all stakeholders involved in the logistics chains are heard and after the full implications are understood.
4. Any plan to keep and even to promote new passenger services seem to be made without fully understanding the impact on future Government budgets. In Cameroon, as in most African countries, most —if not all— intercity road transport is non-subsidised, providing a wide range of frequencies but unable to provide either comfort or safety to passengers.

b. Cameroon railways data sheet

General information			
Area	475,442 square kilometres	Main Urban areas	Douala 2348,0 Yaoundé: 2320,0 Source: UN World Urbanization prospects
Population	21.70 million (2012) Source: World Bank country homepage	Main corridors	Gaborone - Francistown
GDP	$25.32 billion (2012) Source: World Bank country homepage	Natural resources	Diamonds, copper, nickel, salt, soda ash, potash, coal, iron ore, silver Source: CIA World Factbook

Railways information		
Railways network	1,104 km Only 976 km of network is operational: Douala-Ngaoundéré 884 km and Douala-Kumba 92 km. The main corridor Douala-Ngaoundéré is split in two main sections: TRANSCAM 1 (Douala-Yaoundé) 262 km. TRANSCAM 2 (Yaoundé-Ngaoundéré) 622 km. Source: SSATP "Framework for Improving Railway sector performance in Sub Saharan Africa" (2013), Camrail and country visit	
Infrastructure technical data	Metric gauge single track. The Douala Ngaoundéré section is by far the most important since it accommodates traffic to the capital, Yaoundé, as well as to the intermodal platform of Ngaoundéré, where freight is trucked to the North of the country as well as to the CAR and Chad. The link between Batchenga–Ka'a (124 km north of Yaoundé) is in very bad condition, but improvement works are under way. There are six sites for loading and downloading cargo, including two yards at the port of Douala and terminals in Bessengué (Douala), Yaoundé (mainly hydrocarbons), Belabo (lumber), and Ngaoundéré. Source: SSATP: "Logistics Cost Study of Transport Corridors in Central and West Africa" (2013) and country visit interviews..	
Railways operators	All the operating network has been conceded to a single private operator: CAMRAIL Passengers' services are managed though a separate management and costs unit within CAMRAIL denominated Mobirail in partnership with Cameroon's Government.	
Type of operations	General freight and passengers Source: Country visit	

Freight transport performance

	1994	1999	2005	2010	2012	2013
Net Tonnes (x1000)	1,452	1,401	1,751	1,690.3	1,712 (*)	1,791.6
Million Tonnes/ KM	812	995	1,119	1,081.3	1,094	1,142.8

(*) Estimation

Source: World Bank: Toolkit for Improving Rail Sector Performance. Case Study Cameroon and Camrail

Traffic figures seem somehow stagnant if compared with those of 2005. Reasons cited for this are:

Lack of rolling stock capacity to increase traffics
Effects of economic crisis and decline of some exports form Cameroon (i.e. lumber)

Trend: Slow increase

Passenger transport performance

	1994	1999	2005	2010	2012	2013
Passengers (x1,000)	1,728	1,320	1,053	1,405	1,451	Na
Pax-km (x1,000)	317	309	324	463	482	Na

Source: World Bank: Toolkit for Improving Rail Sector Performance. Case Study Cameroon and Camrail

Traffic seems to have recovered after the amendment in 2005, which involved the Government investing in passengers' rolling stock and compensating the operator for deficits incurred in passengers' transportation.

Train is popular in the Yaoundé-Ngaoundéré section, since there is no fully-paved road along this stretch. On the contrary, road is much more popular on the Douala-Yaoundé section

Trend: Decrease up to 2005 and increase afterwards.

Railways competitive position vs. road

Along the Douala-Yaoundé section, the road provides a good alternative to rail. It is in good condition and free from congestion except at the outskirts of the two cities and the crossing of Edea. There are some weighting stations along the road as well as some checkpoints. Nevertheless, accidents are commonplace.

Railways institutional framework

Ministries with responsibilities in railways are:
The Ministry of Transport is the political authority concerned with transport services, but it is not clearly responsible for infrastructure planning and construction activities. It has a dedicated Directorate General for Railways.
The Ministry of Economy and Planning (MINEPAT) has responsibilities for planning in a broad concept and decides on the allocation of budget funds among different projects. The National Railway Master Plan discussed below has been commissioned and proposed by the MINEPAT
The Ministry of Public Works has responsibility on project delivery and infrastructure construction.
The Ministry of Finance (MINFI) has de final decision on cash payments. It is worth noting that the representative of the Government in the board of directors of CAMRAIL is an official from MINFI.

There are various committees through which these ministries (as well as other Government bodies) coordinate overall railway activities.
The Commission for Passengers' Transport. This is the regulator for all passenger transportation, including rail. Several ministries are represented as well as the railways concessionaire. The Ministry of Transport chairs it. This commission has decision powers and sets schedules, fares, type of operations, commercial policy, etc.
Commission for Rail Infrastructure (COMIFER). Here is where the investment in railways is dealt with. It is chaired by Ministry of Transport; and several ministries and other Government bodies are represented, as well as the concessionaire.

Source: Country visit

Future railways projects

A National Railway Master Plan has been commissioned by the MINEPAT. The final version dates from 2011. This plan proposes a series of new lines:

The short-term proposals include:

Edea-Kribi (new port expected to open in 2014) 136 km
Mbalam (projected iron ore mines)-Mbalmayo-Kribi: 602 km
Douala-Limbe (proposed new port): 73.5 km
Ngaoundéré-Douala 907 km

Mid-term proposals:

Douala-Wum 352 km
Mtanga-Kumba 21 km
Ngaoundéré-Kouseri(Chad border) 684 km
Bertoua-Gamboua (CAR border) 183 km
Mora-Kidjirmantari (Nigeria border) 36 km
Bafousam-Foumban 69 km
Barmenda-Jakiri 75 km
Bindom-Ngoyla (projected cobalt, Nickel & Manganese mines) 119 km

According to Government sources, the new lines would be built and operated under the following assumptions:

New lines should be built under international standards: standard gauge, 60 Kg rail and axle load of 25 Tm.

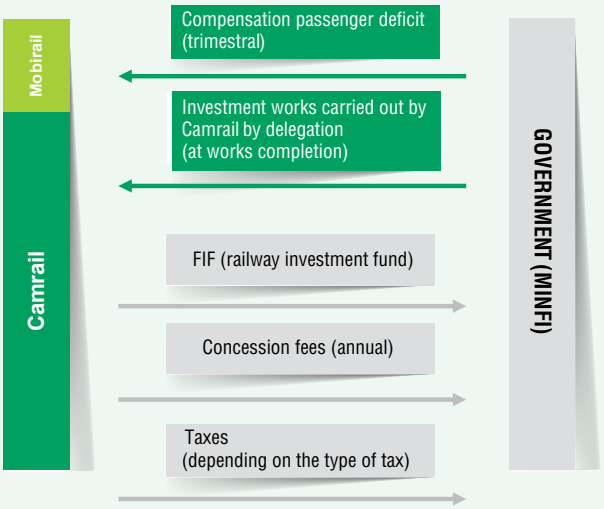
Government is against dedicated lines. After the mines are exhausted, they want the infrastructure to be still operative.

	The issue of gauge This new plan has raised the issue of how managing the coexistence and/or the transition from metric to standard gauge. Government officials have made it clear that "any new kilometre of rail will be built according international standards" and that it may already apply to the proposed new branch Kribi port/Edea. That would involve a transhipment platform to allow freight move on to Yaoundé and further north. Indeed, according to Government plans, the proposed extension from Ngaoundéré northwards to upper Cameroon and Chad should be standard. Hence another transhipment may be required at Ngaoundéré. Camrail shows some confidence that metric gauge will prevail at the end for operational reasons. In this case they note that if the line is to be extended north to Chad, huge improvements in signalling, communications and safety have to be implemented if more trains are to circulate along the existing line. Source: National Railway master Plan study in Cameroon 2010 and country visit interviews.
Current proposals for railways institutional reforms	Government is currently discussing a new institutional framework for the expansion of the existing network. The guidelines of the reform are: Government owner of infrastructure and regulator > Government holding company Several concessions operating different lines. Authority on transport (passengers): Ministry of Transport. Responsibility for building new lines: Government, Ministry of Public Works. No formal document has been approved so far and discussions, not least with the present concessionaire whose interests are at stake, are being made.
Main features of CAMRAIL Concession	
Concession start date	1999
Duration of the concession	20 years initially, extended to 30 years from 2005
Concession description	The initial agreement involved a comprehensive concession in which the concessionaire took full financial responsibility to fund infrastructure, rolling stock and operations. The initial concession has been amended through time, so as to balance public and private interests and to keep the service afloat. The Concessionaire acquired part of the existing rolling stock from the state railways and kept a part of its personnel. The Concessionaire finances any additional rolling stock purchases unless it is part of a public service obligation. A concession fee is to be paid to the Government. After the second amendment, it is a fixed fee plus a variable fee consisting of 50% of the profits. The Concessionaire is free to set tariffs to customers (except passengers services) Restriction for third parties to access the track except for certain circumstances (e.g. public service, mining)

Concession shareholders	At the end of the tendering process, two groups had submitted financial offers. One group comprised two Bolloré companies (SAGA/SDV) and Systra, a subsidiary of the French Railways (SNCF); the other was Comazar, at that time majority-owned by Transnet. The Government awarded the concession to SAGA/SDV but requested that they use Comazar as the operator rather than Systra, which they did. Bolloré and Comazar then formed a 60/40 per cent partnership in a holding company called SECAF; which owned a 66 per cent controlling interest in another holding company, Société Camerounaise des Chemins de Fer (SCCF), with 17 per cent ownership separately held by Cameroon subsidiaries of SDV and SAGA. This combined 34 per cent holding was expected to be sold to railway clients, which did not happen until 2010 when two clients (TOTAL and SEBC) owned 9.1 per cent of Camrail. Comazar is no longer involved and Bolloré, and now owns the remaining 77.4 per cent in Camrail The present shareholding structure is: SCCF (Bolloré Group) : 77.4 % Government of Cameroon: 13.5 % TOTAL Cameroun (Hydrocarbons): 5.3 % SEBC (Bolloré Group) (Lumber): 3.8 % Source: Camrail and World Bank: Toolkit for Improving Rail Sector Performance. Case Study Cameroon.
Major changes after concession awarded	There have been two major amendments that have substantially changed the nature of the concession. At the beginning, several loans by IFIs took three years to get disbursed after the signature of the concession. This meant that some assets were further dilapidated and that the concessionaire had to search for other sources of finance to fund the gap. This situation added to discussions and arrears regarding payment of compensations for PSO sent the concession to the brink of bankruptcy. To avoid that, negotiations for a major contract amendment started and it was signed in 2005. The first amendment in 2005 included the following provisions: Partial debt relief for CAMRAIL and payment of arrears from GOC regarding PSO. The establishment of a flat rate amount for the concession fees (FCFA 1.5 billion or $ 3 m). Fiscal stability of the Concession. Government mobilizing additional resources in the amount of FCFA 12 to 19 billion ($ 24-28 m) from bilateral and multi-lateral donors to finance additional track rehabilitation and renewal works from 2008 onward. Extension of the concession period to 30 years as of January 1, 2005. It soon became clear that the operations did not generate enough margin to cover full responsibility for infrastructure renewal. Accordingly, a second major amendment was signed in 2008. This second amendment changed the financial risk-sharing between the Government (who became responsible for infrastructure financing), and the Concessionaire, who kept in charge of the operations and rolling stock financing. To compensate the higher risk and financial burden to the Government, the revenues from the concession were further increased by the establishment of a variable fee consisting of 50 per cent of the benefits.

Separation of responsibilities after concession amendment in 2008	According to the amendment, responsibilities regarding infrastructure are split in the following way: Ordinary maintenance > Camrail New works, rehabilitation, etc. > Government The list of activities to be done by each party is set in a "Plan Quinquenale" (five years plan) signed by both sides. According to the concession, Camrail has the "maitrise d'ouvrage déleguée", i.e. the delegation to perform all works in the network. That means that even the works that have to be funded by the Government are contracted and supervised by Camrail. In practice, it seems that some of the works the Government is responsible for can be contracted directly by it.
Arrangements regarding passenger traffic	**Mobirail** Passenger operations are being dealt through Mobirail. It copies the model from French commuter railways (consisting of partnerships between SNCF and regional governments). Mobirail is not a separate company in a strict sense. It is defined as a "partnership" but it actually a differentiated management and costs unit within Camrail. According to Camrail, it is a measure to insulate passenger operations deficits from the main source of activity, i.e. freight. Mobirail was set up after a specific convention between the state and Camrail with the following provisions: Locomotives are bought by Camrail Operations costs are borne by Camrail but invoiced to Mobirail. Passengers cars are bought by government and ceded to Camrail for free, via Mobirail Maintenance of passengers' cars made by Camrail and costs billed to Mobirail. Government sets tariffs and compensates Camrail for deficits. Government does not set targets for passengers' revenue or volumes. Thus, deficit is simply the difference between fare revenue and costs directly associated to passenger operations (which appear under separated costs accountancy within CAMRAIL). Government pays compensations for passenger services every three months. Monitoring is done through the Committee for Passenger Transport (see above).
Concession economics	**Initial situation** The initial figures for the concession were: Capital of concession 18,5 $ M Planned 5 year investment about 90 $ M. Initial sources of finance: IFI/bilateral 45 $ M Other 45 $ M

	Present situation As responsibility for infrastructure works have ben retaken by the Government, debt associated to infrastructure is no more in the concessionaire books. According to a patchwork of sources the picture regarding the funding of infrastructure up to 2012 is the following: World Bank $ 113m European Investment Bank $ 10.8m Agence Française de Développement $ 16.6m Proparco (AFD group) and other commercial banks $ 9.2m This leads to a total of about $ 150 m. without including recent investment in passengers rolling stock made by the Government. **Railways' investment Fund (Fonds d'Investissement Ferroviaire – FIF)** A share of the concession fees received by the State is earmarked to fund investment in the network. The concessionaire manages the fund but the decision on how to use it is made by the Government in the frame of the COMIFER. Thus, this fund is used to contribute (to a small extent) to Government investments in railways. It seems clear that the amount of funds available under the FIF is small, but exact figures have not been provided. The target is for it to fund 40% of long-term infrastructure needs. Sources: SSATP "Framework for Improving Railway sector performance in Sub Saharan Africa" (2013); WB. Implementation and Completion Results Report (IDA-3695); SSATP: "Logistics Cost Study of Transport Corridors in Central and West Africa" (2013); National Railway master Plan study in Cameroon 2010; AICD: "Off Track: Subs-Saharan Africa Railways" 2009; Country visits interviews.
Connection of the concession with the mining/logistics industry	Camrail is seen by the Bolloré group as a piece to consolidate their position in the main logistics nodes in the country. Bolloré controls or has majority stakes in: Container terminal in Douala Port. Intermodal terminal in Ngaoundéré Belabo lumber terminal Stake in timber company SEBC (also shareholder of Camrail). Hence, the activity of the group has big impacts in the supplies and exports of the country, customs revenue, etc. Moreover the parent group provides the volumes to be transported. Bolloré group is the second client of Camrail with about 20% of tonnage and 25/30% of turnover. The first client is the hydrocarbons industry, with 30% of tonnage and 40% of turnover. They expect hydrocarbons to grow as a result of growing motorisation and new industries in the interior. Source: Camrail
Current railways operations	Freight regular services 3 trains per day Douala-Ngaoundéré. 1,300 t (one locomotive used) up to 2,000 t (2 locomotives) 3 trains per day Douala-Belabo (lumber terminal). 1 train per day Douala-Yaoundé (hydrocarbons) 1 train twice a month Douala-Edea (aluminium factory) Trip Douala-Ngaoundéré takes

	In Douala trains are composed at the port station and completed at freight terminal beside Bessengué station. Duration of trip Douala –Ngaoundéré is of about two days. Passengers services Douala-Yaoundé: 3 trains per day Yaoundé-Ngaoundéré: 1 train per day. Belabo-Ngaoundéré: 3 trains per week. Douala-Kumba: twice a week. Kumba-Mbanga: 3 trains per day, both directions. Source: Camrail
Rolling stock Technical data	CAMRAIL owns a fleet of various wagon types: tanks (6 units); 20 to 80 tonne capacity platforms for timber and containers (685 units), covered platforms of 50 tonne capacity (277 units), tipcarts (tomberaux) for livestock (43 units) and other freights (41 units). In addition to this, the railway company manages a total of 34 line engines/locomotives and 23 operating locomotives. During 2012, a total of six locomotives (2,500 ph each) were acquired to improve the level of service offered. Source: SSATP: "Logistics Cost Study of Transport Corridors in Central and West Africa" (2013) and Camrail..
Cash flows between the government and concessionaire	Cash flows between the Government and the Railway company have been inverted after concession. Whereas the state railway received a grant of FCFA 11b ($ 22 m), the current situation is as follows: Flows CAMRAI L > Government = FCFA 134bn ($ 268 m) from June 2009 to December 2012 in taxes and concession fees. Flows Government > CAMRAIL = FCFA 55bn ($ 110 m) in investment, public service compensations and COMIFER costs in the same period. Accordingly, there is a net surplus for the Government of $ 158 m. The main cash flows between both sides can be summarised as follows:  FIF= Fonds d'investissement Ferroviaire

Structure of concessionaire costs and revenues

According to the Income statement of Camrail:

Freight transportation is the main income generator of Camrail with more than 80% of the Operating income.

Subventions represented 8.3% of the Total Income.
EBITDA/Income was 27.3% in 2013, improving from 26.7% in 2012.
The financial result represented 36.6% of the EBIT in 2013
The Net profit grew 46.9% from 2012 to 2013.

	2013	2012
Freight income	50,084	49,264
Passengers income	7,423	8,339
Other operating income	2,862	2,219
Operating Income	60,369	59,822
Subventions	5,512	3,520
Other income	185	518
Total Income	66,066	64,624
Raw materials	-15,440	-16,141
Transports	-434	-470
Payments to the government	-2,000	-2,000
Operating Taxes	-576	-579
Other costs	-15,582	-14,416
Total intermediate consumption	-34,032	-33,606
Added value	32,033	31,018
Labour costs	-14,008	-13,800
EBITDA	18,025	17,218
Amortization, depreciation and provisions	-8,950	-10,533
Total operating expenses	-56,990	-57,939
EBIT	9,076	6,685
Financial result	-3,323	-2,276
Net profit before income taxes	5,752	4,409
Income taxes	-1,762	-1,693
Net Profit	3,990	2,716

A.1.3 Kenya

a. Main lessons from Kenya's experience

1. The main lesson learnt from Kenya is the lack of a common agreement on the condition not only of the infrastructure but also of the rolling stock at the beginning of the concession, together with a poor estimation of the required investment to bring it to a sustainable condition. The government of Kenya had not been investing in railways for over 30 years and Kenya Railways had been unable to keep up with necessary maintenance. No adequate assessment of the infrastructure and the existing rolling stock was carried out, which led to a minimum initial investment of $5m being required from the bidders. This would never have come close to addressing the backlog. This was recognised before the concession was awarded and increased to a minimum investment of $80m required in 2006. Again, this was not based on an adequate assessment and was still insufficient.
2. Although the planning for the concession had begun in 2004 and some overseas visits were carried out to study concessions in other countries such as the UK, Australia, and India, this doesn't appear to have prevented the mistakes. It is possible that suitable technical assistance at this stage could have isolated the factors for developing a good contract and could have circumvented some of the problems.
3. Insufficient due diligence was carried out on the financial capabilities of the original shareholders. Due in part to the poor condition of the infrastructure and rolling stock and the unexpectedly large investment required to keep the infrastructure at a sustainable level, the original shareholders (Sheltham in particular) were unable to meet their financial commitments and tried to reduce their shareholding accordingly. The governments of Uganda and Kenya set up a new vehicle – Kenya, Uganda Railway Holdings limited (KURH) - and the shareholding in the new vehicle depended on the amount to be invested by each shareholder. This was the opportunity for Citadel Capital to become a shareholder first in Sheltham (which gave them a majority shareholding in the rail concession) and from 2010 Sheltham left the consortium. This was also an opportunity for Trans-century (a Kenyan investment group) to increase their share. Citadel were in a very strong position as they promised to invest $150 m.
4. After three years of decreasing performance, reaching a low in 2010, the concession was renegotiated with a requirement that suitable technical and operations support by a rail company would be in place and a new financing package of $287m raised. This is a mixture of equity, debt and internally generated revenue. One of the interesting issues is that IFC will be engaged in RVR with an equity stake of $ 20 m.
5. A strong partnership with America Latina Logistica has been built up to benefit from their experiences in managing and operating rail infrastructure and services. This partnership has allowed RVR to develop new markets by finding innovative solutions to transport bulky goods, to consider ways of increasing capacity, developing employees with the necessary skill sets and buying reconditioned rather than new locomotives.
6. Investments are being made by the concessionaire above the minimum required ($40m per annum) in additional infrastructure (more and longer passing loops to increase capacity), new GPS tracking system for containers and wagons, new driver training and cooperation with the local technical college to develop a railway degree course to ensure the supply of good quality staff into the future.
7. There is no independent rail regulator in Kenya. The concessionaire is monitored by Kenya Railway Corporation, which is seen by the RVR to be a conflict of interest (although KRC do not themselves operate any rail services at the moment). A Rail Regulator would be welcomed.
8. A new standard gauge track is currently being built in Kenya. The first phase runs from Mombasa to Nairobi parallel to the existing RVR line and will cost $3.8m per km at current estimates. The Government of Kenya signed an agreement with the Government of China who agreed to support a commercial loan over a period of 10 years (some reports say 15 years)– first repayment due in one year – to finance the build. The contract includes the procurement of locomotives and rolling stock. The proposed standard gauge will run into Uganda and Rwanda although the existing narrow gauge also exists along these routes. There is disquiet at the government spending large sums on such projects when more could be done to support the existing network.

b. Kenya's railways data sheet

General information			
Area	580,367 square kilometres	Main Urban areas (pop. x1,000)	Nairobi : 3,363 Mombasa: 940 Source: UN World Urbanization prospects
Population	44,037,656 (July 2013 est.) Source: Index Mundi Kenya Demographics Profile 2013	Main corridors	Mombasa-Nairobi-Kisumu (connection with ferry to Rwanda) Mombasa-Nairobi-Malaba (connection to Uganda)
GDP	$ 40.15 billion (2012 est.) Source: World Bank country homepage	Natural resources	Limestone, soda ash, salt, gemstone, fluorspar, zinc, diatomite, gypsum, wildlife, hydropower Source: CIA World Factbook
Railways information			
Railways network	2,541 km meter gauge network (2013) A new standard gauge line is under construction from Mombasa to Nairobi parallel to the existing metre gauge line. Financing is a commercial loan from Exim Bank of China. Contract includes construction and procurement of rolling stock Source: Country visit		
Infrastructure technical data	Metre gauge: mostly 80 lb rail on steel or wooden sleepers. New GPS signalling system Standard Gauge on new route (to Chinese specifications)		
Railways operators	Rift Valley Railways (RVR) Source: Country visit		
Type of operations	Passenger, Freight		
Performance freight	206,00 tonnes 2010/2011 250,000 tonnes 2011/2012 Source: country visit, RVR website		
	Trend : increasing		

Performance passengers	7,056,766 passengers transported in fiscal year 2010/2011. Source: Website **Trend :** increasing
Railways institutional framework	KRC are completely state owned and are the railway functional arm of the Ministry of Transport. They act as the monitoring body for the Concessionaire. They do not provide any rail services themselves. It is unclear how new projects are planned, current projects such as the new stations for the Nairobi Commuter trains are managed by KRC. Currently RVR is looking after both operations and infrastructure rehabilitation. Although, RVRC was awarded concession of passenger services for a period of five years, they run it now on a year to year basis. Commuter as well as long distance passenger.
Existing railways regulation	As of October 2013, there was no independent regulator, but a bill was being prepared to make such provision.
Future railways projects	Investment in infrastructure is also carried out under Kenya Railway Corporation, which includes the standard gauge railway project (to be realized with a loan from the Exim Bank of China). This project is to be constructed in two phases, Mombasa to Nairobi and Nairobi to Kisumu and Malaba. Funding for the second phase has not been secured. This is referred to as the Rail Master-plan and relies also on neighbouring countries (Uganda and Tanzania) financing the standard gauge construction on their side, which is not yet agreed. Lapset: Lamu Port- Southern Sudan-Ethiopian Transport Project is a major joint project with Kenya, Sudan and Ethiopia and integrates, rail, road and an oil pipeline together with new airports launched in March 2014. Funding sources are not clear. There is an EAC Railway Master-plan, which did not seem to be a high priority with KRC as they barely knew about it. It does not match with the new standard gauge project. Source: Country visit
Current proposals for railways institutional reforms	Independent Railway Regulator to be introduced, no timescale given.

Valley Railway Concession	
Concession beginning	August 1, 2006 : RVR takes over KR on November 1, 2006
Duration of the concession	25 years for freight and 5 years for passenger services in Kenya, concession is still going on.
Concession description	KRC and Uganda Railways jointly own the railway infrastructure and facilities on the concessioned line from Mombasa in Kenya to Kampala in Uganda. The concessionaire operates the rolling stock and maintains the infrastructure. In reality the concessionaire also invests in infrastructure improvements and expansion.
Concession shareholders and capital	Currently owned by Kenya Uganda Railway Holdings (KURH). Shareholding in KURH is : Ambience Ventures Limited and Ambience Rail Company Limited both investment vehicles for Citadel Capital have an ownership 51% of KURH. Safari Rail Company a wholly owned subsidiary of Trans-Century limited of Kenya with 34% ownership of KURH. Bomi Holdings Limited of Uganda with 15% ownership of KURH.
Shareholding evolution	Original shareholding: Sheltam 61%, Other Foreign 14%, Local Investors 25% Shareholding in February 2010: Sheltam Railways of South Africa (35%), Trans-Century Kenya (20%), Prime Fuels Limited of Kenya (15%), Mirambo Holdings of Tanzania (10%), Babcock & Brown of Australia (10%). Shareholding in March 2010: Africa Railways of Egypt (subsidy of citadel capital) (51%), Trans-Century Limited of Kenya (34%), Bomi Holdings of Uganda (15%). Initial concession in 2006, a new shareholder grouping was formed due to an underestimation of the investment required and a lack of funding capability from the initial shareholders. New shareholder grouping in Feb 2010 and again in March 2010. An amendment to the concession was signed in Aug 2010. So really this concession is only 3 years old. In fact the RVR will be rebranded this year to distance itself from the original shareholder grouping.
Connection of the concession to mining/logistic industry	None
Present financial situation of concessionaire	RVR managed to raise US$ 287 million to finance a five year Capital expenditure plan that will see the business generate after tax profits for the first time in more than three decades. Out of the total capital financing package of $287 million, $ 164 million comes in the form of a series of loans from six development finance partners: $40 million from the African Development Bank (AfDB); $32 million from Germany's KfW Bankengruppe; $22 million from the International Finance Corporation (IFC); $20 million from FMO (the Dutch development bank); $20 million from the IFC Debt Pool and $10 million from the Belgian Investment Company for Developing Countries (BIO). From the private sector, Kenya's Equity Bank extended a $20 million loan. Of the Above Amounts US$ 49 Million was released in December 2011, heralding the start of the Programme to get the Railways back on track. One of the interesting issues is that IFC will be engaged in RVR with an equity stake of $ 10m. On target to make a positive post tax profit this year Source: country visit

Concession economics	Precise figures for the concession are not available. The concession fee was stated to be 11.1% of gross revenue to be paid quarterly. The minimum investment in infrastructure is $ 40m per annum. These figures remain constant over the 25 years.
Structure of Concessionaire costs and revenues	Cost structure not available.
Cash flows between the government and concessionaire	Cash flows not available – RVR are currently meeting their financial obligations with regard to the concession fee and are investing considerably more than the minimum required in infrastructure. Investments which are made in infrastructure and signalling etc. will be depreciated at the end of the concession contract. There is a considered Assets Account, which lists all agreed investments made.
RVR railways operations	95% freight operations, 4 % commuter and 1% long distance passenger Concession is not meeting transport volume targets due to lack of capacity. They are not able to handle the existing transport demand due to lack of rolling stock and poor infrastructure. KRC view is that the transport targets, which should be met by June of 2014, will not be achieved. 3- 4 trains runs daily at the moment, but 6 trains would be possible even on the existing infrastructure. RVR have stated that they will achieve all target this summer. KRC operate no rail services. RVR supply all passenger services both urban and long distance. Source: Country visits Based on the railway concession agreement from 1st of November 2006, RVR operates Commuter services along the following routes:
Rolling stock Technical data	RVR had 65 locomotives in 2011 under the concession of which the youngest was built in 1987, 6 of which were built between 1960 and 1967. The average age of the locomotives was almost 40 years old. Numbers not available of existing rolling stock. RVR says most of existing not suitable, KRC say they were. 20 reconditioned locomotives from GE are on order. New tamping machine and ballast regulator on order (Plasser /Theuer) by RVR as the existing machines handed over as part of the concession agreement are over 30 years old. RVR developing (and under patent) new wagons for use in transporting iron coils.

Route	Distance (km)	Frequency
Nairobi – Ruiru	31	Two services a day
Nairobi – Kahawa	24	Two services a day
Nairobi – Embakasi Village	15	Three services a day
Nairobi – Kikuyu	31	Two services a day

A.1.4 Madagascar

a. Main lessons from Madagascar's experience

1. The Malagasy experience in railways represents a clear example of how railway concessions can positively contribute to the re-launching of a railway system within a complex environment provided Governments and International Financial Institutions support them. The reduction of costs and the increase in revenues have made this concession financially viable as long as the government provides passenger subsidies.
2. There is a great contrast between the evolution of the Northern railway system (under concession to MADARAIL) and the Southern railway system (not under concession) in Madagascar. While the latter has continued to drop in terms of freight traffic, the use of a PPP for railway operations in the Northern system has had the opposite effect: freight traffic has increased notably since the beginning of the concession. However, neither system has been able to increase passenger traffic despite serving isolated areas.
3. Passenger transportation needs to be subsidized due to its social objectives but the agreements that protect those subsidies have to be guaranteed by the national government or a specific entity - in particular, if they are signed between the concessionaire and regional bodies with no financial resources. In Madagascar, as in other African countries, the concessionaire has seen itself forced to assume the losses of passenger transportation on regional lines because the beneficiary was not making the agreed payments. It was not until the Malagasy government decided to act (several years later) that the concessionaire was refunded.
4. The elaboration of an investment plan by the World Bank and the concessionaire has made it possible to focus on specific targets and the optimization of resources. Nevertheless, the $ 49 million invested in infrastructure has proved insufficient to cover the rehabilitation requirements of the railway infrastructure. Moreover, given that the infrastructure renovation has been spread over a long period of time (more than 7 years), the railway infrastructure has always been subject to bottlenecks, which undermine the capacity of the line. Both issues show the need to provide more substantial financial resources over a shorter period of time. This would have enabled the Concessionaire to accelerate the improvement of its performance as well as avoiding many of the rehabilitations, which were made necessary by a lack of maintenance.
5. Prioritisation of investments in rail ahead of road when both infrastructures are parallel resulted in a reduction of pollution, accidents and other externalities, thanks to the shift from road to rail of freight transportation. The World Bank carried out the common strategy for road and rail transportation after realising that investments were being made in two means of transportation under fierce competition. This action may be a reference for future investment plans including road and rail transportation in the country.
6. The inclusion of clauses in the credit agreements from the Multilaterals relative to the restrictions on Heavy Goods Vehicles (HGV) was not put in place at the right time. As a result, the lenders have found themselves providing loans for the rehabilitation of roads that were being damaged by those vehicles, while at the same time they were setting up alternative transportation. The execution of this measure could have a saved a large quantity of resources and allowed them to be used for the improvement of the rail corridors.
7. As mentioned in point 1, the difficulties encountered by the concessionaire due to extraordinary events have proved the need to put in place risk mitigation mechanisms that protect the concessionaire from circumstances such as Force Majeure events (mainly cyclones), political instability, exchange rate risk, inflation risk and market risk. Multilaterals and the public sector have shown their commitment to protecting the concessionaire's interests, stabilising the proper development of the railway concession.
8. In parallel with the infrastructure and rolling stock investments, a strategy to improve knowledge levels and performance of the existing Human Resources should have been implemented. The aging of the labour force and the legacy from the previous public railway system have been obstacles for the enhancement of railway operations by the concessionaire, despite its expertise in the sector.

b. Madagascar railways data sheet

General information			
Area	587,041 square kilometres	Main Urban areas (pop. x1,000)	Antananarivo: 1,987 Source: UN World Urbanization prospects
Population	22.29 million (2012) Source: World Bank country homepage	Main corridors	Antsirabe - Antananarivo - Tomasina
GDP	$ 40.15 billion (2012 est.) Source: World Bank country homepage	Natural resources	Chromite, petroleum products and agricultural products such as coffee, vanilla, sugar, and cotton cloth. Source: CIA World Factbook

Railways information		
Railways network	2 railway systems: **Northern railway system** Under concession to MADARAIL SA 685 km, made up of 3 railway lines: TCE (Antananarivo-Côte Est): 372 km Moramanga – Lac Alaotra (MLA): 160 km Antananarivo – Antsirabe (TA): 153 km **Southern railway system** Managed under a Parastatal company Fianarantsoa – Manakara (FCE): 163 km Source: Ministry of Transportation of Madagascar and MADARAIL SA	
Infrastructure technical data	Both railway systems have narrow gauge rail tracks and have their origins in the colonial era. Due to their geographical situation on the Indian Ocean coast, both systems are often exposed to cyclone activity. **Northern railway system** Resulting from a lack of maintenance over many years, the railway infrastructure is generally in poor condition despite a $ 49 million investment plan from 2003 and 2010. Those investments were led by the IDA-World Bank and put in place in parallel to other transport infrastructure investments, although the railway was not initially included.	

The discontinuation of international aid that followed the institutional crisis in 2009 has had a very negative impact on the maintenance and investments required. The railway provides accessibility to 48,000 people who were isolated before the re-launching of the line.
The infrastructure presents several shortcomings such as the existence of three different rails, damaged wooden sleepers and many bridges and slopes need of urgent renovation or stabilisation since they represent a danger for the safety of operations. This results in a poor commercial speed, which barely exceeds 20 km/h. The biggest improvement is found in the decrease of user time delays: length of speed restriction in effect for more than 90 days was reduced from 23 to 1.2 km.

Southern railway system

No relevant investment has recently been put in place. Thus the infrastructure conditions have remained in very poor condition. However, since they provide access to isolated areas, operations have continued despite the general infrastructure underperformance.

Source: "Rapport final de la mission d'evaluation de la concession de MADARAIL", World Bank (2012); "Implementation, Completion and Results report on a credit to the Republic of Madagascar for a Transport infrastructure Investment project" (World Bank, 2013) and country visit.

Railways operators

Northern railway system

Railways are operated by VECTURIS SA, a Belgian-based railway operator, which was formerly the main shareholder in the concession from 2008 to 2011.

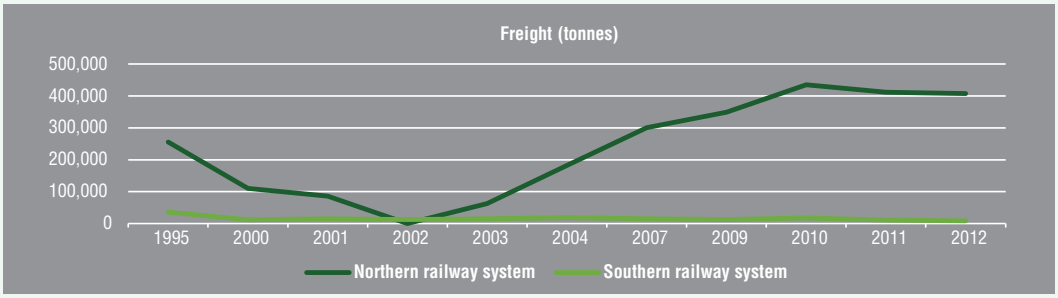
Southern railway system

A parastatal company is in charge of the railway operations.

Type of operations

General freight, dry bulk, liquid bulk and passengers. Ability to arrange door-to-door services.

Performance freight



Northern railway system

Thanks to the start of the concession in 2003, the Northern railway system has achieved a very clear recovery in rail freight transportation, reaching the levels obtained prior to the decline of the infrastructure. However, due to the effects of an intense cyclone season, the ceasing of the international funding from 2009 to 2013 and especially the fierce competition with road transportation, the freight traffic has performed around 30% below the forecast traffic levels.

Thanks to the concession, the personnel productivity doubled in terms of tonne/employee.

Southern railway system

Freight transportation remains residual.

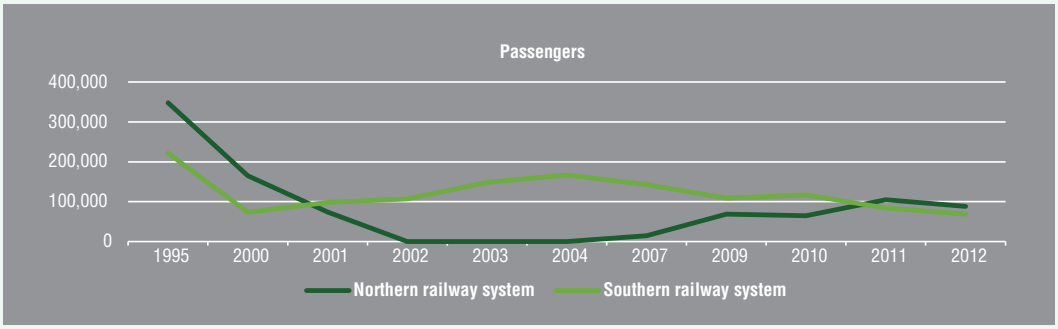
Source : Ministry of Transportation of Madagascar, Madarail SA and country visit

Trend:

The Northern railway system's freight transportation shows potential for sustained growth if infrastructure investments are developed, in particular regarding a new dry port on the outskirts of Antananarivo.

The Southern railway system shows a slow but continued decrease.

Performance passengers



Northern railway system

The unprofitability of passenger services has relegated them to a secondary role. However, as mentioned in the Concession contract, the government obliges MADARAIL SA to provide these services, subsidising any loss derived from the operations.

Southern railway system

Slow decrease due to the poor infrastructure conditions but also due to the decrease in the mobility that followed the events of 2009. The Malagasy government is currently developing a new strategy for the whole railway system.

Source : Ministry of Transportation of Madagascar and "Implementation, Completion and Results report on a credit to the Republic of Madagascar for a Transport infrastructure Investment project" (World Bank, 2013), Madarail SA and country visit.

Trend : Both railway lines have been stagnant or decreasing over the last few years.

Railways competitive position vs road

In contrast with other African countries, the Malagasy road and railways systems have shown similar deficits in terms of the maintenance and status of the infrastructure. This results in a lower cost of carrying goods by train in comparison to road (35% lower).

However, due to the lack of an effective axle load control for Heavy Good Vehicles (which was foreseen in the World Bank lending package) there has not been the expected migration of the freight transportation from the road to the railway, hindering consolidation of the rail freight transportation.

The Malagasy government has recently committed itself to the implementation of an axle load control on the roads affected by competitive conflict between the road and the railway, in accordance with the conditions established in the IDA-World Bank Credit Agreement

Source: "Implementation, Completion and Results report on a credit to the Republic of Madagascar for a Transport infrastructure Investment project" (World Bank, 2013), Madarail SA; "Avenant 6 à la Convention de Concession de gestion et d'Exploitation du Réseau Ferroviaire Nord de la République de Madagascar" and country visit

Railways institutional framework	The Malagasy railways are under the Ministry of Transportation (Ministère des Transports). They depend on the General Directorate for Land Transportation (Direction générale des transports terrestres) and the Railway Transportation Directorate (Direction des Transports Ferroviaires). Since the railway network is divided into two rail networks whose governance is completely different, the Railway Transportation directorate is divided into two public bodies: Service Réseau Nord (SRN) Service Réseau Sud (SRS) The Ministry of Finance supervises and contributes to the finances of the public bodies in charge of the railways. Source: Government of Madagascar and Country visit
Existing railways regulation	The ATT (Agence du Transport Terrestre) is in charge of the regulation of overland transportation. It establishes the conditions and laws regarding railway services.
Future railways projects	**Northern railway system** An investment plan for the period 2012-2015 was agreed between the Malagasy government and MADARAIL SA in 2011. The government agreed to mobilise the financial resources required to improve the performance of the whole system, with two areas: Renovation of the existing infrastructure in order to improve the performance of railway operations. The total investment will be assumed by the Malagasy government. Acquisition of new rolling stock and rehabilitation of part of the existing stock. The investment will be carried out though credit from the government to MADARAIL SA The total amount estimated is MGA 184.9 billion (83% for brownfield investment and 17% for Rolling stock investment) As well, a new Dry Port will be built in the Antananarivo area (see next pages for more details of the project). **Southern railway system** As mentioned earlier, the Malagasy government is defining a new strategy for the re-launching of this network Source: "Avenant 6 à la Convention de Concession de gestion et d'Exploitation du Réseau Ferroviaire Nord de la République de Madagascar" and country visit
Current proposals for railways institutional reforms	The reinforcement of the ATT and its role as a supervisor of the railway concession in the Northern railway network are currently under discussion within the government.
Existing railways regulation	The ATT (Agence du Transport Terrestre) is in charge of the regulation of overland transportation. It establishes the conditions and laws regarding railway services.

Main features of MADARAIL Concession	
Concession beginning	The Concession agreement was signed on 10th October 2002 but the concession did not begin until 1st July 2003. The award of the concession took place in 2000 to Comazar (Bolloré group).
Duration of the concession	The initial duration was 25 years but the concession was extended in 2011 to 40 years, starting on 1st July 2003, reviewable every 10 years.
Concession description	MADARAIL SA was awarded the right to manage, maintain, renew and operate the Northern railway network under a Concession agreement with the Malagasy government. In exchange, MADARAIL committed itself to developing an investment plan in order to re-launch the railway operations as well as agreeing to provide passenger services despite not being profitable. MADARAIL pays While the Malagasy government is in charge of the Infrastructure investment (remaining the owner of the infrastructure), MADARAIL is responsible for the rolling stock investments (remaining the owner of the equipment). Any investment carried out by the Concessionaire in the infrastructure renovation remains under the ownership of the Malagasy Government. The Concession is monitored by the "Comité de Suivi" which includes representatives from the Malagasy government (2), the private sector (1) and the Concessionaire. The budget of this monitoring committee is funded by the FIDF (Fonds d'Investissement et de Développement Ferroviaire), a fund specially created to provide the required resources for the improvement of the railway infrastructure. Source: "Convention de Concession de gestion et d'Exploitation du Réseau Ferroviaire Nord de la République de Madagascar"
Concession shareholders	The shareholders of MADARAIL are currently the Malagasy government (25%) and Madarail holdings (75%). However, the shareholding of the private sponsor has been changing (from 51% to 75%) as well as its owner: • From 2002 to 2007: Comazar (Bolloré group), also railway operator • From 2008 to 2011: Vecturis, also new railway operator) • From 2011 – current: Madarail Holdings, but Vecturis remains in charge of operations. Source: "Avenant 6 à la Convention de Concession de gestion et d'Exploitation du Réseau Ferroviaire Nord de la République de Madagascar" and country visit
Major changes after concession awarded	The Concession contract has been amended on 6 occasions since the original signing for several reasons, in particular: Amendments to articles of the Concession contract not fulfilled by both signing parties, among them: Payments between both parties: reformulation of the calculation method Monitoring of the concession: The investment responsibility in infrastructure renovation: from MADARAIL to the government The extension of the contract duration to 40 years The changes in the railway shareholding The changes in the concession environment: Political events: the political crisis in 2009 Economic changes: mainly the strong depreciation of the Malagasy Franc versus the Euro Transport market: the unexpected effect of the increase in road transport that hindered the railway freight transportation

	Force majeure events: the works required to repair the damage caused by cyclones (financially assumed by the government) The investments achieved or planned, the loans by the different lenders and donors (IDA, BEI, BOA and the Malagasy Government) and MADARAIL as well as the use of these resources (equipment and infrastructure renovation) The Maintenance Service Contract between MADARAIL and Dynatec to develop an investment and maintenance plan in 2007 The creation of a Dry port in the surroundings of Antananarivo as a synergic asset for MADARAIL Source: Country visit and "Avenants 1, 2, 3, 4, 5 et 6" to the Concession contract
Current agreement between the Concessionaire and the railways operator	5 year Operations Contract between MADARAIL SA and Vecturis to provide the Railway operations for the entire Northern railway network. The continuation of Vecturis as the operator of the railway line is in line with the recommendations issued by the World Bank during their Credit Supervision mission. Vecturis is also in charge of the management of the Concessionaire, reporting directly to the board of directors on all of its activity (budget, investment plan, financial statements, treasury, facilities, human resources…) Vecturis receives a yearly amount for its services based on a fixed payment and 5% of MADARAIL's EBIDTA, which cannot be less than 1% of MADARAIL's Income.
Arrangements regarding passengers traffic	RVR managed to raise US$ 287 million to finance a five year Capital expenditure plan that The Concession contract establishes the obligation for the Concessionaire to carry out passenger services for social reasons under conditions that include, among others, the type of services, prices or schedules. These conditions are fixed by the Malagasy government or the Malagasy Regions. The public sector commits to cover the expenses attributable to those services and pays them on an annual basis to the Concessionaire (a subvention). This compensation is fixed for each of the services between the beneficiary of the services and MADARAIL. The Concession contract establishes the procedures to be followed should any of the parties fail to fulfil their obligations. MADARAIL has the right to stop or limit the operations provided if it is not receiving the corresponding compensation for the losses derived from the passenger services. As Aventant 6 states, since 2008, MADARAIL has not been receiving the agreed amount by one of the Malagasy Regions. However MADARAIL has kept providing the services, assuming the losses generated. In order to face this issue, the Malagasy government provided a provisional financial solution to MADARAIL.

RVR railways operations

The investment program carried out from 2003 to 2012 has been the following:

In million dollars	Project development	Rail Infrastructure	Rolling stock	Operational costs	TOTAL
FUNDERS *(Beneficiaries)*	*(Madarail)*	*(Malagasy gvmt)*	*(Madarail)*	*(Madarail)*	
IDA-World Bank	1.43	36.99	3.56	6.92	48.90
%	*100%*	*74%*	*19%*	*51%*	*59%*
EIB		0.18	14.17	-	14.35
%	*0%*	*0%*	*78%*	*0%*	*17%*
Malagasy Gvnmt		12.67		6.74	19.41
%	*0%*	*25%*	*0%*	*49%*	*23%*
Bank of Africa			3.72		3.72
%	*0%*	*0%*	*20%*	*0%*	*4%*
Madarail (own resources)		0.01	0.53		0.54
%	*0%*	*0%*	*3%*	*0%*	*1%*
TOTAL	**1.43**	**49.85**	**18.26**	**13.66**	**83.20**
%	*2%*	*60%*	*22%*	*16%*	

It is worth to mention that the World Bank increased substantially its efforts to improve the Northern rail system from 2005. Its commitment reached to the point that it stopped its contribution to the rehabilitation of a road parallel to one of the rail axes(RN2, the most congested of Madagascar) in order to reinforce the market position of the rail infrastructure in front of road transportation.
The reduction of accidents and pollution in this transportation axe proved the success of this change in investing priorities by the World Bank.

Source: “Rapport final de la mission d’évaluation de la concession de MADARAIL”, World Bank (2012)

Connection of the concession to mining/logistic industry	A Dry Port (multimodal logistic platform) is being developed on the outskirts of Antananarivo. It may represent a business opportunity for MADARAIL due to the central role that the railway could have in connecting it to the Malagasy capital and its main sea port (Tomasina). The required capital will be mobilised by the Malagasy government but the project will be led by a consortium directed by MADARAIL. The construction of this new Dry Port will entail the transfer of the Concessionaire from Soarano to the new facilities, leaving the released land at the disposal of the Concessionaire. MADARAIL will have the right to commercialise the Soarano site for the next 50 years. It was agreed to sign a new convention between the government and MADARAIL before June 2012 that establishes the role, rights and obligations of both parties regarding the new logistic platform. Source: Avenant 6 and country visit.
Human Resources	The labour force of MADARAIL, which mostly previously worked for the old Malagasy National Railways Network (RNCFM) has a high average age (45 years old). Due to this fact, massive retirements are foreseen for the upcoming years. There is a general need to rejuvenate the current employees and improve their railway skills at all levels. However, since 2000, there have not been any centres dedicated to the training of railway professionals in Madagascar (previously there were as many as 3 centres and many people from mainland Africa attended these schools). Nowadays they are forced to go to other countries to receive specific lessons. Source: Country visit and "Convention de Concession de gestion et d'Exploitation du Réseau Ferroviaire Nord de la République de Madagascar".
Rolling stock Technical data	MADARAIL SA was awarded the right to manage, maintain, renew and operate the Northern rMADARAIL currently owns 17 locomotives and 260 wagons of which 67 are covered, 48 are uncovered, 76 are used for dry bulk, 63 are used for liquid bulk and 6 are used as dumpers. According to the World Bank: • Availability of wagons: 80 to 86% (excellent) • Availability of locomotives: 90 to 93% (excellent) MADARAIL also owns a high comfort train for passenger services (Michelin), but due to safety reasons related to the state of the infrastructure, it is not operative on a regular basis. Source: Madarail, January 2014; "Rapport final de la mission d'evaluation de la concession de MADARAIL", World Bank (2012)
Cash flows between the government and concessionaire	The Concession contract establishes the payments of a variable amount from the concessionaire to the Malagasy government, calculated according to a specific formulation that depends on the Net revenue, the amortizations and the Debt service of the concessionaire. If the result of this formulation is negative, the payment equals 1% of the Concessionaire revenue. The ATT is in charge of the collection of these payments, which along with the amounts provided by the Ministry of Finance, will fund the investments in infrastructure requested by MADARAIL through the FIDF.

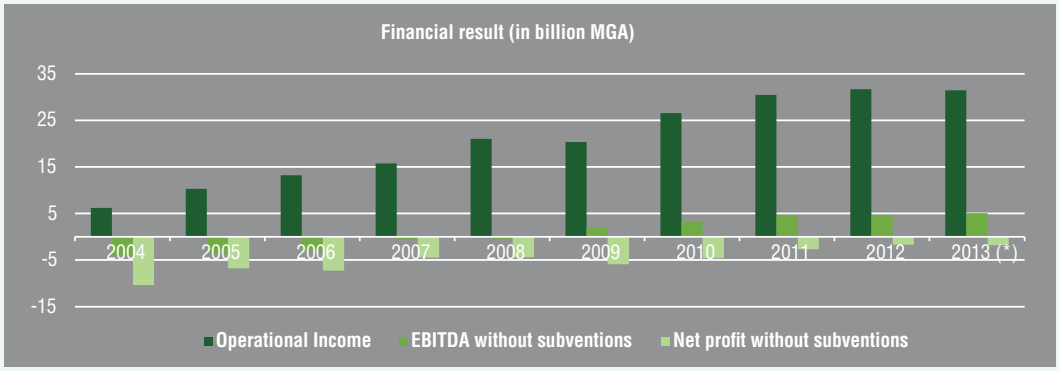
Performance passengers

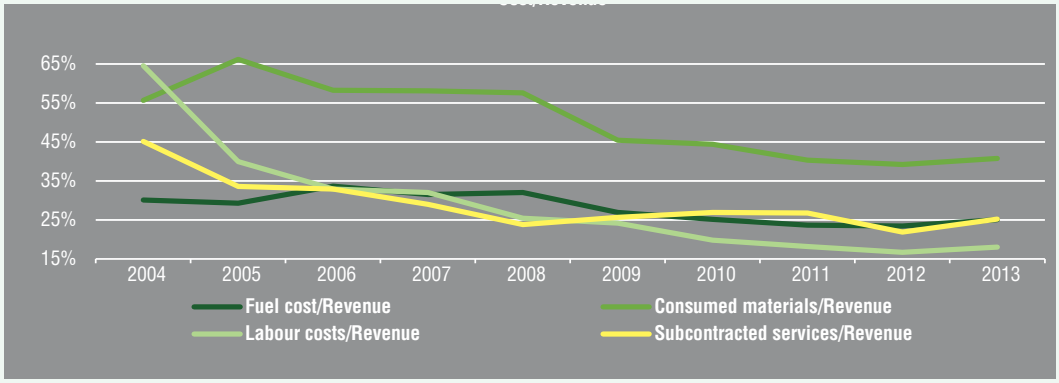
According to the information provided by MADARAIL:

MADARAIL has not been able to achieve a Net profit since the beginning of the Concession without the contribution of the subsidies. However the losses generated have been gradually reduced from -168% of the Operational Income at the beginning of concession to only -6% in 2013.

The reason for this reduction lies in the outstanding improvement of the EBTIDA thanks to the reduction of costs. MADARAIL's EBITDA has been positive since 2009 and now represents 16% of the Operational Income.

The income has been increasing since the beginning of the concession except for the last 3 years, in which traffic stagnated because the underperformance of the infrastructure hindered the capacity of the network.





Source : Madarail

A.1.5 Morocco

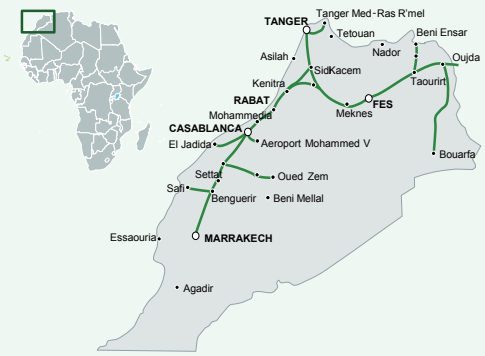
a. Main lessons from Morocco's experience

1. Morocco's approach to reforming railways has differed substantially from other African countries. Instead of switching to a concession system to provide sufficient financial resources and expertise from private partners, Morocco has managed to take the necessary time to carry out a reform of its state-owned monopoly ONCF towards a market-oriented strategy. The time dedicated has proven helpful in limiting labour force conflicts in the process.
2. Open-market and privatization of ONCF were not regarded as adequate solutions. First, Morocco's network was not seen as sufficiently large to support regulation costs. Moreover, managers and staff were technically competent and therefore the situation didn't particularly call for private expertise. Finally, the Ministry of Finance was already capable of raising financial resources to rescue ONCF from crisis, and to develop activities.
3. However, it was necessary to change ONCF's ageing economic model to a business model, and this has required deep changes in organization. Reforming the public entity was made possible by appointing dynamic managers, with international experience of other railway business models. Involving the finance department in key decisions has helped to build a sustainable business model. Government collaboration via the MoF throughout the process guaranteed mutual comprehension of key success factors.
4. Choosing to keep the railway development and operation as a public enterprise is also key in Government's strategy. Railways' central role in economic and industrial orientations help to explain the major financing efforts carried out. Government has shown a commitment to railway development by making sure that both financial resources and an educated workforce were developed accordingly to serve as tools to support the railway strategy. On the one hand, investment plans to upgrade and expand the network were set up as part of major coordinated logistics and transportation strategies to ensure economic benefits. As well, continuous training ensures that the workforce participates effectively in building, operating and managing the system. Developing both components in parallel has helped greatly in maintaining a state-owned competitive railway.
5. To participate in a coherent strategy, railway development in Morocco follows three actively coordinated levels of planning, assessing HSR, conventional railways, and rapid transit system in urban areas (RER). Coordinating different levels implies continuous regulation support from Government to adapt a legal framework that must answer developmental needs. This currently involves preparing a regulatory framework to make sure new railway actors can possibly enter the market if the environment seems adapted.
6. Regulation of the Government–Operator relationship through the Contrat-Programme puts ONCF in charge of operation, maintenance and construction of railway infrastructure, and defines financing mechanisms. If ONCF revenues from activities cover operational and maintenance costs, its results above expectations provide for additional revenues to go into infrastructure investment. To reach this situation, Government relieved ONCF from significant debt before starting the reform, and reduced intrusion into operational decisions in order to set up appropriate tariffs schemes. The model could therefore be considered self-sufficient in operation and maintenance of public railways. However, since the measure is very recent, it remains to be analysed over a longer time-scale. Morocco has shown interests in promoting its successful financial mechanisms and the resulting model to other African countries.
7. Road transport is not perceived as competitive with freight activities, but rather as complementary. Rail freight is chosen where it naturally best excels, using a logistic approach to goods transport. Integrated plans including platforms should improve freight activities attractiveness by reducing time and handling. Connectivity to ports and facilities are best sought for in development plans over capacity expansion and could help defining Morocco as a competitive market at international level.
8. Rail's participation in industrial development is not seen as limited to transport. Indeed railway-related industry is sought to be co-developed with training programmes, such as building, refurbishing and maintaining rolling stock. The resulting cluster

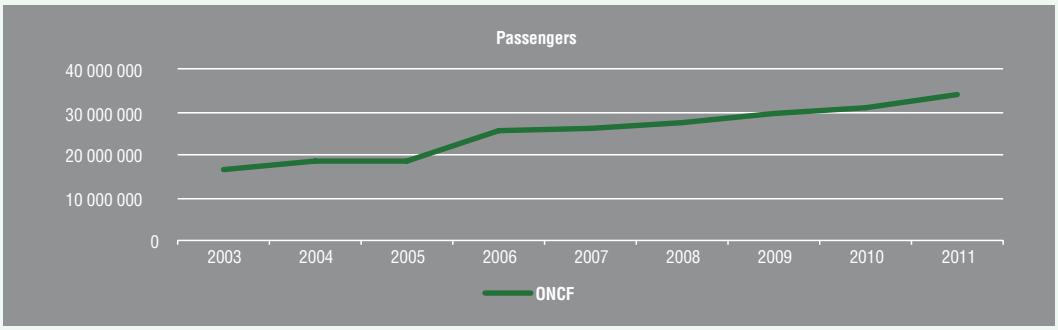
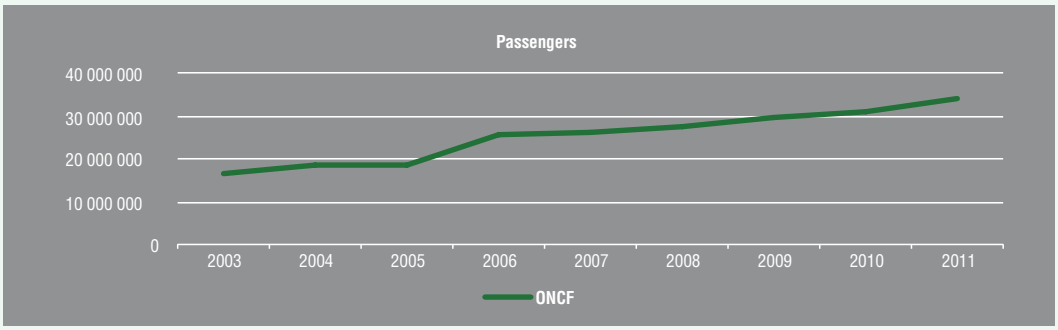
approach to railway industry intends to consolidate government's integrated strategy and would give ONCF more capacity to adapt rapidly to market.

9. Passenger transportation has shown compelling potential in an increase that is remarkable for such a market segment, with passenger numbers tripling in the last ten years. Morocco's economic level and distribution of population can explain differences with most SSA countries in passenger transportation needs. Such performance is attributed to increases in level of service. Overall client satisfaction has experienced double digits growth and now exceeds 75%, as a consequence of a client-approach instead of traditional user-approach.
10. Putting train stations at the core of developmental needs was key in developing multimodal connections with well-populated urban areas, effective in capturing new passenger traffic. Private participation in the operation of 10 of the main stations has introduced a new culture of services and conveniently frees ONCF from related cash-flow requirements.
11. Given the expected demography and economic development, plans for developing large HSR infrastructure and the construction of the first HSR line in Africa illustrate Morocco's ambitions to lead the African market. However, strong differences between HSR and the traditional business model demands closer inspection of outcomes of the project to prove that development is viable.
12. PPPs have been used in Morocco on a case-by-case approach, with Government giving legal agreements for specific projects. Sometimes time-consuming, this method is not viable and calls for a specific legal framework. A law is being prepared to allow private participation in larger projects, such as HSR, if necessary.

b. Morocco railways data sheet

General information			
Area	710,850 square kilometres	Main Urban areas (pop. x1,000)	Casablanca: 3,046 (2011) Grand Casablanca : 3,988 (2011) Source: UN World Urbanization prospects, "Étude de restructuration du transport collectif de Grand Casablanca" ALG
Population	32.52 million (2012) Source: World Bank country homepage	Main corridors	Tanger - Rabat – Casablanca - Marrakech Rabat - Fès - Oujda
GDP	$95.98 billion (2012) Source: World Bank country homepage	Natural resources	Phosphates, iron ore, manganese, lead, zinc, fish, salt Source: CIA World Factbook
Railways information			
Railways network	Operated by ONCF **Atlantic (S – N) railway corridor** Tanger – Casablanca (TGL) 320 km **Maghrebi (E – O) railway corridor** Nador – Casablanca (TGL) Source: ONCF	

Infrastructure technical data	The railway system uses a standard gauge and is in fair conditions. Traffic heavy routes are electrified but are close to capacity. The network serves about 70% of the population and is one of the most developed in Africa. The network supports indifferently freight and passengers, apart from the phosphate mining line between Oujda and Bouarfa. Up to 2000, the network did not benefit from major attention in terms of investments. Maintenance was performed minimally, resulting in low level of service. Both freight and passenger traffic was consequently declining. Recent overall transportation plans have allowed the creation of satellite lines (Nador – Taourirt) that intend to connect to economic centres, including port terminals. Such new satellite lines are built as multimodal nodes to increase freight and passenger service arriving from logistics and transportation hubs. Budget efforts in infrastructure development and maintenance were significant, growing from $ 857m for 2002-2005 to $ 2.2b for 2005-2009, allowing doubling tracks on high traffic sections (Casablanca – Fès, Casablanca-Kenitra, Casablanca-El Jadida et Fès-Sidi-Kacem), and participating to upgrades in ageing signalization system. Rolling stock is adequate with satisfactory availability and good condition. Coach productivity is similar to Western European railways. Recent acquisition of 24 high-capacity electrical trains (400 seats) illustrates Morocco's intention to adjust its fleet in line with European standards. Renovation of coaches is pursued by ONCF, notably in its Casablanca maintenance centre. A specific part of the program concerns train stations, which have been renovated to diversify services provided and offer more comfort to customers. 10 of them have been transferred to private operators. Some new train stations were also created to support multimodal connections, as it is the case in Marrakech and Fès. Construction of dry ports such as Casablanca MITA intends to support rail logistic strategies with new services and better performance in freight and multimodal nodes. Source: Ministère de l'équipement et du transport (2013); "Stratégie du Ministère de l'Equipement et du Transport".
Railways operators	Railways are operated by Office National des Chemins de Fer (ONCF), which was formed after French departure in 1963, merging former concessions Compagnie des chemins de Fer du Maroc (CFM), Compagnie du chemin de fer du Maroc Oriental (CMO) and Compagnie Franco-espagnole du Tanger-Fès (TF). ONCF is a public corporation with a monopolistic situation since market is currently closed to competitors.
Type of operations	General freight, dry bulk (phosphate particularly), liquid bulk and passengers.

Type of operations	General freight, dry bulk (phosphate particularly), liquid bulk and passengers.
Performance freight	 Freight performance is largely dependent on phosphate activities, representing 75 % of total tonnes transported. Such dependence resulted in a decline in 2007-2009, related to a slowdown of phosphates exports. General freight has been neglected in favour of phosphate freight due to tariffs disadvantages and lack of capacity Source : ONCF Trend : Freight traffic shows a real potential for increase if lack of capacity is addressed. Improving freight results is important to participate in industrial development. Entering international market through multimodal logistic centre's and improved connections to ports is today's main strategy.
Performance passengers	 Focus on passenger service, especially in quality and level of service, led to a double increase from 2002 to 2008, which is a noticeable feature. Capacity extension with acquisition of new coaches, modernization of train stations, which allow multimodal connection in major urban areas, facilitate passenger transit and attract new customers. Source : ONCF Trend : Passenger service is to increase with opening of new high-speed lines and overall decrease in time of travel. Such improvements could make it possible to attract a dynamic demography.

Railways competitive position vs road	Freight traffic was seriously loosing traffic shares in the end of the 1980s through beginning of the 1990s due to deregulated road transport. Competitiveness was slightly increased following the 1994-02 reform, which performed transition to a customer-oriented market. The introduction of contract rates to replace official tariffs has shown encouraging results. The future development of door-to-door strategy is preferred, with construction of logistic centres under rail service. With regards to passengers, improvements in services quality were chosen as solution to fight road competition. Overall, it is clear that Morocco's government's strategy is to co-develop road and railways infrastructures in a coherent way, improving and extending railways where it naturally is best. The creation of a road business unit inside ONCF demonstrates the integrated approach. Source: ONCF, Country visit
Railways institutional framework	ONCF is a public corporation, and acts under the Ministry of Transportation (Ministère de l'Équipement et du Transport) for technical orders and the Ministry of Finances (Ministère des Finances) for financial supervision. The Contrat-Programme passed between the government and ONCF specifies expected results and is central in the managing of the system. ONCF has been through a reform during 1994-02 that decreased government control in its operations, but still remains a public corporation (a law is prepared but not yet published). Source: ONCF, World Bank (2011); "Railway Reform : Toolkit for improving rail sector performance.", Country Visit
Existing railways regulation	ONCF is in charge of the regulation of the surface transportation. It establishes the conditions and laws regarding the railway services.
Future railway projects	**HSR Projects** Recently adopted railway development plan includes the construction of 1500 km of HSR lines on major passenger corridors in the 2010 – 2035 time frame. Tanger – Casablanca The construction of a HSR between Casablanca and Tanger is phased in two operations, with the first one expected to be finished in 2015, delivering a 200km line commercially operated at 320 km/h. Such line will allow more passenger traffic from Tanger, and is developed in accordance with the tourism plan. Plan arguments that, conventional lines should recover additional capacity that would allow more freight services. It will be Africa's first HSR project. The outcomes of the project are unsure, especially in terms of project cost bearing for ONCF. HSR models significantly differ from traditional railways. Maintaining construction costs at levels set will be crucial in financial viability. Moreover, adjusting initial business model could be necessary to match market estimations. Such setting example in Morocco and in Africa should serve as a test and reference, to make sure possible following HSR lines are viable, especially in terms of tariffs definitions and business plan. The Casablanca-Marrakech-Agadir remaining section is expected for 2017. If the Tanger – Casablanca shows encouraging results, the East-West corridor will then also benefit from HSR in a second stage, during 2020-2035.

	Traditional rail system The overall railway development plan demands about $ 20b, of which a significant part should be allocated to modernization of existing lines and railway extension. The plan is seen as a tool to control territorial development. **Commuter rail line of Casablanca (RER)** The development of urban transport in Casablanca gives a large role to railway systems with the creation of a rapid transit system (RER). ONCF was designated to build the new line that could cost roughly $ 1.2b. It is part of the multimodal system expressed in the urban development plan (PDU) of Casablanca, and aims at multiplying connections with existing and new tramway, metro lines and BRT. **Logistic centers** Construction in 2009 of logistic center Casablanca MITA exposes the role that logistic centres are to take in future freight development. Offering rail service to logistic centres at strategic positions, connecting them to transportation hubs via railways is part of Morocco's strategy. It imbricates railway strategy with logistic strategies in a constructive way. Source: Ministère de l'équipement et du transport (2013); "Stratégie du Ministère de l'Equipement et du Transport"
Current proposals for railways institutional reforms	Up to then, PPPs were allowed on a case-by-case basis, especially in train station renovation and construction. Government is currently considering the elaboration of a larger and exclusive PPP's legal framework that could be used as a tool to help in financing and constructing new infrastructures, if private markets show sufficient interest. Transition of ONCF from a public enterprise to a joint-stock company (SMCF) is being studied.
Main features of Morocco's ONCF reform	
Reform beginning	The restructuring program debuted in 1994 with a new ONCF general manager appointed.
Duration of the reform	The reform was considered to be effective in 2002.
Reform description	The alarming financial crisis through which ONCF was going had required substantial funding transfers from Government in the end of the 1990s. Those transfers were inefficient in fixing in a sustainable manner ONCF's financial situation, which had consequences in technical performance. The reform changed the management of activities to a market approach. It included a corporate reorganization, a financial restructuring, and allowed improvements in market performances. The elaboration of comprehensive general transport strategies at all levels and interconnected with major Government strategies, has participated in an effective territorial development. Source: World Bank (2011); "Railway Reform : Toolkit for improving rail sector performance."

ONCF shareholders	ONCF is currently a public corporation, benefiting from the *Établissement Public Industriel et Commercial* (EPIC) status. It is member of the UIC and UACF. Its missions are as followed : Operate national railways Carry studies, construction and operation of new railway lines Operate all mission-related enterprises Reforming from public corporation status to joint-stock enterprise is being studied and constitutes the second step of the institutional reform. It anticipates a concession contract between the future company and Government. The opening of infrastructure to competitors would therefore be possible. Management of infrastructures would still be ONCF's responsibility, but new competitors could invest in new infrastructure Source: ONCF
Major changes after reform	The reform operated in the railway sector during 1994-2002 introduces the main following changes: More independence in management from Government : ONCF could adjust its tariffs to market to prevent social concerns affecting finances and general competitiveness ONCF could diminish services on low-use lines Contracts could be established to regulate operating costs of freight, formerly abusively encouraging phosphate industry A reduction of operational cost was observed after such initial changes. More flexible human resources management Inspiration from private model for long-term personnel policy Cut in staff by 35% in ten years, with increased ratio to traffic revenue Transfer from the unsustainable pension system resulting to an external pension fund Introduction of training programs to provide skilled workers A financial restructuring with Government's debt relief MoF was deeply involved in ONCF restructuring. The introduction of *Contrat-Programmes* to establish policy elements for ONCF to pursue, and Government's financial support to ONCF. An extraordinary contribution to relieve ONCF from its debt has been made by Government, taking the form of subscription to ONCF equity ($ 1.2 b). ONCF's commitment to investment program through internal cash generation and loans A market-adapted corporate reorganization Organization of ONCF separating business units and general management unit, aiming at improving customer relations and overall performances Advanced definitions of work organization A more important role is given to the finance department, involved in all major decisions Preparation of next step in the reform, with a law proposed to open infrastructure to market and transform ONCF into a joint-stock corporation, fully owned by Government. Source: World Bank (2011); "Railway Reform : Toolkit for improving rail sector performance."

Current agreement between ONCF and Government	ONCF acts under the MoT through *Contrat-Programme*. Such contracts are seen as a crucial component in railway development, setting expected results, specifying Government's financial commitment, defining scheduled investments. It is considered as an instrument to build a prospective vision of railways. Railway development is therefore deeply dependent on political choices. Last *Contrat-Programme* is set for the 2010-2015 period, and includes details on major railway developments to be conducted, including new HSR lines. Source: ONCF
Arrangements regarding passengers traffic	The *Contrat-Programme* establishes the obligation for ONCF to carry out passenger services. Public subsidies are set in *Contrat-Programme* in advance. ONCF can set its own passenger fares to make sure it can generate enough resources to provide services. Passenger service is regarded as a complementary mode of transport, viable on main corridors and urban areas. Passenger numbers have greatly increased in last decade. The increase is expected to continue given the young and dynamic demography (more than 50% of the population is less than 25 years old). Plans are made according this assumption, and are therefore strongly exposed to traffic estimations risks.
Investment programme planned	ONCF operations currently generate enough revenues to sustain rehabilitation and maintenance of existing tracks and rolling stock. Cash flows expectations of the *Contrat-Programme* are exceeded by $ 34m on average, providing additional funds for investments in infrastructure, which are not expected from ONCF. MoF is to provide sufficient resources to complete the defined infrastructure projects in its contract, through low-interest loans. The 2005-2009 *Contrat-Programme* has permitted ONCF to invest about $ 2.34b in upgrading and extending current network with such fund. To finance the first HSR project from Tanger to Casablanca, French railway enterprise SNCF will be associated with technical advice and grants. Source: ONCF, Country Visit
Connection of the concession to mining/logistic industry	The investment programs and development plans include the construction of several dry ports to provide with an integrated logistics chain, such as Casablanca MITA. Connections between ports and hinterland with railway are seen as a strategic decision to support industrial development and international competitiveness in costs of doing business. Recent line opening to Nador is one example of this strategy. Connection nodes should support multimodal transport, one of major freight needs, and be associated to logistic centres, especially ports, to capture market share. The phosphate industry accounts for major freight volumes and has concentrated attention in last years. To take better advantage of other market segments, the phosphate industry should not take disproportional track access and benefit from subsidised fares. Source: Ministère de l'équipement et du transport (2013); "Stratégie du Ministère de l'Equipement et du Transport"

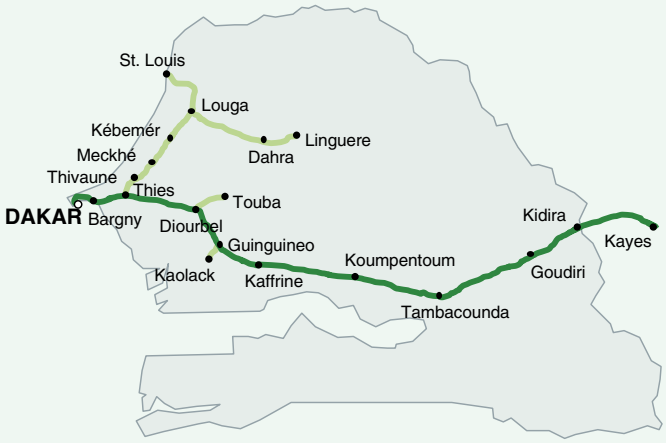
Human Resources	The process of reorganization that took place during the reform has facilitated the transition to new corporate structure. Contracted by ONCF, a consultancy firm conducted a detailed study on work organization that resulted in a slight decrease in labour force but a significant increase in labour productivity. Negotiation with labour force have necessitated time and resulted in agreements that prevented disturbing effects when transition was finally operated. Source: World Bank (2011); "Railway Reform : Toolkit for improving rail sector performance."
Rolling stock Technical data	ONCF currently owns 158 locomotives and 529 wagons for passenger services. It also owns 98 locomotives and 5328 wagons for freight services, among which 1504 are reserved for phosphate transport. Source: ONCF
Cash flows between the government and concessionaire	The *Contrat-Programme* contract establishes the payments for the time of the contract, usually 5 years, which Government is to make. ONCF's operation must cover for maintenance and renovation.

A.1.6 Senegal

a. Main lessons from Senegal's experience

1. The very nature of the Dakar-Bamako binational concession with two sovereign authorities adds complexity to what it is usual in these cases, as it involves different jurisdictions, customs, tax and social security regimes. Moreover, decisions take even longer than usual as two bureaucracies have to be mobilised and monitoring mechanisms have been almost non-existent in practice.
2. The financial package associated with the concession (i.e. $ 18m in equity and about $ 47m in debt) greatly underestimated the funding needs required to upgrade the infrastructure so operations could be performed to acceptable standards. If the Dakar-Bamako line was awarded under similar conditions to GCO (a new mining concession), the investment package should have amounted to more than $ 600 m. This seems to be a key point in explaining the failure of Dakar-Bamako. Under private operations there was no substantial improvement in infrastructure and therefore Transrail could provide only a marginally better service than previous State companies. Accordingly, apart from a brief surge after concession was awarded in 2003, traffic has been declining steadily, further debilitating Transrail's capacity to invest. In general terms, the entire process (project preparation, tendering and awarding) gives the impression that it was ill-advised and decisions were not always taken with solid professional foundations. The complexity of decision making involving two sovereign states may provide a partial explanation, while poor knowledge of the railways industry is another factor.
3. Transrail shareholding has been notoriously unstable and most stakeholders can show little –if any- track record in the railways industry. Moreover, the main activities of the current reference shareholder seem to benefit little from synergies with railway operations.
4. This poor outcome appears in a context that was, in principle, ideal for the railway's success: railway serving a landlocked country, a distance of more than 1,200 km and no functioning paved road serving the same corridor, thus allowing the railway to profit from a dominant position. This picture is rapidly changing since a paved road already connects Dakar and Bamako. Nevertheless rail still provides a smoother option, avoiding road controls and checkpoints and providing easier customs procedures carried out at the destination.
5. Recent concessions such as the one awarded to GCO shows that a fresh start, free from the legacy of state railways companies, provides a clear advantage. This experience also shows that clear commitments to more investment per km of track are necessary to really make a difference. Additionally, it suggests that new operators should spend time and resources on training, capacity building, improving manuals and operational protocols, safety and security, protection of rights of way from intrusions and informal occupation, etc.…
6. Governments in Senegal and Mali are studying a new institutional framework for railways. Separation of infrastructure (governments) and operations (private) is widely accepted, but many government officials still believe that fees will be enough to repay debt and fund maintenance, although this is not practical. Hence it is extremely important that new institutional arrangements are based on sound business models and that governments are fully aware of the costs that would be associated with owning, regulating and managing their railway network.
7. Although most officials share the opinion that the renewal of the existing Dakar-Bamako line is the priority, other projects for new lines have been suggested. One of them involves building a new standard gauge line parallel to the existing one. The business case for many of these plans may be weak but they are starting to make a noise that could distract the attention of politicians and donors.

b. Senegal railways data sheet

General information			
Area	197,000 square kilometres	Main Urban areas (pop. x1,000)	Dakar 2,926 Source: UN World Urbanization prospects
Population	13,77 million (2012) Source: World Bank country homepage	Main corridors	Dakar-Tambacounda-Kidira (Malian Border)-Bamako
GDP	$14,05 billion (2012) Source: World Bank country homepage	Natural resources	Fish, groundnuts (peanuts), petroleum products, phosphates, cotton Source: CIA World Factbook
Railways information			
Railways network	Total network in Senegal: 906 km 70 km double track Dakar-Thiès 574 single track Thiès et Kidira (Malian border). International line. 193 km Thiès-Saint Louis (non-operational), except section Thiès-Mekhe, for industrial and mining uses. Three small connections: Guinguinéo-Kaolack, Thiès-Taïba (phosphate mine) and Diourbel-Touba (not operational at the time of writing the report, Feb. 2014) The full international Dakar-Bamako line is 1,287 km long 642 km in Mali (including an extension of 58 km Bamako-Koulikoro) and 644 km in Sénégal. Source: Country visit		
Infrastructure technical data	Metric gauge. Double track Dakar-Thiès. Single track the rest. Poor condition in most sections, most notably the segment between Tambacounda and Dioubeba (approximately 464 km), close to the border with Mali. Railway provides direct access to Dakar port terminals (DP World) and logistics platforms in Dakar and Bamako (ENSEMA).		

Main freight terminals in Dakar (Bel Air) and Bamako have large provisions of land although infrastructures are decrepit.

There are several uncontrolled occupations of railway rights of way (temporary and permanent), notably in the Dakar metropolitan area.

Railways operators

- Transrail. Holds the concession for the international Dakar-Bamako line. Along the double track section Dakar-Thiès (70 km) it has the concession for track 1.
- Grande Côte Operations (GCO). Full concessionaires of the lines shown below although operations have not started at the time of writing (Feb. 2014):
  - New track built by them 22 km (Mekhe-Diogo)
  - Old single track Mekhe-Thiès (old Saint Louis line, now disused, rehabilitated by them)
  - Track 2 along double line Thiès-Dakar.
- Société d'Exploitation Ferroviaire de l'ICS (SEFICS). A dedicated rail operator for Industries Chimiques du Senegal (ICS). Runs under a user agreement on tracks granted in concession to GCO and, partly, Transrail (track 1 Dakar-Thiès).
- Petit Train Bleu (PTB). A public sector company dedicated to passenger commuter trains. It runs under a user agreement on tracks granted in concession to Transrail and GCO.

Other mining companies are exploring the possibility of becoming railway operators.

Source: Country visit

Type of operations

General freight

Passengers: Only commuting services Dakar-Rufisque-Thiès (Petit Train Bleu – PTB)

Passenger operations between Dakar and Bamako have been suspended.

Source: Country visit

Performance freight

In Tonnes

	Domestic traffic		International traffic			Overall general
	Senegal	**Mali**	**Loaded**	**Unloaded**	**From total**	
2004	154,761	49,219	282,524	91,900	374,424	578,404
2005	149,129	18,128	266,301	81,068	347,369	514,626
2006	48,890	18,608	244,162	68,898	313,060	380,558
2007	26,240	15,685	289,420	56,735	346,155	388,080
2008	65,962	14,969	244,390	53,686	298,076	378,987
2009	56,938	25,743	265,505	41,579	307,084	389,765
2010	101,953	20,641	276,925	40,410	317,335	439,929
2011	81,048	15,520	227,294	56,799	284,093	380,661
2012	15,020	3,046	174,119	51,468	225,587	243,653
TOTAL	**603,873**	**162,973**	**1,869,228**	**434,276**	**2,303,504**	**3,694,663**

In Tonnes/km

	Domestic traffic		International traffic			Overall general
	Senegal	**Mali**	**Loaded**	**Unloaded**	**From total**	
2004	0	0	0	0	0	0
2005	13,823,358	5,779,344	302,261,263	87,595,097	389,856,359	409,459,061
2006	4,164,185	5,383,332	288,547,247	82,553,019	371,100,266	380,647,783
2007	1,610,600	4,573,969	341,597,888	68,662,738	410,260,626	416,445,194
2008	5,129,149	4,207,408	295,952,454	65,544,934	361,497,388	370,833,945
2009	3,882,769	7,933,219	324,786,830	50,270,447	375,057,277	386,873,265
2010	5,914,024	6,129,571	336,956,492	48,631,021	385,587,513	397,631,108
2011	4,623,545	4,699,988	276,695,981	69,024,651	345,720,632	355,044,165
2012	856,846	986,931	212,583,769	59,670,177	272,253,946	274,097,723

Source: Transrail. Only reflects traffic moved by Transrail and not by other minor operators, e.g. SEFICS.

Trend: Decrease

Performance passengers

PTB

	2006	2007	2008	2009	2010	2011	2012	2013
Passengers	3,037,917	4,587,042	4,154,225	4,920,516	3,811,189	2,521,763	2,460,571	2,591,627

Source: Agence Nationale de la Statistique et la Demographie: “Situation Économique et Sociale du Sénégal” 2008, 2009, 2010. PTB for years 2011-2013

Trend : Decrease. Stable 2011-2013.

Railways institutional framework

Agence des Nouveaux Chemins de Fer (ANCF). Involved in planning, coordination, search for public and private funding for new railway infrastructure, but not proper regulation of railways. Set up in 2005 but inoperative from 2007 to 2010. At the beginning it was under control of the Presidency of the Republic but now reports to the Ministry of Infrastructure for Land Transportation. It is poorly staffed but sets railways policies.

Petit Train Bleu (PTB). Public company operating passenger services on the line Dakar-Rufisque-Thiès. It is under the control of the Ministry of Infrastructure for Land Transportation

Ministry of Infrastructure for Land Transportation. Holds political responsibility for transport infrastructure except for ports. It does not have a dedicated unit for railways.

Ministry of Finance. Involved in railways with the following units:

- Direction of Public Sector: nominates the Government representative on the Board of Directors of Transrail.
- Direction of Budget: Sets and negotiates the subsidy for PTB.
- Direction of Economic and Financial Cooperation: This unit is responsible for dealing with multilateral and bilateral financial agencies.

Source: Country visit

Existing railways regulation	There is not currently any formal regulatory body for railways. All monitoring instruments are related to concession contracts. **Transrail concession monitoring** "Comité de suivi". This proposed committee was to be chaired by the Chamber of Commerce with equal numbers of delegates from the conceding authorities and the concessionaire. It has never met formally. "Organe de Suivi et Regulation de l'Activité Ferroviaire". Formed by delegates from the Ministries of Transport of Senegal and Mali. Chaired by Senegal but based in Bamako. Worked with difficulties until 2012. Government participation in Transrail's Board of Directors. Only the Ministry of Finance, not Transport, is present at the BoD of Transrail. Thus, meetings between government representatives and concessionaires are usually called ad-hoc, mainly to deal with the concessionaires' delicate financial situation. **Slots and operations coordination** This only exists on the sections where there is more than one operator using the line, basically along the Dakar-Thiès double track section. Here Transrail acts as the slot coordinator and operations manager.
Future railway projects	There is not a proper Railways Master Plan but ANCF has carried out pre-feasibility studies for some new lines. Although no formal prioritisation exists, the order below shows the priorities perceived by the Consultant during the meetings with Senegalese stakeholders.  No funding for these new projects exists so far. **New lines** 1. New line with standard gauge from Sendou (proposed new minerals port south of Dakar)-Tambacounda. More or less parallel to existing metric line. It would involve a standard gauge third track along the section Dakar-Thiès. 2. Extension (standard gauge) from Tambacounda to the South-East to Kedougou (Koudekourou iron ore mines), and eventually onwards to Mali (iron ore mines circa 100 km beyond Bamako). 3. New passenger line to Mbour where new Blaise Diagne airport is under construction and expected to open next year. 4. New line (standard gauge) from Tambacounda northwards to Matam (phosphate mine in operation).

5. Extension from new standard gauge line from Tambacounda to Ziguinchhor. Focused both on freight (agro-produce) and passengers. Political reasons to connect the southern strip of the country, separated by the Gambia are mentioned as an explanation for this extension.

Rehabilitation and renewal

- Renewal of existing metric gauge line to Mali.
- Reopening of Dakar Central Station (which was closed a few years ago).

Source: Country visit

Current proposals for railways institutional reforms

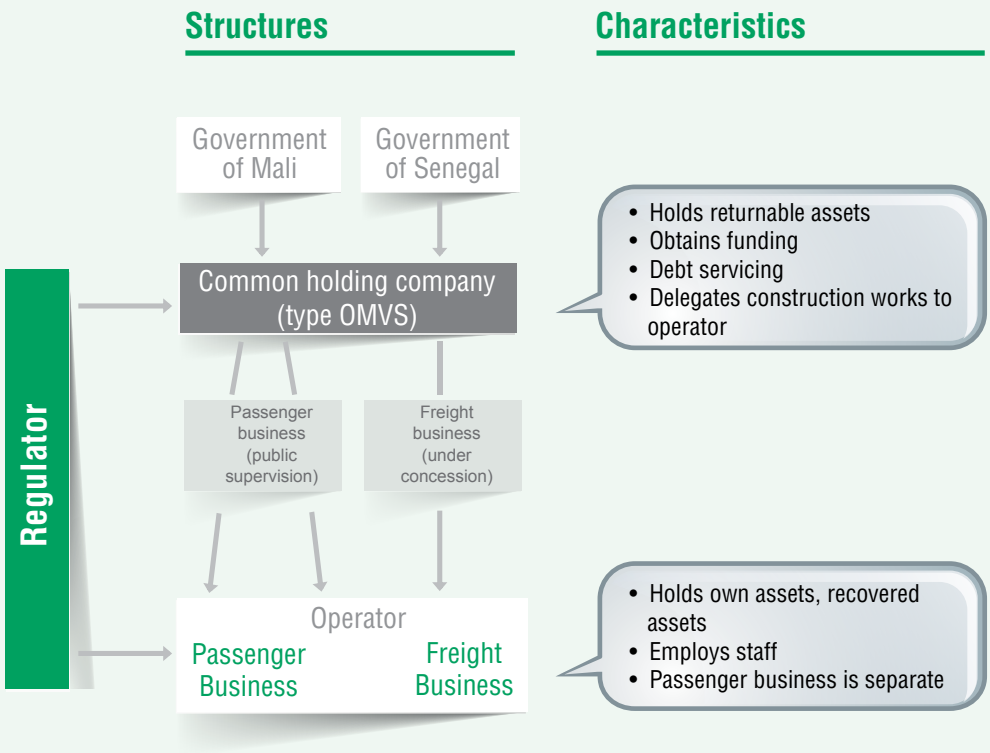
Regarding the international line, guidelines for a new institutional model have been agreed by the two states, and will involve separation of infrastructure and operations.

- Holding company for infrastructure assets (Government)
- Operating companies (private).

The question of whether to have one or two holding companies (one for each state) is an issue. One of the advantages of creating only one bi-national holding company is that it would be easier to apply for regional funds. But disadvantages seem to outweigh advantages: it could become politically too tricky to manage and Senegal should have at least two infrastructure companies, one for the transnational line and another for the fully domestic lines, adding complexity at national level.

A proper regulatory body is being discussed since there are now several operators in the country. This regulatory function could be performed by the holding company.

The new institutional framework is under study by the two states although no firm proposals have been produced yet. Some consultants (Deloitte and others) are engaged in drafting institutional and business models but no document has been provided to the Consultant. The model envisaged is set out in the following diagram:



Source : Axcelcium-Mazar. Concession audit 2011.

Transrail concession	
Concession beginning	2003
Duration of the concession	25, renewable every 10 years
Concession description	A vertically-integrated concession that allocates full responsibility for infrastructure and rolling stock to the concessionaire. The Concessionaire supports all the operations, maintenance, renewal and building costs of the track. Concessionaire investment in rail infrastructure above a certain threshold requires the approval of the Concession Authority. The Concessionaire bought the rolling stock that it wanted from the state companies and was free to buy additional vehicles. All acquisitions were financed by the concessionaire except and is responsible for maintenance and operations. The concessionaire was obliged to take equal shares of staff from the previous national railway companies of Mali and Senegal. In the case of PSO, operation and maintenance costs of rolling stock should be reimbursed by the public authority. Nevertheless international passenger services were discontinued because of safety concerns. A limited passenger service inside Mali (Bamako-Kayes) is still operated and funded by Mali Government. The concessionaire is free to set fares for freight transport. Concession fees are currently set at about 6% of turnover and distributed between the two states. The concession contract does not include precise provisions describing the investment commitments to be honoured by the concessionaire.
Concession shareholders and capital	**Initial concessional structure** Initial structure of the concessionaire Transrail SA was planned to be: • 51% reference shareholders: CANAC-SIFC-GETMA (Franco-Canadian). • They created the vehicle Transrail Investment with the following participation CANAC: 24.99%, SICF: 23.46% and GETMA : 2.55 % • 20% the states of Mali and Senegal (10% each), • 20% private shareholders to be found through IPOs in Senegal and Mali. • 9% employees. Initial capital to be 9.1 billion FCFA ($ 18.2m) and to reach 10 billion FCFA in five years. However the initial capital structure has never been fully achieved and disbursement of Malian private investors is still pending. Transrail SA is incorporated in Bamako and is ruled by Malian law but Transrail Investments is a Senegalese company.
Shareholding evolution	The shareholding structure has undergone many changes: • Canac-Getma stake was acquired by US logistics operator SAVAGE in 2005. • The shareholding was modified in early 2007. Groupe ADVENS (French agro-Industry and logistics company) became the majority partner of the reference shareholder (95% stake in Transrail Investissements), buying CANAC and SICF shares. This acquisition was not formally approved by the concession-granting authorities.

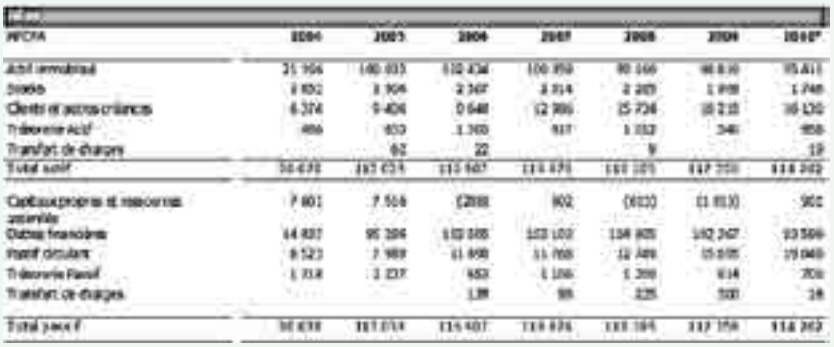
	• ADVENS has no proper experience in railways and thus VECTURIS (Belgian rail operations and consultancy) was requested to take over the operation of TRANSRAIL in the framework of a rail operator contract signed with the concessionaire company in 2007. • VECTURIS pulled out in 2012 and a new operations contract was signed with Moroccan firm CONVECTOR, whose record in the railways industry is little known. • There are some litigations underway between present and former stakeholders, notably CANAC and Transrail. As can be seen, the concession has suffered from intense instability in its shareholding structure. Moreover, few –if any- of the shareholders had any relevant track record in the railways industry. And finally, movements in the shareholding structure from the beginning have frequently raised questions about profiteering and patronage. The audit of the concession shows a complex story of breaches to contract provisions on all sides, as well as misunderstandings, opaque decisions and mismanagement.
Connection of the concession to mining/logistic industry	Groupe Advens has strong interests in Senegal and in West Africa in the cotton and peanuts industries. However, Transrail officials acknowledge that there are few practical synergies between Transrail and Advens
Present financial situation of concessionaire	By 2009 Transrail SA had negative capital and was about to default and was put under protection by Bamako's Commercial Court, and this status continues. In 2009 the debt burden was 32.4 billion FCFA (64m $). This was broken down into Government loans 10.67 billion FCFA (21.35m $), and bank loans 21.7 billion FCFA (43.41m $). According to Transrail sources, by 2013 the debt had been reduced significantly to 9 billion FCFA or $ 18 m. Debt reduction has been especially significant in commercial debt and most of the outstanding sum is owed to governments. However, the concessionaire seems to have also received some grants from Governments to keep it afloat.
Concession economics	Precise figures for the concession economics are diverse and do not always coincide. The concession contract does not provide a specific investment target to be achieved and merely refers to the financial bid (not included as an annex to the contract). From a patchwork of sources, the picture that appears is the following: • Equity from reference investors: $ 18m. • Investment commitments by the concessionaire at the beginning of the concession were about $ 19m over a 5 year period to improve infrastructure and a further amount of about 21m $ in rolling stock. Other sources estimate these investment commitments at a lower figure of 14 billion FCFA ($ 28m). Most sources coincide that initial investment was not made. • It is estimated that about 16 billion FCFA ($ 32m) in loans that had already been obtained by the States (IDA and BOAD) were transferred to the concessionaire. • In total it can be assumed that the concession was accompanied by a US$47 million package of loans, mostly from the World Bank and the West African Development Bank (BOAD), with smaller bilateral contributions from France (AFD) and Canada. It has to be noted that some loans have not been totally disbursed; in particular it seems that some BOAD loans were frozen. • As can be seen in next section, standing debts in 2009 accounted for $ 34m. It can be concluded that a concession for a 1,287 km line in very poor condition, with some sections not renewed since construction in 1928, was expected to be funded from a financial package of about $ 65m ($ 18m in equity and $ 47m in debt. Ratio equity/debt 28/72). Sources: Pierre Pozzo di Borgo: "Balance between public and private sector roles: the key to successful railway concession" Proparco; 2012. WB – SSATP Review of Selected Railway concessions in Sub-Saharan Africa; Excelcium-Mazar: Concession audit 2011; Country visit interviews.

Structure of Concessionaire costs and revenues

Transrail's P&L account

(In Million FCFA)

Transrail's Balance sheet



(In Million FCFA)

Source: Excelcium-Mazar: Concession audit 2011.

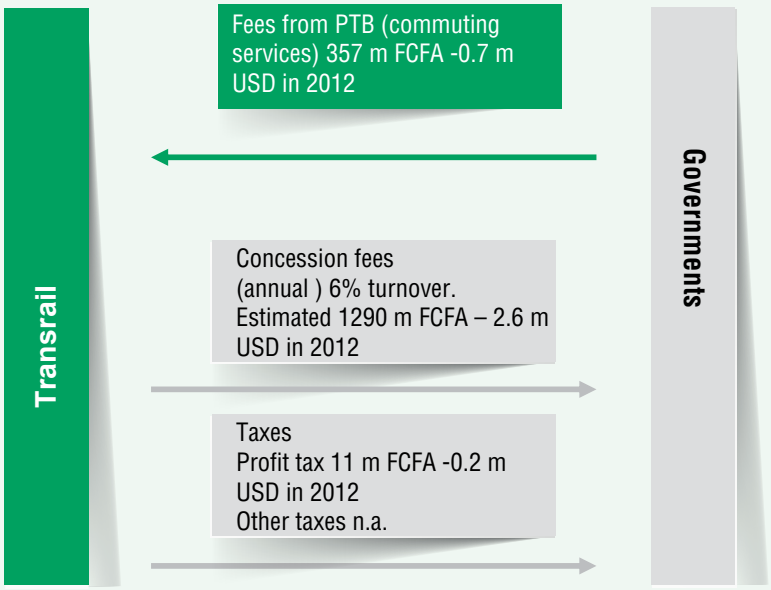
Rolling stock Technical data

Total 525 commercial wagons. Breakdown:

- 234 covered wagons with capacity of 18,720 Tons
- 250 flat platforms for containers, timber or iron with capacity of 20,000 tonnes
- 15 hopper wagons with capacity of 1,200 tonnes for minerals.
- 26 tanks with capacity of 2.4m litres for fuels.

Rolling stock is in very poor condition and it is not clear if all rolling stock is operational.
Source: Transrail website.

Source : Transrail website.

Cash flows between the government and concessionaire	 Source: Transrail
Transrail railways operations	Transrail is operating one train (per direction) per day on average. If there is demand, there may be 2. Traffic is very unbalanced because of few exports from Mali. The journey to Bamako takes a minimum of 65 hours • Trains used to carry 37-40 wagons (1,700 Tons) in the past. Now the maximum is 25-30 wagons (1,200 Tons). • They expect to recover to 1,500 Tons. • They have 8 operating locomotives and 6 non operational Transrail sources acknowledge that some traffics have been lost because of the lack of operating rolling stock. Train loading and unloading is performed by the shipper, not the rail operator. Source: Country visit interviews

GCO concession

Concession description	GCO is a mining company (Ilmenite and Zircon). Mines in Mekhe and Diogo, approximately 150 km north of Dakar They have signed a concession contract to become full railway operators. Operations have not started yet but are expected soon. They are training personnel and making final tests. They are full concessionaires of: • New track built by them 22 km (Mekhe-Diogo) • Old single track Mekhe-Thiès (old Saint Louis line now disused, rehabilitated by them) • Track 2 along the double line Thiès-Dakar. This means that all trains (Transrail, ICS and PTB) going westwards from Thiès to Dakar use their line and therefore should pay a fee.

	The contract explicitly states the obligation of the concessionaire to engage in a $ 55m three year infrastructure rehabilitation programme. Concession fees: From year 1 to 3: 150,000 $ year From year 4 to 6: 200,000 $ year From year 6 to 9: 300,000 $ year After year 10: 500,000 $ year Scheduling (slots) on the double track section (Dakar-Thiès) is carried out by Transrail.
Investment	They have invested: • $ 50m in rehabilitation (about 115 km); i.e. 440,000 $/km. The work was expensive as some areas were in very poor condition. They believe that a general policy of rehabilitation would have cost much more. • $ 12m in new line (22 km); i.e. about 500,000 $ /km. Costs here were low because of flat terrain, the fact that almost no populated areas were crossed and the existence of a road beside the track for the entire route. • Rolling stock: $ 10m: 2 locomotives, 1 locotractor, 42 hoppers and 10 platforms. Bought in China.
Operations objectives	Their plans are to run 2 trains per day (per direction) of 1,800 gross tonnes (1,000 net tonnes). Total circa 690,000 Tons per year. Of these quantities: • 600,000 tonnes of Ilmenite (export price at port approx.150 $/t) • 90,000 tonnes of Zircon (export price at port approx.1,000 $/t)
GCO approach to railways operations	GCO benefits by starting free from the legacy of state railways. Hence personnel, operations procedures etc.… are new. They are investing greatly in training, and producing fresh procedures, operations, signals and security manuals and protocols. They are also working with local authorities on programmes to protect the right of way from intrusions and informal occupation. It is notable that an investment package of more than $ 70m has been dedicated to a railway of less than 150 km., even acknowledging that additional rehabilitation will still be needed. This contrasts sharply with the Transrail concession where a roughly equivalent financial package (in nominal terms) was spent for a 1,280 km line.

A.1.7 Tanzania

a. Main lessons from Tanzania's experience

1. The failure of the Tanzanian concession was due to a number of factors, the main one being the lack of clear understanding on both sides (that is, the concessionaire and the government) of the expectations of the other.
2. The Government of Tanzania had not invested in railway infrastructure or rolling stock since the late 1970s due partly to a much stronger road lobby and political interest in extending the road network and partly due to the increasing costs of the rail upgrading and maintenance which the government was not able to meet within the state budget.
3. There was no assessment of the condition of the infrastructure before the concession was awarded.
4. The government promised staff a salary increase when the concessionaire came in, this was not agreed with the concessionaire who refused to pay. The government then paid the increase themselves.
5. Rites (the concessionaire) came in with the attitude that the existing staff had performed badly and had contributed to the poor performance of the state railway. They also brought in a new management staff composed mainly of Indians.
6. The business environment in Tanzania was not well understood. Rites were more familiar with block train operations and not the container and wagon operations mostly in use in Tanzania.
7. In an effort to increase revenue, Rites raised the rail tariffs to a level where it was 70% more expensive to transport by rail than by road. Transport times were not reduced, it still took much longer to transport by rail.
8. Rites brought in locomotives from India, which were more expensive to run (poor fuel economy) and poor performance; all spare parts had to be ordered from India.
9. The concession was cancelled and the government are now in a two year phase of restructuring the institutional arrangement of the rail sector, have an independent rail regulator, and are building capacity within the rail sector to make it more attractive to investors in the future.
10. Company organisational structure has been modified to establish a department of business development, which will oversee the transformation of TRL from operational to business oriented, and from loss making to a commercially successful and profitable company. Cost centres and business units will be established in order to introduce or enhance performance based evaluation and reward for the various departments (e.g. infrastructure and rolling stock maintenance, operations, commercial…) and market segments (e.g. container, cement, grains, petroleum, minerals…)
11. Installation of modern ICT based systems including trains control, wagon management, cargo tracking, costing model, materials management, financial management, human resources management, performance/productivity evaluation and track and rolling stock maintenance management systems.

b. Tanzania railways data sheet

General information			
Area	947,300 sq. km	Main Urban areas	Dodoma : 2,083 Dar es Salaam: 4,364 Source: Source: Tanzania National Bureau of Statistics
Population	47,78 Million (2012) Source: World Bank Country Homepage	Main corridors	Central Corridor (Dar es Salaam-Tabora-Isaka-Shinyanga-Mwanza and Dar es Salaam-Tabora-Kaliua-Kigoma)
GDP	$ 28.24 billion (2012) Source: World Bank country homepage	Natural resources	Hydropower, tin, phosphates, iron ore, coal, diamonds, gemstones, gold, natural gas, nickel Source: CIA World Factbook

Railways information

Railways network	969 1.067-m gauge 2,720 km 1.000-m gauge This line has a main central corridor running from Dar es Salaam through Tabora and on to Kigoma. Source: CIA World Factbook	
Infrastructure technical data	12-17 tonne axle loadings on track and structures. Steel sleeper with wood ties used at turnouts and on bridges. Rail weighing 40 lb/yard, mostly jointed. Semaphore signalling. All new infrastructure to be built to 20 t axle load, and to structural and loading gauge suitable for standard gauge in the future	
Railways operators	**Tanzania Railway limited (TRL)** TRL is a rail operator providing Freight and Passenger service. From 2007 to 2010 TRL was under a concession. **TAZARA (Tanzania Zambia railway authority)** TAZARA has been jointly and equally owned by governments of Tanzania and Zambia and has never been put into a concession agreement. TAZARA covers a distance of 1,860km between Dar es Salaam and New Kapiri Mposhi stations. TAZARA operates two types of freight trains i.e. through traffic and local traffic trains. Through traffic trains convey cargo originating from Dar es Salaam in Tanzania to New Kapiri Mposhi in Zambia and vice versa. Local traffic trains convey intermediate cargo and may or may not cross the border. TAZARA also provides block train services and mixed train services. Source: Country visit and Tazara Company Website	
Type of operations	Passenger, Freight	
Performance freight	Tonnes: 267,008 (TRL) 2011 Source: Ministry of Transport Tazara: Between 2007 and 2010, freight traffic performance has averaged 479,995 tonnes per annum. Source: SUMATRA, Performance indicators and Benchmarks for railway subsector in Tanzania	

	Target: Based on determined and assured market for freight transport business, TRL targets to increase volume of freight traffic from projected 248,000 tonnes in 2013 to 1.7 and 3 million tonnes in 2014 and 2015 respectively. Source: Ministry of Transport, TRL Business Plan
Performance passengers	290,000 passengers in the year of 2010. Source: Performance Indicators and Benchmarks for Railway Subsector in Tanzania Tazara: Between 2007 and 2010, passenger traffic performance has averaged 850,124 passengers per annum. Source: SUMATRA, Performance indicators and Benchmarks for railway subsector in Tanzania
	Target: Similarly, long distance passengers moved will increase from projected 425,000 passengers in 2013 to 1.05 and 1.13 million passengers in 2014 and 2015 respectively Source: Ministry of Transport, TRL Business Plan
Railways institutional framework	RAHCO are the infrastructure manager, and TRL the rail operator who also currently carry out infrastructure maintenance and traffic control. Independent Safety Rail Regulator, SUMATRA. The Ministry of Transport receives budget from Ministry of Finance (Treasury). Reli Assets Holding Company (RAHCO), are effectively the landlord of the 2,707 km of meter gauge single track railway and under the concession agreement from 2010 transferred responsibility for the maintenance and operation of the track and rail services to TRL. Since the termination of the concession, there has been no clear definition of responsibilities, which obstructs effective infrastructure maintenance and development as well as infrastructure operations (capacity provision). RAHCO is active and competent to handle engineering projects and prepared to take over more responsibilities, mainly those which are currently with the operator (Tanzanian Railways Ltd.) and which relate to infrastructure maintenance and traffic control. The rail department of the Surface and Maritime Regulatory Authority (SUMATRA) fulfils its regulatory tasks, and is perceived as an influential player with a strong legal basis. They currently enjoy good relationships with all relevant parties within the rail sector. Tanzania Railways Ltd. (TRL) is the railway operator and transport service provider. In addition, TRL manages most of the infrastructure maintenance duties and all traffic management. A fairly limited logistics and commercial approach, a limited understanding of financial and accounting issues and being short on resources (material, manpower, rolling stock) leaves TRL in a very difficult position. TRL is not structured into business-oriented units, which would allow dedicated funding (e.g. for passenger services) however this is currently being addressed. Tanzania Ministry of Transport (MoT) is developing a new priority for rail and supporting this within their new Transport Policy. Tanzania Ministry of Finance (MoF), have a good understanding and an analytical financial overview of the current situation of the transport sector and its players.
Existing railways regulation	Railway Law – currently being redrafted. SUMATRA (The Surface and marine Transport Regulatory Authority) The business relationship of RAHCO and TRL to SUMATRA is good. They accept and respect each other, which simplifies the work of the regulator.

Future railways projects	There is currently a two year plan to invest in TRL in rolling stock and wagons to make it more attractive to investors. The WB project funded by $ 150m (IDA) to improve and upgrade the central line is on-going. There are plans to use $ 7bn to upgrade to standard gauge two lines, Tanga-Arush-Musoma in the north and Mtwara-Mchuchuma-Liganga-Mbambabay in the south. There is no information on the source of the funding for these two lines. All new plans are for standard gauge in the midterm. All structural work from now is built to conform to standard gauge (bridges etc.). RAHCO are currently looking for a company to carry out an EPC (engineering, procurement, construction) contract for an independent line in the south from coast to the coal mines – for the coal transport. There is an East African Railway Master Plan developed and funded by the East African Community. There are no concrete plans on the funding or timescale of this master plan. Source: Country visit
Current proposals for railways institutional reforms	RAHCO will remain the infrastructure manager. The railway training institute will come under RAHCO within two years. TRL will remain as rail operator only. Open access is to be considered. In the future continuous assessment of the contract, government and concessionaire in partnership together, knowledge of the local market
TRC Concession	
Concession beginning	Signed September 3, 2007 (Tanzania railway corporation and RITES) Begin October 1, 2007
Duration of the concession	Concession with Tanzania Railway Corporation cancelled by the government in 2010, government took over Tanzania railways. The concession (between TRC and RITES) was revoked on account of mutual allegations of defaulting on contractual clauses mentioned in concession contract.
TRL description	TRL was originally the name given to the train operator under the concession running one of Tanzania's two main railway networks. The concession was awarded for both freight and passenger services. When the concession failed due to a number of factors; inadequate assessment of the infrastructure, poor understanding of the investment required, number of poor decisions made by RITES (see point 5, 6, 7,8 above) and by the government (see points 3 & 4 above), the government took TRL back under state control. TRL now provides both freight and passenger services
Concession shareholders and capital	Former: Tanzanian Government and RITES
Shareholding evolution	Former shareholders RITES from India 51%, Tanzania government 49%

Connection of the concession to mining/logistic industry	TRL: No connection Tazara: TAZARA is a major transporter of copper and other minerals out of Zambia and the DRC, but also conversely serves as a key conduit for all kinds of bulk imports from all over the world, including fuels, fertilisers, general merchandise, hardware, coke and other critical inputs into the mines and agricultural farmlands of Malawi, Zambia, Tanzania and the DRC, as well as Rwanda and Burundi through the Port of Mpulungu on Lake Tanganyika. Source: Tazara Company Website
Financial Requirements TRL	**Capital expenditure** A total of Tsh1.138 trillion ($711.5 million) is required over three years (2013– 2015). The Government has allocated Tsh137 billion ($84million) in 2013/14 budget and the plan envisages that Government investment in TRL will increase in financial years 2014/15 and 2015/16 to Tsh 274 billion ($168 million) and Tsh249 billion ($153 million) respectively. The shortfall, to be solicited from other sources, is envisaged to be Tshs 479 billion ($294 million), split into Tsh104 billion ($64 million) for 2013/14 and Tsh 375 billion ($230 million) in 2014/15. However, this financial gap may be bigger if the envisaged capex funding from Government will not materialise. **Working capital** Working capital required is projected to be Tsh3.6 billion ($2.2 million) in 2013, Tsh 12.2 billion ($7.5 million) in 2014and and Tsh6 billion ($3.9 million) in 2015. **Operational expenditure support** In addition to capital investment, the Government has been providing grant for payment of salaries. In 2013/14 Tsh12.0 billion has been allocated and the plan envisages that this grant will continue in 2014/15 budget (Tsh23.5 billion) and 2015/16 (Tsh15.6 billion. From 2016 TRL will be profitable and, thus, will be self-financing and no longer a burden to Government. **TRL Empowerment** TRL balance sheet Needs restructuring or “cleaned up” so that the company can become credit worthy to access loan financing from banks and other financial institutions. This involves Government Transferring of operational assets to TRL and taking over of outstanding liabilities, which amounted to about Tshs 113 billion by December, 2011. Source: Ministry of Transport, TRL Business Plan
Concession economics	Original fixed concession fee of $ 1.5m per quarter with an additional 5% variable fee of the gross revenue.
TRL railways operations	TRL is providing passenger and freight services however due to the long period of lack of maintenance both before and during the concession, TRL are left in a difficult position with trying to provide services on rapidly deteriorating track. There are three passenger services a week timetabled from Dar es Salaam along the long central corridor to Tabora. These are often cancelled or beset with long delays due to locomotive breakdowns. Currently rail transports less than 1% of the goods traffic from the port at Dar es Salaam. Particularly landlocked bordering countries such as Rwanda, DRC and Burundi are affected by the lack of rail services.

Rolling stock Technical data	TRL currently has a grossly insufficient number of operating assets (rolling stock) base; with • 14 "limping" and very unreliable mainline locomotives, • 599 poorly maintained operational wagons and • 44 passenger coaches. Other rolling stock and service equipment (e.g. ballast hopper wagons, and brake vans, tamping machines and trolleys) are also in poor condition or not available. In order to cater for the targeted level of business, a build out of the rolling stock is projected as follows: • Locomotives: increase mainline locomotives (including freight, passenger banker and departmental locomotives) From 14 in 2013 to 107 in 2015; and acquire 13 improved shunting locomotives. • Wagons: Increase operational wagons from 599 in 2013 to 3,201 in 2015. • Coaches: Increase passenger coaches from 44 in 2013 to 102 in 2015. • Other operating/service equipment: Acquire 64 brake van wagons, 50 BHB (ballast hopper wagons) and track maintenance trolleys. Source: Ministry of Transport, TRL Business Plan

A.1.8 Zambia

a. Main lessons from Zambia's experience

1. The concession not only deteriorated rail assets but also the relationship with clients. The government had to stop this development and to cancel the concession to avoid further downgrading of railways. The mining companies changed to road due to the poor performance of the railways.
2. The railway is now busy re-establishment relationships with its previous and potentially new clients. Several potential clients have no direct access to rail.
3. Transport accounts for 28% of the GDP of Zambia, and railways are now seen as an important factor and support for the railway within the government is growing. The Ministry of Finance sees rail as an important part of the national gross product. The railways are the backbone of the transport network and need to support the industries. Export and import depend on reliable rail transport offers and it is recognised that taxes will increase when the quality of railway services improves.
4. The recent development seems promising as from 2012 to 2013, volumes have grown about 100%, and from January 2013 to January 2014 again about 50%.
5. Today the Minister for Finance is concentrating on financing projects such as infrastructure rehabilitation and new corridors. Through public loans (Eurobond), certain enhancement projects shall be financed. The first $ 120m has now been granted to railways for the period of 5 years (2014-18) for infrastructure maintenance.
6. The idea of a dedicated Railway fund with a Regulator monitoring the fund contributions reminded the MoF of the Road Fund. As the implementation of such a structure is a highly political issue it will take time. The independence of such a fund from policy discussions is seen as an advantage compared to today's discussion.
7. "We want to deal more with price than with politics." The Ministry of Transport is looking for market opportunities and development projects for railways. The thinking is very broad and strategic. As a landlocked country, the more ports that can be approached by rail, the stronger the negotiating position is with clients.
8. Zambia already has a law relating to PPP and this is seen as also a promising option for railways.
9. The rental of locomotives currently generates more revenues than passenger transport.
10. 10. The opening of the network to third parties is currently not being considered as the ZR fears competition.

b. Tanzania railways data sheet

General information			
Area	752,618 square kilometres	Main Urban areas	Antananarivo: 1,987 Source: UN World Urbanization prospects
Population	14.08 Million (2012) Source: World Bank Country Homepage	Main corridors	Antsirabe – Antananarivo – Tomasina
GDP	$ 20.68 billion (2012) Source: World Bank country homepage	Natural resources	Chromite, petroleum products and agricultural products such as coffee, vanilla, sugar, and cotton cloth. Source: CIA World Factbook

Railways information		
Railways network	1) The Railway systems of Zambia (RSZ) rail line stretches almost 1,200 kilometres and covers the entire area between Sakania (on the Democratic Republic of Congo border) and Victoria Falls (on the Zimbabwe border). 2) 2,157 km 1.067-m gauge, includes 891 km of the Tanzania-Zambia Railway Authority (TAZARA) (2008) Source: Country visit	
Infrastructure technical data	1RSZ (Currently owned by government of Tanzania); TAZARA (Jointly owned by governments of Tanzania and Zambia, Source: Country visit	
Railways operators	**Northern railway system** VECTURIS SA operates railways, a Belgian-based railway operator which was formerly the main shareholder in the concession from 2008 to 2011. **Southern railway system** A parastatal company is in charge of the railway operations.	
Type of operations	Passenger, Freight	
Performance freight	A business plan has been developed and presented begin 2014. The plan looks forward to achieve 5m tons of goods transport (today 1.7mt) and 400.000 (today 165.000) passengers to be carried by 2018. The plan lasts from 2014 to 2018. Speed shall be increased to 70 km/h.	
	Trend : Increasing	
	Kapiri Mposhi - Dar es Salaam: two trains per week each direction Lusaka - Livingstone: two trains per week each direction Kitwe - Lusaka: one train per week each direction Livingstone - Mulobezi: one train per week each direction Source: http://www.fahrplancenter.com/Zambia.html	
	Trend : ZR goal: increase passenger traffic to 400,000 per year Source: Business Plan of ZR	

Railways institutional framework	The Ministry of Transport is leading the development of railways in the railway department. No Regulatory body is installed. The general inspectorate of railways is responsible for safety. Finance Ministry is following the development and organizing required funding for specific projects. The RSZ (Currently owned by government of Zambia) has presented a challenging business plan, which includes a high performance growth in the coming 5 years. TAZARA is the second rail system in Zambia. It is jointly and equally owned by governments of Tanzania and Zambia and has never been put into a concession agreement. TAZARA covers a distance of 1,860km between Dar es Salaam and New Kapiri Mposhi stations. TAZARA operates two types of freight trains i.e. through traffic and local traffic trains. Through traffic trains convey cargo originating from Dar es Salaam in Tanzania to New Kapiri Mposhi in Zambia and vice versa. Local traffic trains convey intermediate cargo and may or may not cross the border. TAZARA also provides block train services and mixed train services.
Existing railways regulation	Currently no regulator is installed in Zambia. For safety the General inspector of railways, based in the MoT is responsible (one person). He is in permanent contact with one counterpart in the railway (currently the MD of Infrastructure department).
Future railways projects	A connection to Namibia is planned to connect to Walfisbay Port. Angola is seen as second importance. Furthermore there is a planned to connect Botswana via a new bridge over the River Zambesi (Kazungula). The bridge is a 50/50 development of both states. But the project of connecting Botswana is very political as the relation to Zimbabwe shall not be disturbed. For this purpose a feasibility study has been carried out for a connection to the south into Botswana to bypass Zimbabwe on the way to South Africa supported by the AfDB. A link from Chipata to the Tazara line or further south to connect with the network is discussed. This would again add a connection to Malawi and Mozambique.
Current proposals for railways institutional reforms	No reform activities planned
Main features of Concession	
Concession beginning	Signing of concession 14 February 2003 (RSZ), TAZARA was never under a concession.
Duration of the concession	The concession was terminated in Feb. 2012 by the government.
Concession description	The concession was cancelled by the government because of the deterioration of infrastructure by the concessionaire and because the concessionaire decreased significantly the performance and quality of rail services. Unclear contract language and the lack of a rail regulator with the clear powers of sanctions for breaking the terms of the contract contributed to the poor performance of the concessionaire. The concession was structured to perform on net/tkm basis. Transnet (first three years)/Spoornet have been involved in the beginning. When the concessionaire realized that the agreement is not working he started to renegotiate. However the railway transport was cancelled to a certain degree as the losses were increasing. Trading became the more important business and finally was the core business of the concessionaire, trading and selling of coal and other bulk commodities instead of operating a railway.
Concession shareholders	Former: NLPI majority, Transnet (South Africa) minority

Shareholding evolution	Situation remained unchanged since 2012.
Connection of the concession to mining/logistic industry	The concessionaire had no connection to the mining industry.
Present financial situation of concessionaire	Financial Situation of ZR: The income was 35M$ in 2013. 94% from freight business and 3% from passenger, the other 3% from renting property.
Concession economics	No details available.
Structure of Concessionaire costs and revenues	The initial agreement in 2003 was for a fixed fee of 253,5M $ spread over 20 years, plus a variable fee of 5% on turnover. In addition 6.1M§ initial capital investment together with an agreement to invest a further 14.8M$ within the first 5 years.
Cash flows between the government and concessionaire	Whilst the concession was running, the concessionaire paid the concession fees as contracted. However it did not supply the monitoring agency with the information required (track conditions, investments made, operating expenses and revenues. These facts were in dispute from both sides leading to a breakdown in relations and the eventual cancellation of the contract. Source: USAID Report review of effectiveness of rail concessions in the SADIC
Railways operations	ZR used to carry trains up to Tanzania border on Tazara line. Nowadays the trains are handed over in Kapiri as Tazara feared losing too much added value. There is no real track access regime but always bilateral agreements of cost and revenue sharing. The traffic is less than 10% transit. Most is bilateral. Import Sulphur Export copper, no container trains. There used to be container trains and they are planned to be organized again. Source: Country Visits
Rolling stock Technical data	Locomotives are owned and maintained by ZR. Currently 24 locos are operational, 13 shall be totally reconstructed. Out of 2096 wagons today 1342 are operational, 754 need overhaul or shall be destroyed. The workshop is able to overhaul the locomotives fully. The capacity and the technical know-how is available. The idea of privatizing the workshop would not suit the unions, the idea of giving the locos to an investor to lease or rent them back for using purpose was taken as a serious idea to be followed. A loco pool would give the option to rent them to third parties also. The investor might also be a subsidiary of ZR) Currently the utilization of locos is not high. The fleet is too big. The performed volumes would require only 10 locos. However the growth perspective (current growth rates 100% compared full last year, 50% plus compared to last January) Today the trains are relatively short as the volumes are low. The maximum of 40 wagons is not often hauled. Usually 24 wagons are hauled. ZR has no own capacities for sleeper production anymore. They are bought in South Africa. Source: Country Visits

Investment	The rehabilitation program financed through "Eurobonds" is mainly dedicated for infrastructure maintenance. The demand defined in the business plan for that purpose is 130,5M$. For the rehab of wagons 30.2M$ are intended to be spent. Currently the financing of the railway sector is supported by the ministry through a Eurobond engagement of 120m USD. The total Eurobond is higher but the share for railways is defined as mentioned. Via public loans (Eurobond) certain enhancement projects shall be financed. The first 120m USD are now granted to railways for the period of 5 years (2014-18) and for infrastructure maintenance. The small line to Mozambique, Malawi at Chipako is financed purely by ZRL budget. 27 km. There is a further engagement in Chipako with building a Dry port for around 7m Euro. The line is supposed to be connected to the Tazara line in future to connect with the national network. The consultant recommended dividing the discussion about financing the sector into infrastructure investments and the maintenance of the existing system. Source: Country Visits
Operations objectives	Realizing that the Zambia rail network plays a key role in developing the Zambian economy, the ZR has geared up to meet the current and future development of copper (and other related minerals) mines, which are greatly dependent on rail service. MoT has plans for several new lines and corridors of the Zambia railways. (E.g. a connection to Namibia) The ZR is mainly concentrating on cargo business. The demand is high, much higher than the capacity. Several transport requests can't be fulfilled. The reasons for that are different. (Fertilizer (100.000 t) from Saudi Arabia could not be transported via Tazara from Dar-es-Salam as no transport devices were available.) The Zambian mining companies expect around 9m tons of goods (p.a.) as future business opportunities. They are located in different regions. For instance, near Chigala or Kelumbila. Source: Country Visits

Appendix II: Investment environment of selected African railways

A.2.1 Botswana

Financial market	Botswana's financial sector is regarded as Africa's most transparent and corruption-free market. The banking sector accounts for the largest part of the financial sector and is highly capitalized. High liquidity relative to GDP should allow project finance and bond market activity, but such observations have not been made. Investors seem to focus cash flows toward South Africa. Botswana's open market promotes private sectors and has set a regulating framework accordingly.
PPPs	Botswana has sought to build a PPPs strategic framework in 2003 in coordination with Banking association, IMFs and consultancies to encourage financing from private sector to achieve economic growth. Government believes in people partnership more than industrial ones. A PPP Policy and Implementation Guide have been approved in 2009 and a master plan drafted, but little progress has been made in the infrastructure sector since then. Government has developed PPPs for road infrastructure in priority. Railways are still vertically integrated.
Bonds issued	Bond market is young and emerging. First Government issuance of debt through bonds sets back to 2003, and was followed only in 2008 by a Note Programme that serves towards the repayment of a $ 1.5 billion loan contracted with the African Development Bank. The market is small, illiquid and fragmented, evaluated at $ 0.96b with Government securities representing 95% of the trading activity in 2012 and 63% of the market capitalization. Commitment to development from the Government is high though, thanks to a Bond Market Development Strategy and a Bond Market Task force. The pension system invests up to 70% of funds abroad, and does not invest regularly in corporate bonds. Corporate bonds have been issued by some corporate and utilities (African Copper PLC, Botswana Housing Corp, Water Utility Corp), including in the infrastructure sector.
Taxes	Non-residents are exempt from withholding tax. Residents must pay a withholding tax of 10%; the withholding tax applies to any interest in excess of P 6000 per year. There is no capital gains tax. Multilateral agreements exist with a selection of countries

A.2.2 Cameroon

Financial market	Cameroon is a member of the Economic and Monetary Community of Central Africa (CEMAC). Cameroon stands out in its activities in the banking sector of the CEMAC, representing 38% of all CEMAC bank assets. GDP growth of Cameroon is stable, at around 3%, and has an inflation rate that does not exceed 2%. Cameroon does not have a particular note program, as all CEMAC members, and had not until 2010 issued bonds on markets.
PPPs	A vast program of privatization has been launched for public enterprises. Cameroon has recently been very active at emitting domestic bonds in the CEMAC market for infrastructures, in a broader strategy to limit institutional finances. Cameroon has a PPP framework established with generous tax incentives but no particular project yet.

Bonds issued	Cameroon issued its first bond for $ 423m in December 2010 with a maturity of 5 years to finance infrastructure projects. The bond is also currently traded on the DSX and the BVMAC, the Central Africa Stock Exchange. Projects include water and energy infrastructure, mining facilities, ports, roads, but no railways. In 2013, Cameroon operated its second government bond issuance for infrastructures by auctioning through the exchange securities of the Central Bank, completing the first issuance of 2010. Cameroons plans to issue a $379m bond in June, according to the Bank of Central African States (BEAC), that could contribute to large infrastructure programmes. In total, Cameroon has issued $527m worth of bonds in 2013 on the BEAC market Eurobonds are considered for future development.
Taxes	No tax for residents of the CEMAC. Subscribers residing outside the CEMAC zone must comply with income tax laws of their country of residence.

A.2.3 Kenya

Financial market	Kenya features one of the most advanced financial markets in Africa and leads East-African Countries. Its growth rate of about 4% enables fast development of capital markets. Nevertheless, spikes in inflation (growth from 3% to 20% between 2010 and 2011) and currency depreciation (24% in the same period) as well as high interest rates seem to raise doubts of foreign investors and borrowers. Macro-economy could also be subject to high variability if oil resources are to be (further) exploited. Regulatory measures have been taken to better control such macro-economic variables and have proven efficient. Overall, Kenya has proven interested in raising capital on the markets through bonds, and has had successful experiences with project finance. Regulation of pension systems and issuance of bonds from governments as well as tax incentives has pushed the country ahead of other African nations. To fill its infrastructure financing gap, it has recently announced its intention to issue its first Eurobond. The banking sector is historically the largest buyers of infrastructure bonds from government (40-60%)
PPPs	PPPs are active and issuance of bonds on external market is increasing. Measures have been taken by the government to encourage private participation, such as the creation of a Steering Committee to develop infrastructure PPPs. Few corporate bonds have been issued, which led to the formation of a National Bond Committee to solve the issue.
Bonds issued	Infrastructure needs for financing are evaluated at $2.1b a year, especially for ports, roads and electricity. Government has issued bonds to support infrastructure projects, and developed tax incentives for investors. The Government Infrastructure Bonds does not intend to index repayments on projects' cash flows and performances, and cannot therefore be qualified as Project Bonds. Investors do not assume any project risk. First bond was issued in 2009, followed by four more, expected to redeem in medium term (2015-2017). MIGA has offered guarantees to build power plants, and Partial Credit Guarantee have been successfully issued to bonds holders in the Celtel Kenya Transaction. Corporate bonds have been issued, especially in the utilities market with parastatals (electric utility Kengen), but experience is not extended. Government plans to issue a Eurobond of $2b, with marketing beginning in March. Kenya is the only EAC that has borrowed on international market with a syndicated loan in 2009 and planned to issue Eurobond in 2013.

Taxes	Government has participated in infrastructure financing through tax incentives offered to investors. Bonds with maturities ranging between 2 and 9 years bear a withholding tax rate of 15%. Bonds with maturities of 10 years or more bear a withholding tax rate of 10%. There is no capital gains tax. Double taxation agreements exist with Zambia, Norway, Denmark, Sweden, U.K, Germany, Canada and India, while others are being drafted.

A.2.4 Madagascar

Financial market	The financial sector in Madagascar is underdeveloped and weak. No stock exchange is present in the country. The banking system is regulated and credit for private and foreign investors on local market is encouraged. Commercial banks are active at investing in government securities, pushing their share at 80% in 2012. Multiple microfinances institutions are present. Public finance management is structurally weak, making the country vulnerable to external shocks. The issuance by AfDB of an emergency irrigation infrastructure loan in 1995 is an example. Political instabilities in 2009 have been a turning point in the financial system of Madagascar. Debt instruments issued by the Government are now undersubscribed, because rate of returns have plunged, and financial support from international community has been cut. Those political events have also increased banks liquidity and lending rates. The suspension of Madagascar's membership in regional financial markets (COMESA, SADC) has further damaged financial status. Growth rate following the political crisis was negative (-3.7%) but should improve in the next years (2012 was encouraging: +3%).
PPPs	Political instability combined with a high cost of credit has made business difficult in Madagascar. Mining projects (two huge limonite and nickel mines, foreign investment up to 26.6%) are one of the targets to sustain growth, but cost is up to 40% higher than in other countries. Indeed, infrastructure is inadequate and has been a political burden for a long time, especially roads, and slows economic growth. The AfDB has been active at helping Madagascar in building its country strategic paper. It has also recently funded road rehabilitation (RN9).
Taxes	Effective January 2012, the IRCM (Impôt sur le revenu des capitaux mobiliers) is the tax applicable on all interest payments; the rate stands at 21%.

A.2.5 Morocco

Financial market	Morocco has benefited from a steady economic growth in the 2000s that has strengthened its financial sector. The Banking sector is one of the most liberalized of Africa. The country received a positive credit rating and is target by private investors. Nevertheless, Morocco faces public cost-reducing programs that make financing infrastructure development key. Managing debt through different maturities of bonds has recently been limited by the necessity to focus on short and medium term to meet demand. Secondary market is showing lack of liquidity.
PPPs	Infrastructure investments have been multiplied by four in the ten last years but only a marginal part of long-term capitals fund them (5% at the most). Dedicated funds are present (InfraMaroc, INFRAMED) to support urban transport and energy infrastructure. PPP's framework is not yet established, but a draft law to habilitate all public bodies to use private resources is being prepared. Recently, the restriction in foreign investment for locals has been reformed to encourage trades with North and West Africa particularly to stimulate growth.

Bonds issued	Morocco has invested foreign mark to sell its government securities through Eurobonds notably, since 2007. Given Morocco's tight relations with European countries, some of its bonds have been negotiated in euros. In 2013, the WB has initiated a loan program that sums up to $4b from 2014 to 2017 to finance a large infrastructure program. Several energy-related projects could interest foreign investors in the next years. he infrastructure sector.
Taxes	The revenues from fixed income securities are subject to a withholding tax of 20% against the corporate tax and a withholding tax of 30% against the personal income tax. The top income tax rate is 38 % and the top corporate tax rate is 30 %. Credit institutions and leasing companies are subject to a rate of 37 %.

A.2.5 Senegal

Financial market	Senegal financial market depends on the regional West African Economic and Monetary Union (WAEMU), featuring a common Central Bank (BCEAO). Subsequently, it does not make monetary policy decision alone, but in accordance with all 8 members of the BCEAO. Similarly, all market regulations are issued by the BCEAO. The BCEAO is also in charge of the regional debt market to complete financing needs from direct monetary assistance. The banking sector is common to all members of the BCEAO, experiences high interest rates, limiting the number of firms that can contract a credit. Furthermore, the Senegalese banking sector is dominated by foreign banks. The West African Regional Stock Exchange (BRVM) is the other alternative to financing, where bonds issued by WAEMU members are traded. Senegalese representation in BRVM is extremely low, with only one company and two Senegalese Treasury bonds traded.
PPPs	PPP environment in Senegal is underdeveloped. A National Infrastructure Council is present to enforce the Build-Operate-and-Transfer Law, but lack of coherence and negative public perception has slowed down PPPs development.
Bonds issued	Debt management was not addressed a clear strategy until 2012. In 2011, Senegal issued a 500 million $ benchmark bond in the foreign bond market. According to IMF, Senegal could issue a second Eurobond of $500m to tap foreign markets. In 2013, Senegal has issued a $137m bond on regional financial market to improve power and transport infrastructure. 10% has been endorses by individuals. In February 2014, Morocco's Banque Centrale Populaire has claimed that Senegal had raised $529m in debt instruments to finance infrastructure, including ports, airports, and roads, of which the major part from African institutional investors.
Taxes	Treasury bills and Treasury bonds incomes are tax-free throughout the territory of the Member States of the WAEMU. In Senegal, the tax rate on securities income for foreign members is equal to 6%.

A.2.6 RSA

Financial market	Financial market in South Africa is leading Africa in size and development, and features a high diversification. Pension funds are active in financing infrastructure and have lent directly to projects in South Africa (N3 Toll Road) and elsewhere in Africa (Zamia Railways). The profitable and well regulated banking sector is concentrated among the Big Four. An exchange for debt securities allows trading government securities (65% of all debt securities issued) and is unique in Africa. It has allowed benchmarking for external investors with other finance instruments, and participated in building confidence for foreign investors. International market is increasingly present and investor's base is the largest of Africa, totalling $600b.
PPPs	RSA possess long experience in project finance. PPP laws have been passed but no specific policy has been developed, limiting the number of PPPs in recent years. Integration of capital markets in parastatals has had successful results, especially with Transnet, the state-owned railway company. List of corporate issuances of bonds is large. Recently, municipalities have been encouraged at emitting in their own name bonds to finance their infrastructure projects.
Bonds issued	Government issues securities instruments regularly, according to a debt portfolio including fixed-rate bonds (65 %), inflation-linked bonds (20 %) and treasury bills (14%). Large municipalities are very active at issuing bonds. In April 2012, the total market capitalization of municipal bonds issued (including state-owned) was 14.3% of the size of the South African domestic debt. Several corporate bonds have been issued to finance infrastructure projects, among which some of interesting features : Transnet capital program to finance infrastructure needs involved a $ 4.6bn domestic Medium Term Note (MTN). Transnet has a global MTN program, issuing $ 750m five years in 2011 and $ 1bn 10 years in 2012. Transnet has announced its objective to move away from explicit government guarantees, borrowing on its own credit, and diversifying sources of capital. Global market appetite for Transnet's bonds has been strong. In 2008, the South African National Roads Agency (SANRAL) sold $260m of bonds without guarantee from the national treasury to finance a new tolled high-way. Such issue was rated by Moody's that remarked that SANRAL was economically dependent of the Government's and was therefore guaranteed implicitly. Toll-roads concession development in general has been highly correlated with long-dated inflation-linked loans between 1999 and 2003, as part of an overall financing package. South Africa's Integrated Resource Plan (IRP) developed by the Department of Energy (DoE) in May 2011 had set up an ambitious energy program at the horizon of 2030. The energy regulator planned a Power Purchase Agreement, but it did not meet investors' appetite due to lack of governance through omission of details and lack of record for IPPs in RSA, underlying the importance of governance. South African pension funds were large buyers of the Industrial Development Corporation's (IDC) $595m "green bond" issued in 2012 to fund its investments in the renewables program. The Airport Company of South Africa (ASCA) rolled out a ZAR 1bn three month commercial paper program in 2008-09, which subsequently refinanced using long-term bonds. They issued bonds totalling ZAR 2.96bn. Trans-Caledon Tunnel Authority (TCTA) issues bonds to fund water projects such as Lesotho Highlands. They are a small and regular issuer, with bonds guaranteed by the Government.
Taxes	There is no withholding tax on interest income for both residents and non-residents. However, effective March 1st, 2014, a 15% tax rate will be applicable to interest earned by foreign investors. Capital gains are taxed at the normal income tax rate on 50% of the gains. However, gains on the sale of substantial foreign shareholdings are exempt if certain conditions are satisfied. Local asset managers are set to a 20% limit of their investment outside of RSA. An additional 5% is granted in other African countries, which encourages investments in Kenyan bonds for example, that is expected to increase.

A.2.7 Tanzania

Financial market	Tanzania's financial market is dominated by the banking industry (74% of the assets). Its debt market is in active development but still at an early stage, with bonds mainly focusing on local issuance. Fast growth potential (growth rate of 6%) and resources extraction (gas) could speed up investigation of global markets. Tanzania is not internationally rated but is in the process of doing so. Reforms for market regulation and funds systems have followed the example of Kenya, although pension funds managers have remained state-owned. The market is less mature than Kenya's. Financial and governance-related problems have been reported in utilities with a tariff framework incomplete. Tanzania has proven effective at controlling inflation and interest rates spikes with regulatory measures. Government has limited the use of bonds to control such volatile rates, and remained on the sovereign market. Government securities are restricted to sovereign market for example, of which commercial banks currently buy 60%. Tanzania's legal framework is being adapted to encourage the issuance of bonds by municipalities directly.
PPPs	Corporate issuance remains low, although PPPs is increasingly promoted by a specific unit designated by Government. PPPs have been used in the rail sector for an independent railway regulator. Government has designed a three years Private Sector Involvement with IMF and multilateral institutions to fund its budget deficit.
Bonds issued	Recently the project of a 10-year Eurobond for investing in infrastructure has been reopened, but demands credit rating to progress. SPVs can be guaranteed by a party with a track record or be rated by a registered agency. The current review and reform process is designed to move towards a credit based approach emphasizing ratings. Corporate issuance has been limited. Example includes the Tanzania Petroleum Development Corporation (TPDC), which is currently restructuring with a view to raising capital and may consider local market financing of its various gas development. Municipal finance initiatives have been promoted and a feasibility study launched in 2010 to issue municipal bonds including local government authorities and sub-national parastatals. Given the low experience on long-term market based borrowing, reforms must intend to build financial capacity and improve financial management before effectiveness.
Taxes	Securities longer than 3 years (5-, 7- and 10-year) are exempt from tax. All participants exempt from paying withholding tax must provide tax exemption certificates. Two-year bonds are subject to a 15% withholding tax.

A.2.8 Zambia

Financial market	In Zambia, financial market was recently developed and lacks robustness, facing high interest rates averaging 20% and low public confidence. Situation has been improved though, with continuous long term decrease of inflation, but still driven by copper prices. Banks experience profitable situations. A Financial Sector Development Plan was initiated in 2004 to encourage financial development and its consequent contribution to economic growth. Capital market benefits from high external investments (about 80% in 2012) due to a promising rate of return (26% in 2012). A Eurobond of $750m was successfully oversubscribed in 2012. Pension funds do not participate significantly in long term Government bonds and in infrastructure project. The market shows a lack of corporate paper.
PPPs	PPPs have not been extensively used, but interests are showing in utilities and parastatals.
Bonds issued	In June 2013, the government launched a derivatives and bond exchange (BADEX) that is to compete with the bond trading already taking place on the Lusaka Stock Exchange (LuSe). Municipalities are developing technical expertise to borrow on their own right, such as Lusaka, Solwezi and Livingstone. A Eurobond of $750m was successfully oversubscribed in 2012 to fund roads and energy sectors. There is a very small corporate debt market with seven corporate bonds listed. Government has developed a joint venture with Chinese companies for the Kafue Gorge Lower Project, with cost of $ 2bn of which 200m will be invested by government. Private infrastructure financing has not been very present. Information and awareness of capital markets is lacking and no high quality issuer has accessed the market directly. Private financing is limited to smaller issues. Some domestic companies have funded growth through capital markets, notably in the property sector with the Real Estate Investment House and Farmers House. Example includes in 2003 the Lunsenfum hydro power project (51% owned by Eskom), which raised $ 7m through a floating dollar bond to fund rehabilitation. ZESCO is a corporatized power utility and has a project pipeline amounting to $ 5.3bn. Given the Government's fiscal constraints, they are eager to examine joint ventures such as with Chinese, Indian and Western investors. They are likely to access the capital markets in the medium term in order to refinance their debt. Currently, banks extend credit secured by revenues from mining clients. Other parastatals issuers may include the Roads Development Agency.
Taxes	Interest income on Treasury bonds is taxable at a rate of 15%. There is no capital gains tax.

Source : African Development Bank

About AfDB

The African Development Bank is a multilateral development institution, established in 1963 by agreement by and among its member states, for the purpose of contributing to the sustainable economic development and social progress of its Regional Member Countries (RMCs) in Africa. The members of the Bank, currently seventy eight (78), comprise 54 RMCs, and 24 Non-RMCs. The Bank's principal functions include: (i) using its resources for the financing of investment projects and programs relating to the economic and social development of its RMCs; (ii) the provision of technical assistance for the preparation and execution of development projects and programs; and (iii) promoting investment in Africa of public and private capital for development purposes; and (iv) to respond to requests for assistance in coordinating development policies and plans of RMCs.

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