

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

Public Disclosure Authorized

MOBILITY AND TRANSPORT CONNECTIVITY SERIES

SCALING UP PRIVATE SECTOR PARTICIPATION IN ROAD ASSET MANAGEMENT IN SUB-SAHARAN AFRICA



MOBILITY AND TRANSPORT CONNECTIVITY IS A SERIES PRODUCED BY THE TRANSPORT GLOBAL PRACTICE OF THE WORLD BANK. THE WORKS IN THIS SERIES GATHER EVIDENCE AND PROMOTE INNOVATION AND GOOD PRACTICES RELATING TO THE DEVELOPMENT CHALLENGES ADDRESSED IN TRANSPORT OPERATIONS AND ANALYTICAL AND ADVISORY SERVICES.

© 2021 The World Bank
1818 H Street NW, Washington DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Disclaimer—This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

All queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Foreword



The Maximizing Finance for Development (MFD) framework is part of a global agenda to crowd-in private sector resources and solutions. In this regard, the World Bank Group is promoting a stronger collaboration across its Institutions and beyond, to help catalyze finance for development. This is the rationale why the World Bank, together with PPIAF, IFC and African Development Bank, has been developing a study that seeks to (i) analyze the performance of second-generation road funds (RFs) in Africa; (ii) examine how to develop and transform RFs into a new (third) generation of instruments and (iii) explore how to scale up private participation in the financing of road assets, through public-private participations (PPPs) including performance-based contracts (PBCs). For instance, the World Bank has supported the creation of second-generation RFs and road agencies to increase the financial and technical capacity and ensure the sustainability of road investments. The key drivers behind the successful experiences are effective regulatory frameworks, increased levels of autonomy and greater capacity for planning, budgeting, financial management and auditing. The recent analysis carried out by the World Bank covering most of RFs in

Africa point out that in some Countries RFs could generate resources based on users' charges that could be dedicated to cover maintenance needs combined with rehabilitation investments under PBCs approach in a more efficient way. When revenue generation is stable and ringfenced, RFs can also potentially be used to leverage commercial financing for new investments, or to backstop government obligations under PPP schemes (e.g. Availability Payments, Construction Milestone Payments). This, in turn, can enable a greater participation of private entities, not only as contractors, but also as long-term investors and managers of both brownfield and greenfield road assets. The modernization of RFs and the increase of private sector participation in road asset management, e.g. through road PPPs, are distinct but intersecting agendas each raising specific issues. The availability and reliability of a robust public funding is a fundamental factor of feasibility of PPPs (particularly those structured as Gov.-Pays). RFs could play a role in that regard in the development of road PPPs. However, it would require a clarification of their mandate, a comprehensive legal and institutional framework, a strong governance system, and sustainable and diverse sources of financing. Some RFs were able to raise funds on financial markets, but pledging future revenues to raise long-term finance, if it may increase the funding available for road assets at a given time, is not equivalent to a PPP which involves risk transfer to the private sector. PPPs in the roads sector, on the other hand, could be looked at from the point of view of the "private sector's appetite". From this perspective, RF's participation is simply a factor, among others. The rationale of this study is to imagine how RFs can play a useful role in the development and management of road assets in LICs, though bankable road PPPs or PBCs, as part of an MFD approach.

Ibou Diouf

Former SSATP manager
Practice Manager
Central Africa transport unit

Disclaimer

This report is based on Road Fund (RF) data collected between October 2018 and May 2019 – these data have been compiled in a digital folder available separately. The data collection process has been difficult and time-consuming, except for the information regarding the few RFs that timely publish an annual report on their website. The authors are confident, however, that the data obtained are representative and support the conclusions and recommendations of the report. This report addresses two distinct but intersecting agendas: (1) how to strengthen RFs, and (2) how to scale up private sector financing in the road sector in Sub-Saharan Africa.

Acknowledgments

This study was conducted by a team of consultants led by Alain Labeau and comprised of Julien Morel, Gilles Veuillot, Pablo Goulemot, and Youssouf Sakho. The Team benefited from the input of Eunice Wahome, World Bank intern. The team worked under the guidance of a WBG steering committee led by Federico Antoniazzi (WB). The Team would like to acknowledge the assistance of, and comments and suggestions made by Pierre Pozzo di Borgo, Daniel Pulido, John Graham, Elsa Le Borgne and Elisabeth Tedros (IFC); Nicolas Peltier, Ben Eijbergen, Fatouma Toure Ibrahima Wane, Daniel Benitez, Pankaj Gupta, Jean-François Marteau, Ben Gericke, Mustapha Benmaamar, Danye Aboki, Marc Navelet, Kulwinder Rao and James Markland (WB); Patrick Rugumire and Jean Kizito Kabanguka (AfDB); Ibou Diouf (SSATP) and Philippe Neves (PPIAF). The report was edited by Adam Jankowski (WB). This work would not have been possible without the collaboration of the African Road Maintenance Funds Association (ARMFA) whose President, Souleymane Traore, kindly invited the Team to their 17th General Assembly held in Namibia. The team wishes to express its gratitude to the many heads of Road Funds who shared information at this venue. Finally, the Team would like to acknowledge Abiy Woretaw, Deputy General Manager of the Ethiopian Toll Roads Enterprise, and Allan Munyua, East Africa Director of Meridiam for their time and sharing of insightful information. The views expressed are those of the authors and not necessarily those of the WBG.



Contents

- Foreword.....3
- Disclaimer.....4
- Acknowledgments.....4
- List of abbreviations.....6
- Glossary of terms.....7
- Executive Summary.....9
- I. Introduction.....12**
- II. Road Funds in Sub-Saharan Africa: background and recent evolutions.....14**
 - 1. Background on Road Maintenance Initiative in Sub-Saharan Africa.....15
 - 2. Main conclusions from the 2006 Performance Survey.....16
 - 3. 2013-2017 Performance Survey.....16
 - 4. Current RF grouping with reference to the 2nd Generation status.....19
- III. Public-Private Partnerships in the Roads Sector.....21**
 - 1. Road maintenance funding in Sub-Saharan Africa: progressively reducing the dependence on fuel levies and shifting toward more distance-based charges.....22
 - a. Overview of possible road funding instruments and criteria for suitability in the context of Sub-Saharan Africa.....22
 - b. Key lessons from the qualitative assessment of possible instruments to diversify Road Funds revenues.....25
 - 2. How to make road PPPs more attractive for the private sector in Sub-Saharan Africa – lessons from the electricity generation sector.....26
 - 3. Lessons learned from road PPPs in Sub-Saharan Africa and Latin America.....27
 - 4. Key lessons to better prepare and structure road PPPs and scale-up private sector investment.....29
- IV. Restoration Concept: a novel road PPP promotion instrument.....31**
 - 1. Restoration Concept.....32
 - 2. Restoration Concept financial modelling impact.....35
 - 3. A Road Restoration PPP model to scale-up private sector participation in Sub-Saharan Africa.....38
 - a. Typical features of a Road Restoration PPP.....38
 - b. Typical commercial structure of a Road Restoration PPP.....39
 - c. Key risks allocation for the proposed Road Restoration PPP.....41
- V. SSATP and World Bank Group assistance to implement the Restoration Concept.....43**
 - 1. A checklist of activities to implement the Restoration Concept.....44
 - 2. Next steps.....46

List of abbreviations

AA DT	Average Annual Daily Traffic
BNDES	Banco Nacional de Desenvolvimento Econômico e Social
DBFOMT	Design Build Finance Operate Maintain and Transfer
DFI	Development Finance Institution
EPC	Engineering Procurement and Construction
GDP	Gross Domestic Product
HGV	Heavy Goods Vehicle
LIC	Low-Income Countries
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IMF	International Monetary Fund
MIGA	Multilateral Investment Guarantee Agency
MDB	Multilateral Development Bank
MFD	Maximizing Finance for Development
NPV	Net Present Value
OPRC	Output and Performance-Based Road Contracts
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
RA	Road Agency
RF	Road Fund
RMI	Road Maintenance Initiative
RRW	Road Restoration Window
RUC	Road User Charge
SOE	State-Owned Enterprise
SSA	Sub-Saharan Africa
SSATP	Sub-Saharan Africa Transport Policy Program
VOC	Vehicle Operating Cost
WBG	World Bank Group



Glossary of terms

Maintenance (periodic): The planned resurfacing of a paved road or the scheduled placement of more gravel on the wearing course of an unpaved road to account for that lost due to vehicle usage.

Maintenance (routine): The work that is planned and performed on a routine basis to maintain and preserve the condition of the road.

Milestone Payments: In this report, Milestone Payments are understood as payments made by a contracting authority during the construction period of a PPP or an OPRC, to (partially) compensate for the cost of works. These payments are usually made as works are progressing based on the achievement of pre-defined milestones. Milestone Payments (also known as Investment Grant or Subsidy) are a form of Viability Gap Funding in a PPP¹.

Off-taker: Designates the entity that is committed to purchase the output of an electricity generation project. By analogy with the electricity generation sector, this term is used to designate the entity responsible for making Annuity Payments in a Government-Pays road PPP.

Output- and Performance-Based Road Contract: An arrangement whereas the Contractor is responsible for the design of the rehabilitation, improvement and emergency works required to reach and maintain specified service levels over the contract period (employer may provide design for improvement works). Rehabilitation and improvement works are executed upfront, followed by the operation and maintenance periods. It is part of the performance-based contracts and usually follows a publicly

financed Design-Build-Maintain-Operate-Transfer format. The Contractor in an OPRC may, however, pre-finance a very limited portion of the capital expenditures (usually on its balance sheet).

Performance-Based Contract: Where payment is made based on the quality of the asset provided (e.g. US\$ for having the road within a specific roughness limit). The Contractor takes the risks related to the resources, quality and quantity of work.

PPP: A long term contract between a public party and a private party for the development (or significant upgrade or renovation) and management of a public asset (including potentially the management of a related public service). Under such contract the private party bears significant risk and management responsibility throughout the life of the contract. It must provide a portion of the financing at its own risk while its remuneration is linked to performance and/or the demand for the asset and/or services it provides¹.

Government-Pays or Gov.-Pays (PPP): A sub-type of PPP in which the private party derives its revenues from payments made by the public party. When these payments are not linked to usage (i.e. the number of users of the public asset) but rather to the availability of the asset at a certain level of service, they are also known as Annuity Payments¹.

User-Pays (PPP): A sub-type of PPP in which the private party derives its revenues from payments made by the users of the public asset. User-Pays PPPs are also known as “concessions” in many jurisdictions¹.

¹ APMG PPP certification guide. Chapter 1: Public-Private Partnership – Introduction and Overview. The APMG certification program is an innovation of most multilateral development banks (ADB, EBRD, IsDB, IADB, WBG), which was funded by PPIAF.

Priority Alignment: In this report, priority alignments are understood as the main roads connecting national and international business/urban centers.

Project Company: In this report, a Project Company is understood as the contractual counterparty of the Contracting Authority in a PPP arrangement. A Project Company is constituted specifically for the purpose of signing and executing the PPP contract. It may also be referred to as Special Purpose Vehicle (SPV) or private party¹.

Restoration Contract/Road Restoration PPP: A typical restoration contract starts with roadway repairs, stabilization (resurfacing) and reconstruction works immediately followed by structural, safety, traffic, and climate change-related improvement works. As soon as rehabilitation and improvement works are completed (2-3 years), operation and maintenance activities can start for at least one cycle of periodic maintenance (>7 years). In the context of this study, a Restoration Contract is interchangeably used with Road Restoration PPP.

Road financing: How funds are raised at the outset of a project/program to meet investments and/or maintenance needs. The financing may flow from the public sector (either from cash reserve if any or debt raised by a public entity such as a Road Fund), from the private sector (either from equity or debt raised by a private entity such a Project Company in a PPP arrangement) or a combination of both².

Road funding: Who ultimately pays in the long term for the investments and/or maintenance of the roads. The funds may come from taxpayers and/or road users².

Road Agency: An agency created via enabling legislation or ministerial decrees. Road Agencies are intended to be leaner, more consumer-oriented and market-responsive than traditional Road Administrations. As independent legal entities, they can sign contracts.

Road Fund: Special account into which the proceeds of the collection of road users' charges (e.g. vehicle license fees, heavy vehicles license fees, international transit fees, fuel levy, bridge and ferry tolls) are deposited to pay for road maintenance expenditures.

² CEDR (Conference of European Director of Roads). Funding formulas of roads: inventory and assessment. March 2017.

Executive Summary

The purpose of this study is to evaluate non-traditional means to raise additional private financing for the upgrade and maintenance of developing countries' road networks. To achieve this goal, it combines an in-depth review of Sub-Saharan Africa (SSA) countries' Road Funds' (RF) performance and Road PPPs to evaluate the potential for RFs to fund road PPPs when specific conditions are met.

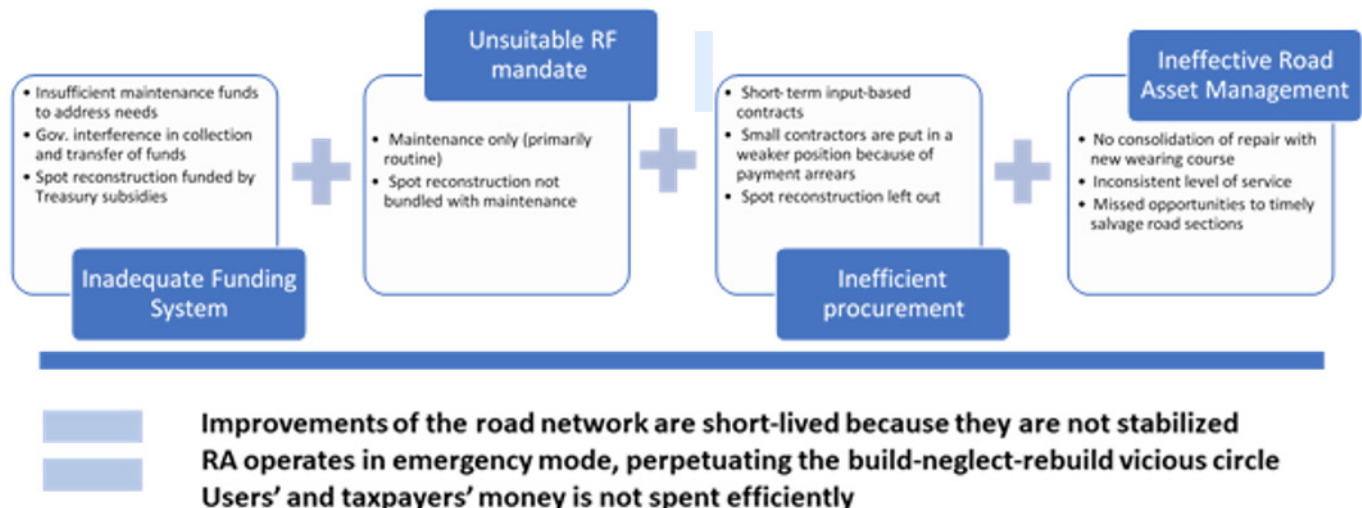
Upgrading Sub-Saharan Africa countries' Road Funds to a 3rd Generation status

1. **Road Funds (RFs) were created as part of the Road Maintenance Initiative (RMI) in the late 80s. A performance assessment conducted in 2006 showed mixed results, although it recognized that the so-called 2nd Generation RFs were able to secure more resources for road maintenance.** A survey of RF performance over the 2013-2017 period shows that some RFs lost their 2nd Generation status,

or never reached it, and only a few countries have been able to raise enough resources through RFs to fully cover their road maintenance needs. The same survey highlights the pervasive issues that currently perpetuate the Build-Neglect-Rebuild vicious cycle (see Figure A).

2. **There is a need to stress the importance of sustainable advancement of SSA country RFs towards 3rd Generation status, by first ensuring that the criteria for 2nd Generation status are met and upheld in a sustainable manner.** The 3rd Generation status is currently only achievable by some RFs and focus should be placed on the foundational importance of helping those funds that have yet to achieve 2nd Generation status to do so, and to assist the country RFs that have lost their 2nd Generation status to regain it. It also needs to be stated that this study proposes a country-specific approach rather than an abstract set of criteria, which led to the mixed success of the 2nd Generation RF initiative.

Figure A: The pervasive Build-Neglect-Rebuild vicious circle.



Source: Authors' analysis.

3. Even though many of SSA countries' RFs may currently not be ready for the transition, there is already a potential to upgrade a few RFs to 3rd Generation status. This could allow them to leverage their resources to mobilize private financing. The success achieved by some RFs could pave the way to improving RFs' ability to generate substantial, stable and regular ring-fenced revenues and to use them to underwrite credit worthy road PPPs. Taking into account the lessons learned from the 2nd Generation exercise and the RF performance surveys, a selective pilot approach has been identified as optimal for the transition to 3rd Generation status. This is set to tailor the approach to particular country conditions in order to ensure that the 3rd Generation status is reached and upheld by those countries in a sustainable manner. Based on a number of factors discussed in this report, the countries with the RFs with the highest potential to achieve 3rd Generation status have been identified as Kenya and Ivory Coast.

Attracting the private sector to road PPPs in Sub-Saharan Africa

4. The necessary first step is to design and secure a sustainable funding system by raising, and adjusting for inflation, fuel levies to at least the recommended value of US\$15c/l equivalent. Afterwards, reliance on complementing sources of revenue, such as inflation-adjusted tolls and other forms of distance-based charges (e.g. Heavy Goods Vehicles charges) should be investigated as well. This study intends to present available solutions, without taking a stance on their appropriateness under country circumstances. The listing of the different funding systems' advantages and disadvantages does not signify the endorsement of some of the enumerated

funding schemes over others. Tolling requires a sensitive approach with consideration for country specifics. Among all potential funding instruments, few present the most desired characteristics of a sustainable funding system: equity, yield potential, administrative simplicity, and consistency with user-pays principle. Fuel levies meet these characteristics. However, raising them presents some challenges (e.g. political resistance to de-funding fiscal resources any further, and the increasing share of fuel-efficient or electric vehicles). Distance-based charges, such as classic tolling or Heavy Goods Vehicle (HGV) charges, also possess the desired features. They have proved successful when adequately implemented (e.g. in the Polish experience). Access-based charges such as vehicle registration and licensing fees also meet most sought-after characteristics. However, their yield potential is lower, and they require a high level of administrative enforcement.

5. The second step is to rethink how road PPPs are selected, structured and prepared in SSA.

Private sector participation in the road sector is low compared to the electricity generation sector in the region. This can be explained by factors inherent to the nature of road projects (e.g. the relatively long construction period, or the multiplication of technical, social and environmental issues), as well as the low level that user tariffs (i.e. tolls) must be set at to gain social acceptability. These issues can be somewhat mitigated if the appropriate projects are selected (i.e. those that present the least technical and E&S issues, which is naturally associated with brownfield/pre-existing roadways) and if the challenges linked to user charges are partially or fully eliminated (i.e. indirect user payments are replaced by a contracting authority's direct payments).

A Restoration Concept to lastingly improve high-demand roads and scale-up private participation in the Sub-Saharan African road sector

6. **The Restoration Concept proposes to anchor the benefits of the RMI by upgrading qualified RFs to a 3rd Generation status and using them as a creditworthy counterpart in a series of bankable Road Restoration PPPs meant to lastingly improve high-demand roads.** This approach could be based on the establishment of a ring-fenced Road Restoration Window (RRW) within RFs, which would be used to fund privately financed Restoration Contracts. These contracts would primarily target existing road network Priority Alignments. Over time, the possibility to combine increased fuel levies with toll revenues from some sections of these alignments would promote the expansion and sustainability of the Road Restoration PPP program. This model is designed to address the impediments to attracting more private participation in the SSA road sector. It draws from lessons learned from the road PPP projects and programs analyzed as part of this study. The model comprises (1) a typical commercial structure where the Road Agency (RA) is the contracting authority and the RF is the authority responsible for making the Annuity Payments to the Project Company, and (2) an allocation of the key risks with an outline of their mitigation mechanisms. A simulation of the Restoration Concept over a period of 30 years highlights the growing impact of RF's increase in revenues over time. As the total length of restored high-demand roads expands, more funds will become available to carry out roadway maintenance financing as well as mobilize private sector financing.

Supporting client countries in implementing the Restoration Concept

7. **Implementing the Restoration Concept is expected to require a multidimensional support from the World Bank Group (WBG) to client countries.** Designing a WBG advisory and financial support for client countries, from a turnkey solution to a flexible one-stop-shop window, is beyond the scope of this study. However, the report proposes a checklist of appropriate and practical activities relating to the various phases of implementation, from upstream to downstream. These activities range from increasing the knowledge on road conditions and drafting standardized tender documents for the Road Restoration PPPs, to introducing sector reforms. The proposed activities would mobilize a large array of WBG non-financial (e.g. technical assistance, PPP advisory services) and financial instruments (e.g. credits/loans, guarantees). Collaboration with other donors (AfDB, UE, SSATP) is also essential to achieve a broad consensus and scale-up this approach.

I. Introduction



Until now, private sector financing in SSA has been mostly limited to a mix of green- and brownfield road projects, mainly executed in urban areas. The scale of these projects has been limited by: i) the ability of host nations to monetize road user demand (i.e. toll rates based on socially/politically acceptable prices rather than ability to pay), and/or ii) their fiscal credibility in providing long term, off-take, such as annuity payments to private operators/investors. Consequently, it is estimated that private financing in the road sector accounts for less than 10% of global road financing needs in emerging markets and even less in Sub Saharan Africa (SSA).

This lack of private funding for roads has left local Governments with the task of mobilizing enough money to carry out road networks preservation and expansion. In the former case, this has resulted in the establishment of intermediary public payment agents known as Road Funds (RFs), mostly in SSA. These RFs, which have been supported by Road Agencies (RAs), haven taken on the dedicated role to provide financing mostly for road maintenance activities. Some of them have evolved over time from structures located within the Ministries of Public Works or Transport to fully-fledged, separate public agencies. In this role, these RFs have so far been unable to play a credible role as an off-taker of public annuity payment obligations towards private operators/investors or to leverage their future funding streams into larger investment programs through the raising of long term, local or international, debt.

This report proposes to explore how, in few selected cases, SSA RFs could be reformed to substantially increase the amount of public and private monies flowing towards the maintenance and/or upgrade of the core road networks of SSA countries.



II. Road Funds in Sub-Saharan Africa: background and recent evolutions



1. Background on Road Maintenance Initiative in Sub-Saharan Africa³

8. A ruinous road asset management legacy. SSA countries expanded their road networks considerably from the moment they gained their independence until the 1980s. They failed to keep them in good condition, however, with too little spending allocated to both routine and periodic maintenance. By the early 1990s, nearly one third of the investment made in road assets had been lost and SSA road networks were mostly in poor condition. They had accumulated US\$43 billion in deferred maintenance backlog.

9. The Road Maintenance Initiative (RMI) was designed to remedy poor road network conditions through the creation of Road Funds (RFs of the 1st Generation). The United Nations Economic Commission for Africa and the World Bank launched the Africa RMI in 1989 to identify the underlying causes of and remedies for poor road network maintenance policies in SSA. It concluded that road assets were managed within a disabling institutional framework whereby funding of maintenance activities depended exclusively on scarce and erratic general tax revenues. To correct this issue, it was recommended that SSA countries establish RF accounts which would be funded directly by road user charges to specifically pay for road maintenance activities. These RF accounts would be off-budget line items managed by the relevant line ministry. They did not involve the creation of dedicated entities. Sadly, they performed poorly due to a host of issues (e.g. absence of independent audits, use of funds for non-road related expenditures and weak oversight/financial management).

10. The failure of 1st Generation RFs led to a recommendation for establishing 2nd Generation RFs. To address 1st Generation RFs' weaknesses, the RMI suggested that road assets should be, to the extent possible, commercialized. This required undertaking reforms in four areas (referred to as the four building blocks):

- a) Ownership: effectively involve road users in the management of roads to win support for increase in taxation, control potential monopoly power, and limit road spending to what is affordable;
- b) Financing: secure an adequate and stable flow of funds;
- c) Responsibility: clarify responsibility for fund collection, network to be maintained, size of annual work program, personnel hiring and firing; and
- d) Management: as part of a stand-alone RF agency, strengthen financial management by using effective programming and performance monitoring systems, procurement and payment procedures and checking compliance through independent audits.

11. RFs were complemented by the creation of Road Agencies (RAs) to execute road maintenance programs more effectively. To reduce governance interference in the execution of road work programs, RMI suggested the creation of autonomous RAs under the oversight of the Ministry of Transport or Public Works. The role of RAs was going to: i) collect traffic data and monitor the condition of the road network, ii) prepare road work programs and execution plans underpinning the strategy adopted by the Government, and iii) use RF funds to implement and manage road maintenance work programs and contracts.

³ Heggie I.G. Management and Financing of Roads - An Agenda for Reform. World Bank Technical Paper Number 275, Africa Technical Series, 1995.

2. Main conclusions from the 2006 Performance Survey

12. A review of the financing of road maintenance in SSA covering 27 active RFs in SSA was carried out in 2006⁴ to assess the progress towards 2nd Generation RFs. It concluded that:

- 2nd Generation RFs had become a significant feature of road sector reform programs in SSA but enabling reforms supporting them had led to mixed results;
- 2nd Generation RFs had secured a more stable flow of funds for road maintenance. In most

cases, funds earmarked for road maintenance remained insufficient with only 11 out of the 27 RFs surveyed meeting their routine maintenance expenditure needs. Only 13 countries reported that direct funding for RF budgets was in place; and

- Additional efforts were required to: i) diversify RFs' revenue sources (e.g. expand road user charges) and channel them directly to their accounts, ii) make better use of available financial resources by improving road management practices.

3. 2013–2017 Performance Survey

13. RFs' levels of resources vary widely across SSA but remain insufficient to cover the cost of routine and periodic maintenance. Total revenues from Road User Charges (RUCs) ranged in 2016 from US\$5M equiv. in Burundi to about US\$600M equiv. in Kenya. Relative to GDP, RUCs represent anywhere from 0.1% to 1.2%. The range among countries is narrower when considering the percentage of classified road network whose maintenance is covered by RFs mainly because of inherent differences in the size of each country's classified network (see Figure 1).

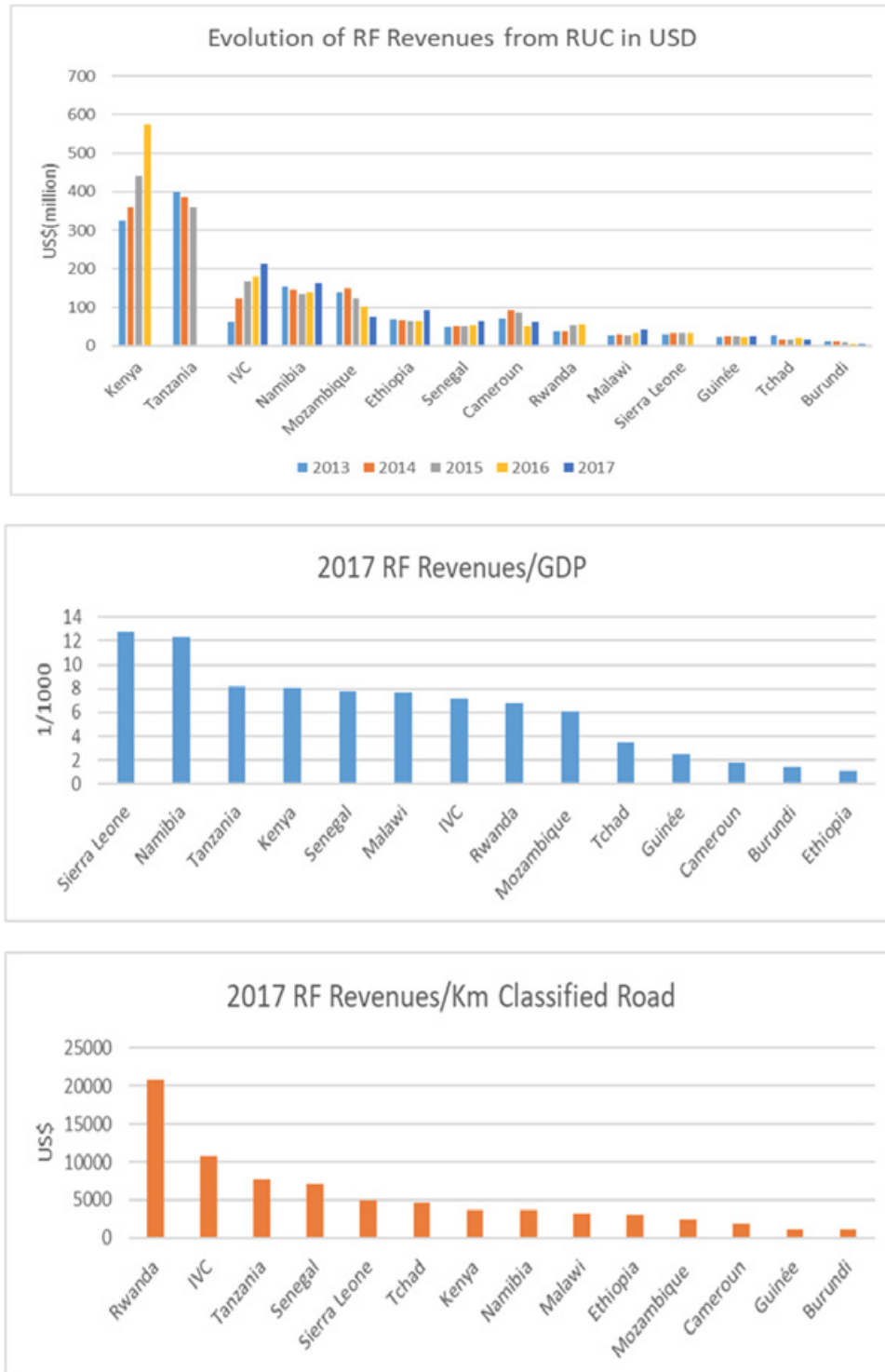
14. The 2017 ranking of RF Revenues/GDP can be misleading. Sierra Leone's ratio is overstated because of its low GDP. That of the Ivory Coast is overstated because its RF's revenues are artificially

inflated by commercial loans, which conceal a low fuel levy. Ethiopia comes last because it has elected to invest massively in the expansion and development of its road network rather than its maintenance.

15. The chronic maintenance funding gap forces RFs to fund investment works. Constant maintenance backlog forces RAs to undertake spot reconstructions when sections of the road network have reached a condition when maintenance is no longer a viable technical solution. Conversely, RFs end up funding these activities rather than financing routine maintenance. This explains why a growing number of them have requested amendments to their articles of incorporation and by-laws to include these activities.

⁴ Benmaamar, M. 2006. Financing of Road Maintenance in Sub-Saharan Africa, Discussion Paper No 6, Road Management and Financing Series, The Sub-Saharan Africa Transport Program.

Figure 1: RF revenues in a sample of SSA countries.



Source: Authors' analysis.

16. Since most RFs do not fully spend their annual revenues, some can end up with large surpluses.

Unspent funds are either funds that were not released to the RF or funds released to but not spent by RAs. The former case is generally due to a delay in the collection and transfer of funds to the RF. The latter is a direct consequence of low financial execution rate by RAs. The percentage of unreleased funds is more difficult to track. In Kenya, it is estimated to have reached 21% of the total earmarked funding between 2015 and 2017. Meanwhile, the financial execution rates⁵ across RAs ranges from 60% to 90%, which is mainly linked to a cumbersome procurement process and road works delays tied to unskilled local road contractors.

17. RFs gather most of their resources from RUCs, and the highest share still comes from fuel levy revenues.

On average, RFs derive 80% of their resources from RUCs except for Senegal and Cameroon which receive a relatively low level of RUCs because of complementary Treasury financing. RUCs are comprised of fuel levies (a fraction of the excise duty on road fuels), vehicle license and registration fees, axle load tax, driver's license fees, load-distance charges for HGVs, international transit tolls, overload fines⁶, road tolls and ferry/bridge tolls. The fuel levy is a funding instrument common to all RFs, contrary to the other abovementioned instruments. On average, the fuel levy collection makes up 76% of RUC revenues, ranging from 100% in Senegal and Guinea to about 30% in Niger. The second and third largest

components of RUC revenues are vehicle license and registration fees and tolls. While tolls have the potential to generate substantial revenues, they are seldom used mostly because of the public's resentment against them.

18. While fuel levies vary widely among countries, they remain below levels necessary to fully fund road network maintenance needs.

Studies carried out, *inter alia* by RMI (PAM, 2004), suggest that the fuel levy should exceed US\$10c/l to meet all road maintenance needs. In SSA the actual average is probably much higher at about US\$13c to 15c/l, or equiv. to US\$17.4c/l in 2017 when adjusted for inflation. These numbers are much higher than the median of about US\$7.5c and the average of about US\$9c/l recorded in 2017 in SSA (see Figure 2).

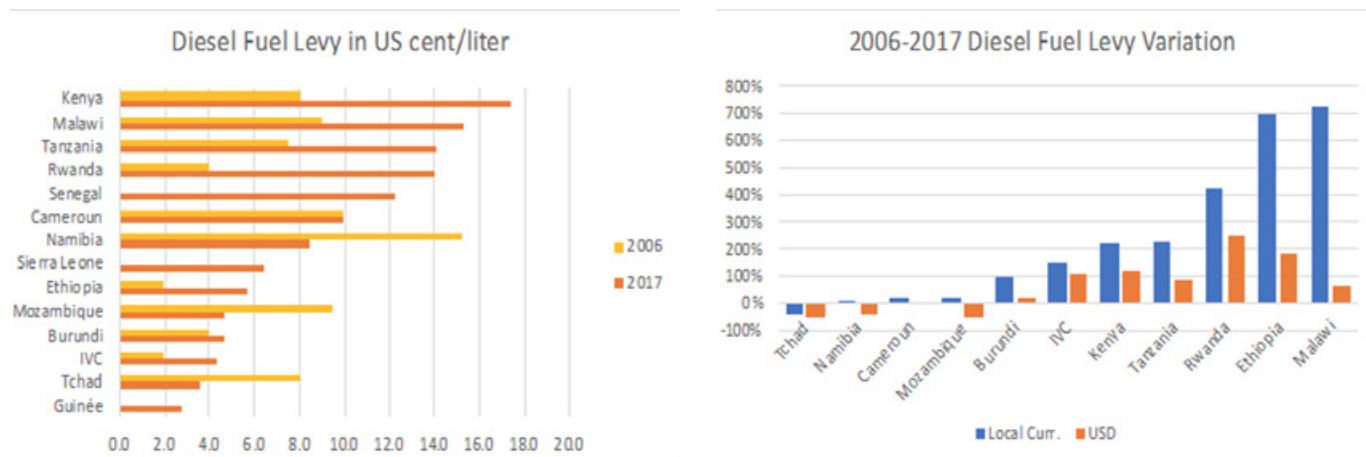
19. Some RAs have gained experience in using long-term performance-based contracts (PBC) in lieu of traditional contracts which lessen the inherent drawbacks of classic contracting (i.e. underutilization of funds, better long-term planning and execution of road maintenance strategies, reduction in cost overruns, etc.).

Countries like Chad, Kenya, Tanzania, and Zambia have gained experience with the use of PBC. This welcome move is still modest and uneven in SSA countries because of the capacity limitations of the local contracting industry and the resistance of the finance ministries and central tender boards to long-term contracts.

⁵ A low execution rate means that the funds made available, possibly including funds carried over, cannot be spent entirely and leave an unused balance at the end of the fiscal year. These balances are added to possible unreleased funds and rolled over. Over time, if the financial execution rate does not improve, they can grow into significant surpluses. In countries where there is partial or no carry over, it is a net loss for road maintenance.

⁶ These resources are expected to decrease over time thanks to a more effective enforcement of axle load regulation and increasing truck compliance.

Figure 2: Evolution of diesel fuel levy in a sample of SSA countries between 2006 and 2017.



Source: Authors' analysis.

20. Finally, most RFs' annual reports lack clarity and simplicity when, and if, they are published.

The RFs' oversight function is not facilitated by reporting requirements whose format varies from one year to another. Introducing yearly independent road condition surveys combined with road traffic surveys would allow RFs and RAs to determine scientifically, and not politically, which sections of the road network should receive priority maintenance

funding. Likewise, the production of standardized annual reports would enable government regulators not only to benchmark their own RFs and RAs' performance but also identify financial and performance issues early on. Detailed analyses of the RFs of Senegal, Tanzania, Kenya, Chad, Cameroon, and Ivory Coast (including an analysis of the legal and institutional framework applicable to the Ivory Coast RF) have been prepared as part of this study.

4. Current RF grouping with reference to the 2nd Generation status

21. **RFs can be grouped according to their ability to reach, sustain and upgrade from the 2nd Generation principles.** The ability of RFs to play an efficient role is generally the result of a multitude of factors, often beyond their control: clarity of the legal and institutional framework and its proper application, operational autonomy and political interference,

interaction with other institutions, etc. For these reasons, a ranking based purely on performance might not be relevant. What could be more telling is how RFs have evolved with respect to the 2nd Generation principles. This approach allows for the ranking of RFs into three broad categories:

- a) 1st Generation RFs that have never reached 2nd Generation status;
- b) RFs that have reverted from 2nd to 1st Generation status; and
- c) RFs that have consolidated their 2nd Generation status and have the potential to upgrade to what could become a 3rd Generation status.

22. This grouping is provided for comparison purposes only to highlight how similar the operational performance of similar institutions – namely Road Funds – varies and delivers different results. The RFs in the first group are: Cameroon and Senegal. The Gabon RF even disappeared completely recently. The RFs belonging to the second group are: Benin, Chad, Burundi and Mozambique. The RFs in the third group are Ivory Coast, Kenya, Zambia, Liberia, Malawi and Tanzania.

23. The 3rd Generation status would be an upgrade/strengthening of the 2nd Generation status mainly in terms of funding sources and amounts, scope of works to be carried out (e.g. road rehabilitation works), governance and overall autonomy. It would be designed specifically to address all the known shortcomings of current 2nd Generation RFs. As such it would:

- Fund road investment works, to administer distance-based charges (see Box 1), collect 100% of distance-based charges (net of collection costs) as part of the RUC resources, to invest its funds responsibly on the financial market;
- Raise long-term debt on favorable term from Governments or Multilateral Development Banks, and in the long-term raise commercial debt possibly without sovereign guarantee;
- Abide by stricter regulations and reporting and oversight functions⁷. The condition of the roads under their purview would be surveyed regularly by an independent party;
- Operate in a country where: there is a positive track record for implementation of RF legislation, a mature PPP Law and an experienced PPP Unit; where the Procurement Authority authorizes long-term contracting and has a good track record for procurement processing; where the convertibility restrictions on national currency are limited and where the national road construction industry comprises a reasonable number of experienced large contractors;
- Work in a team and under a clear separation of duties with a capable RA; and
- Fund, among others, Restoration Contracts (see Chapter IV).
- Meet all the 2nd Generation requirements, including collecting a fuel levy regularly adjusted and equivalent to at least US\$15c/l in 2018;

⁷ Oversight and regulatory functions of the government are often weak because of a lack of qualified staff and/or interest but can become over-prescriptive when financial transactions are ruled by a public accounting officer. Both situations are unhelpful. Adding to the problem, RF reporting can be complicated or obscure and lack simple score cards, and financial audits are often conducted mechanically with little understanding of the true mission of the RF. It looks like RFs, and their Board, self-evaluate and do not seem to be challenged often by their supervising authority. Conversely, there are cases where the supervising authority interferes in the RF's mission, e.g. by diverting funds earmarked for maintenance into new road investments (Cameroon, Sierra Leone).

III. Public-Private Partnerships in the Roads Sector



1. Road maintenance funding in Sub-Saharan Africa: progressively reducing the dependence on fuel levies and shifting toward more distance-based charges

24. Before designing sophisticated road-financing schemes involving the private sector, the first necessary step is to design a sustainable road funding system.

The public road network has been identified as the largest public infrastructure asset, and SSA countries particularly have a higher value of road asset value to GDP ratio compared to world average⁸. SSA countries will need to spend more and better on their road networks to realize their economic potential and achieve the Sustainable Development Goals. To allow private investment to support the SSA road asset program, the funding structure will determine the financing options and the bankability of the program.

a. Overview of possible road funding instruments and criteria for suitability in the context of Sub-Saharan Africa

25. Countries around the world usually rely on a mixture of instruments⁹ to fund their road sector as depicted in Box 1.

The suitability of these instruments in the context of SSA countries may be assessed against a set of qualitative criteria/most desired features such as: i) affordability, ii) yield potential, iii) users' shared interests, and iv) administrative simplicity:

- i. Affordability refers to the financial capacity of users. It varies widely and can be limited;
- ii. The yield potential is linked to the revenue's generation potential of the asset under management. It needs to be predictable and stable over the long-term. It is a key feature of any project if private sector participation is sought after;
- iii. Users' shared interest is predicated upon the implementation of the user-pays principle. It is important to ensure that different categories of road users pay their fair share of the wear and tear they cause to the road (particularly HGVs) in order to avoid socially unfair cross subsidies; and
- iv. Administrative simplicity advocates for transparent, easy to understand and audit, rules to enforce assets operations and maintenance obligations in the context of limited institutional capacities.

8 Brushett S. Management and financing of road transport infrastructure in Africa. Sub-Saharan Africa Transport Policy Program (SSATP). Discussion Paper 4, March 2005.

9 E.g. Acosta, L. National Funding of Road Infrastructure – comparative summary. The Law Library of Congress, March 2014.

Box 1: Eight categories of road funding instruments

General all-purpose taxes^{2,10,11}. They do not have a direct link to the road network use or development. They may consist in direct taxes (e.g. income tax) or indirect taxes (e.g. Value-Added Tax).

Non-recurrent access-based charges^{12,13}. They are related to the purchase of a motor vehicle. They are one-off charges paid to allow the use of a motor vehicle on the road network. They include a variety of charges e.g. Vehicle Registration Fee, Custom Duties for imported vehicles, Luxury Car Taxes.

Recurrent access-based charges^{11,13}. They are paid regularly by vehicle owners and users. These charges include for example: Vehicle Licensing Fee, Axle Tax, Insurance Contract Tax, Driver's License Fee.

Distance-based charges^{2,14}. They are paid directly by the user in exchange for the use of the road. They are usually based on a unitary tariff (e.g. US\$/ct/mil traveled). The tariff can be modified according to several parameters such as maximum authorized weight, number of axles, period of the day or even Green House Gas (GHG) emission class. These charges can be paid by the user either using cash or electronic fund transfer and consist in: tolls (on specific stretches and linked to the repayment of road investment, e.g. in a User-Pays PPP scheme³¹), international transit fees, HGV charges (on a network basis and not necessarily earmarked to repay a specific investment).

Time-based charges^{2, 10, 14}. They are paid directly by the user in exchange for the right to use the road (or network) during a specified period. These charges are usually based on a unitary tariff (e.g. US\$/day, week, month or year). The tariff can be modified according to several parameters such as maximum authorized weight, number of axles, period of the day or even GHG emission class. These charges include for example: vignettes and urban charges.

(Box.1 continues on the next page)

-
- 10 Ministry of Transport of New Zealand. Future Funding - Revenue tools for transport, November 2014
- 11 Chen, C., and Bartle J.R. Infrastructure Financing: a guide for local governments managers. Prepared for International City/County Management Association and Government Finance Officers Association, 2017
- 12 Deloitte. Road Pricing and transport Infrastructure funding: reform pathways for Australia – Discussion paper. 2013.
- 13 Association Mondiale de la Route. Financement, dévolution et gestion des investissements routiers – Comité Technique A.2 de l'AIPCR, rapport 2012R08FR. 2012.
- 14 Schwarz-Herda, F. Road pricing for heavy vehicles: a key for financing road infrastructure? A successful example in Austria. Route – Roads 2013, volume 358. www.piarc.org.
- 15 Committee for a study of the future Interstate Highway System. Renewing the National Commitment to the Interstate Highway system: a Foundation for the Future. Transportation Research Board. 2018.

Fuel-consumption based charges^{12, 15}. They are excise taxes, meaning that they are included in the price paid at the pump by consumers and the taxpayer is either the fuel producer or distributor. They consist in a unitary tariff (e.g. US\$/gal), which can be modified depending on the fuel type. For example, less polluting fuels like Liquefied Petroleum Gas (LPG) or Compressed Natural Gas (CNG) may have a lower rate. The “fuel levy” which represents in average 80% of the RFs’ resources (see para. 17) is usually carved out of the fuel excise tax.

Value Capture charges¹⁶. Value capture is defined as the public recovery of all or a portion of increased property value created because of public infrastructure investment, or that takes benefits from it. Subject to enabling conditions (e.g. real estate market vitality, zoning and land use entitlements), new road capacity and new road accesses can create business opportunities and value in the surrounding land and real estate. They include for example: Impact fees, Special Assessment Districts or Tax Increment Financing.

Toward a Universal Road User Charge?^{10, 12, 15}. Recognizing the limits of the current road funding system, the road maintenance and investment gaps, and the future shortcomings of fuel taxes as one of the main funding instruments, some countries have started considering a new road pricing scheme that would first complement and then replace current funding instruments. The related charging arrangements would apply to all motor vehicles and the entire road network. The concept is basically to charge users for the distance they travel on roads. In addition to distance the pricing could include: Vehicle weight class, Time of day, Location, Type of fuel (or GHG class).

Source: Authors’ analysis.

15 Committee for a study of the future Interstate Highway System. Renewing the National Commitment to the Interstate Highway system: a Foundation for the Future. Transportation Research Board. 2018.

16 Page, S., Bishop W.L., Wong W. Guide to value capture financing for public transportation projects. TCRP (Transit Cooperative Research Program Research) Report 190. National Press Academies. 2016.

b. Key lessons from the qualitative assessment of possible instruments to diversify Road Funds revenues

26. Road funding systems are usually complex and opaque with associated public acceptance issues. Countries generally rely on a combination of funding instruments which are by design earmarked for the road sector. The path of returning collected funds to investment, maintenance and operation of roads is complex, however. In some countries, revenues from road sectors subsidize other policies (e.g. some European countries) while in others it is the opposite that happens (e.g. USA)¹⁷.

27. In the short-term, fuel-consumption based charges (e.g. fuel levies) remain a pragmatic road funding instrument. A shift toward more distance-based charges might be necessary in the mid- to long-term as fuel consumption growth may temper off or turn into a decrease with the mass introduction of electric vehicle fleets. Table 1 summarizes the qualitative assessment of possible road funding instruments conducted in the context of SSA countries against the most desired features outlined in para. 28.

Table 1: Assessment of the most desired features of road funding instruments in SSA countries

	Affordability	Yield Potential	Users' Shared Interest	Administrative Simplicity
General taxes	Low	Medium	Low	High
Non-recurring access-based charges	Low	Low	Low	medium
Recurring access-based charges	Low	Medium	Medium	Medium
Distance-based usage charges	Medium	High	High	Medium
Time-based usage charges	Low	Medium	Medium	Low
Fuel consumption-based user charges	Low	Medium	Medium	High
Value Capture	Medium	Medium	Low	Low
Universal Road User charges	Medium	High	High	Low

Source: Authors' analysis.

17 Gomez, J., and J. Vassallo. 2014. Comparative Analysis of Road Financing Arrangements in Europe and the United States. *Journal of Infrastructure Systems*, Vol. 20, No. 3, Sept.

28. To anticipate fuel levy shortcomings, Governments in SSA countries need to shift toward more distance-based charges as these charges present a significant yield potential. Even if implementation and operation costs are higher than fuel consumption-based charges and can prove challenging, distance-based charges are generally accepted by road users when they translate into better road condition and increased road safety. However, ensuring willingness to pay requires a strong political will and a relevant strategy to publicize benefits to overcome initial opposition.

29. Preparing now the implementation of distance-based charges on a network basis (e.g. HGV charges) could pave the way to the

implementation of a Universal Road Charging system in the long term as the sole road funding instrument. In countries where enabling conditions are fulfilled (e.g. sophisticated fiscal administration, adequate institutional capacity, dynamic real estate market), value capture mechanisms could be introduced to fund targeted capital expenditures in the road network. These instruments require a high degree of sophistication in terms of fiscal management (e.g. proper land titles, and efficient property tax assessment systems) combined with the ability of public authorities to engage in transparent cooperation with private real estate developers. For these reasons, these mechanisms are probably out of reach for now for most SSA countries.

2. How to make road PPPs more attractive for the private sector in Sub-Saharan Africa – lessons from the electricity generation sector

30. In SSA countries, private sector participation in infrastructure is concentrated in electricity generation projects. The World Bank's Private Participation in Infrastructure¹⁸ database shows that the electricity sector accounts for 51% of private sector participation whereas the road sector accounts for only 3%. This discrepancy is even more pronounced in LICs. Only one road PPP reached financial close during the last decade whereas 46 electricity generation projects did so. Moreover, during the 2011-2017 period, 41 projects (21 located in SSA), received private participation from institutional investors, but only one of them was a road project¹⁹.

31. This failure to attract private sector participation can be explained by factors inherent to the nature of road projects. As linear infrastructures, roads cross a variety of land, multiplying technical, environmental and social issues compared to the limited land-related challenges faced by electricity generation projects. Among these issues, right-of-way acquisition and clearing, and the associated resettlement of communities are probably the most prominent. Construction periods can also be much longer (as long as 5 years²⁰), which is a challenge in project-financed projects such as road PPPs.

¹⁸ <https://ppi.worldbank.org/>

¹⁹ World Bank. Contribution of Institutional Investors – Private Investment In infrastructure 2011-H12017. 2017.

²⁰ The 4G road PPP in Colombia have for example construction phase lasting around 5 years.

32. Project preparation and structuring decisions made by contracting authorities also contribute to making road PPPs less attractive than electricity generation projects. Road projects presented to the market in SSA countries are about 35% more capital-intensive than electricity generation projects (75% if only focusing on LIC in SSA). The capital-intensity can have adverse impacts on: i) affordability of the road PPP for users and the contracting authority, and ii) attractiveness for lenders and equity providers. In

most countries, it tends to make financially weak local contractors' participation all but impossible. Most importantly in LICs, when 99% of the Project Companies derive their revenues from payments from the Government or a public utility (under Power Purchase Agreements - PPAs), 75% of Project Companies operating road projects generate their revenues from tolls collected from road users. This implies that these companies are exposed to traffic risks that equity providers and lenders are averse to.

3. Lessons learned from road PPPs in Sub-Saharan Africa and Latin America

33. The following key lessons are drawn from case-studies of road PPP projects and programs in Latin America (i.e. Brazil and Colombia) and SSA (i.e. Ivory Coast, Liberia, Kenya and Senegal). Three of these case-studies cover PPP projects (Henri Konan Bedie toll bridge in Ivory Coast, Ganta-Zwedru road corridor rehabilitation in Liberia, and Dakar-Diamniadio toll highway in Senegal), while the others cover PPP programs (4G road PPPs in Colombia, Federal highway concessions in Brazil, toll roads and roads annuity programs in Kenya). These projects and programs cover a wide range of features (e.g. brownfield vs. greenfield, User-Pays vs. Gov. Pays). Most of them benefitted from the support of the WBG.

34. Lesson 1: Successful road PPP projects or programs require high-level government championing. High-level government championing is a necessary condition at all phases of the project/program implementation. In the upstream phases, significant sector (in transport and finance) and cross-sector reforms (creating an adequate PPP framework) usually need to be implemented to enable the development of roads PPP project/programs. In midstream

to downstream phases, potential investors need to be convinced, inter alia, that bidders' competition will be fair and transparent, that the government's objectives can be realistically achieved, and that the public funding mechanism that supports the PPP framework is creditworthy. Public sector entities need to be appropriately staffed and funded to face the high workload generated during the structuring and tendering phases as well as during contract management.

35. Lesson 2: A programmatic approach with standardized documents generates many benefits, among which the reduction in transaction costs for both public and private stakeholders is the most notable. Due diligence of different types (legal, technical or financial) and other transaction costs are significant and may not necessarily be fully recovered by losing bidders. Standardizing tender documents and preparing a pipeline of similar projects creates economies of scale for potential bidders. It can incentivize them to participate in several bids. For the public sector, even if preparation of standardized documents may take longer, a more streamlined

tender phase can yield substantial gains (i.e. 4G road PPPs in Colombia). Moreover, ensuring maximum bidder participation increases competition, which in turn can help Governments achieve greater Value for Money for these projects.

36. Lesson 3: Public authorities need to take a realistic look at the local road contracting industry before scaling their road PPP projects or programs. When structuring tender documents (particularly Request for Qualifications and Request for Proposals), contracting authorities will need to define qualification criteria. These criteria will need to be balanced to enable a truly competitive environment while weeding out bidders with weak balance-sheet performance or technical skills, making it impossible for them to secure performance-based or concession type contracts. In many SSA countries, there is no proven track-record of road PPPs or other forms of performance-based contracts. This inevitably leads to looking to foreign contractors, at least in the short-term. If public authorities want to secure local contractors' participation to make road PPPs more politically appealing/acceptable, they can proactively favor local contractors through various means, including by setting aside percentages of road works to be executed by local contractors under each contract or directly providing technical and/or financial support to these indigenous contractors.

37. Lesson 4: The User-Pays PPP model is not easily replicable when scaling up private participation in the road sector in SSA. The two SSA User-Pays PPPs reviewed (Dakar Diamniadio Toll Highway - DTH - and Henri Konan Bedie Toll Bridge - HKBTB) required considerable time to prepare. Reaching financial close required either substantial public upfront payments or the establishment of tailor-made demand-risk mitigation mechanisms. In both projects the private sector funded only a small

portion of the investment financing needs (e.g. 42% of CAPEX for Dakar's DTH). In more mature investment markets, like Colombia, scaling-up private sector investment in the road sector required the adoption of a hybrid User-Pays and Government-Pays PPP model. The Brazilian exception to this lesson, where the "pure" User-Pays model is still widely used, has more to do with, among other factors, the subsidized long-term financing that was widely provided by Banco Nacional de Desenvolvimento Econômico e Social (BNDES, the State-Owned National Development Bank) until 2016.

38. Lesson 5: Annuity Payments funded by a clear ring-fenced mechanism, independent from annual public budgeting cycle, can strongly enhance a project's bankability. Some recent examples show Project Companies either derive their revenues from publicly funded Annuity Payments only (e.g. roads annuity program in Kenya, Ganta-Zwedru road corridor rehabilitation in Liberia) or a mix of tolls revenues and Annuity Payments (4G program in Colombia). In all these cases a dedicated ring-fenced mechanism, independent from public annual budgeting cycles, was established to fund each Government's Annuity Payments obligations. This approach gave extra comfort and visibility to potential bidders and played a central role in each project's marketability and bankability.

39. Lesson 6: Tolls or other forms of distance-based charges can be successfully implemented. They require strong political support, a transparent tolling policy and visible improvements for road users. Four of the cases reviewed involved tolling as a revenue stream for Project Companies. All raised user acceptance issues, triggering the need for public authorities, at some point of the project's cycle, to temporarily lower the tariffs or suspend tolling altogether. Users' willingness to pay did rise,

however, as they experienced sustained improvements in road safety, travel time and comfort. This experience underscores the need for this type of projects to adopt and widely communicate a transparent tolling policy to all stakeholders²¹. Such a policy should, *inter alia*, govern toll tariffs (e.g. affordability) and their periodic adjustment (e.g. to reflect local inflation).

40. Lesson 7: National Infrastructure Banks (NIBs), like BNDES in Brazil or Financiera de Desarrollo Nacional (FDN) in Colombia can play a key role in assisting in the implementation of road PPP projects or programs. BNDES in Brazil or FDN in Colombia acted as the financial arm of Governments during the roll out of each country's road PPP Program. These NIBs were either able to reduce projects' cost of capital, therefore increasing affordability for users and taxpayers, or helped crowding-in private investment by simply participating in each project. While a

NIBs solution for the majority of SSA countries seems implausible because most SSA countries are non-investment grade, the opportunity to use this approach can be examined, acknowledging the associated benefits and challenges²².

41. Lesson 8: Coordinated MDB support can be instrumental to the success of road PPP projects or programs. Except for the Roads Annuity Program in Kenya, all projects or programs reviewed benefited from some coordinated support from WBG entities. This support was predicated upon WBG availing a large array of non-financial (e.g. technical assistance to conduct reforms, implement E&S issues surrounding Right of Way issues, etc.) and financial (e.g. credit/loans, political risk insurances, and guarantees) instruments to each project. Similar MDB support will be necessary in SSA countries where there is little, if any, proven track-record of private participation in the road sector.

4. Key lessons to better prepare and structure road PPPs and scale-up private sector investment

42. To enhance the appeal of road PPPs to debt and equity providers, right-of-way and resettlement issues should be settled before financial close, and related risks should be retained by the public sector. In countries where there is no proven track-record of successful road PPPs, it is therefore recommended to initially focus on brownfield projects²³ for which right-of-way, resettlement and engineering issues are limited.

43. SSA Governments and contracting authorities should prepare moderate-sized road PPPs focusing on brownfield projects. Carefully designed strategies covering pipeline building, standardization of tender documents, bundling of several projects into a single contract, etc. are needed to lower transaction costs. It should make them more attractive to both local and international contractors.

21 The case-study of the Polish Road Fund delivers the same lesson. Poland has introduced HGV charges on selected sections of the national network in 2011. Despite initial opposition, the trucking industry accepted the principle of road charging. The revenues from these charges are steadily growing.

22 Global Infrastructure Hub. Guidance note on National Infrastructure Banks and similar financing facilities (consultative draft). April 2019.

23 In SSA countries, almost ¾ of the active road PPPs are brownfield according World Bank's PPI database.

44. SSA Governments and contracting authorities should retain demand risk when structuring road PPPs as Government-Pays. The funding mechanism of Annuity Payments needs to be carefully designed. Backstop payment guarantees from the Governments or MDBs are worthy safety nets, yet a funding mechanism with predictable and sustainable cash-flows is key to attracting the private sector.

45. Annuity Payments should be linked to a creditworthy off-taker, a role 3rd Generation RF could play. In addition to traditional RF resources (e.g. fuel levy), distance-based user charges (e.g. tolls) collected on the roads after works completion could contribute to funding the public authority's Annuity Payments obligations. RFs' creditworthiness could be enhanced with Government and WBG support (e.g. payment obligation guarantees).

46. In the long term, other private sector participation models like road asset recycling could be introduced in SSA countries. Road asset recycling requires transferring the demand risk to the private sector. The feasibility of private sector participation in road projects needs nevertheless to first be demonstrated through the implementation of successful Gov.-Pays road PPPs.



IV. Restoration Concept: a novel road PPP promotion instrument



1. Restoration Concept

47. The Restoration Concept combines the following features: i) consolidating multiple road improvement projects under a single contractual umbrella, ii) increasing RF revenues by increasing traditional RUCs (namely the fuel levy), and c) introducing tolls or other forms of distance-based charges on sections of restored road networks.

Restoration Contracts would bring the entire length of selected national Priority Alignments to good condition and improve and maintain them as necessary²⁴. Tolls or other forms of distance-based charges could be raised on suitable sections of the restored Priority Alignments when and if traffic volumes are sufficient and a sound toll policy is in place. These users' revenues would be earmarked to the RF and used to pay, partially or fully, for the cost of Restoration Contracts, including the associated future routine and periodic maintenance contracts. Over time, any cash surpluses would be used to fund additional Restoration Contracts and, possibly, cross-subsidize the maintenance of other national roads and/or lower category roads.

48. Privately financed Restoration Contracts (implemented using the PPP model outlined previously) would be funded by a Road Restoration Window (RRW) carved into a qualified RF

whereas publicly financed contracts (i.e. OPRC and performance-based contracts - PBCs) would remain financed from the RF's general fund. The RRW would be carved into the funds earmarked for national roads maintenance which represent about 80% of RF resources in SSA. A notional percentage of about 20% of the funds allocated for the maintenance of national roads could be transferred into the RRW (or about 16% of RF revenues²⁵). As a result, funding assigned to the maintenance of national roads would be reduced from 80% to 64% of RF revenues while the portion of its resources allocated to the maintenance of local roads would remain unchanged (see Figure 3 below).

49. During the ramp-up phase of the Restoration Concept, RFs' existing financing Window (EW) would gradually move away from funding short-term input-based maintenance contracts to funding long-term PBCs. This change would require that: i) RFs' statutes be amended to enable them to fund spot reconstruction works²⁶, ii) training programs for local road contractors be carried out and, iii) procurement legislation be amended as needed.

24 Improve the service level to address safety and climate change requirements as well as increased traffic volume. These improvements should be designed with the intention of staying as close as possible to the maximum marginal benefit, i.e. avoiding overdesign. Improvement works can comprise localized structural strengthening; installation of guard rails, proper marking and signaling, pedestrian protection, bus lay-bys, separate parking and loading areas, removal of black spots; construction of overtaking lanes, crawling lanes on steep slopes, strengthening of the wearing course in hairpin turns; and increased drainage capacity, protection against flooding, reinforcement of slope stability, etc.

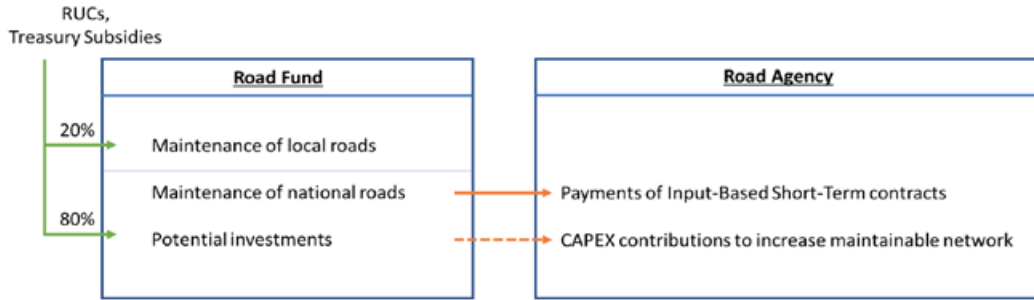
25 On average 80% of the RF resources are earmarked for the maintenance of national roads and about 10% to 40% of these resources are unused every year. The unused resources are generally carried over to the next year but in some countries, the carry-over is not authorized, and funds are lost to the RF. In this respect, sizing up the RRW to 20% of the funds earmarked for the maintenance of national roads is reasonable. Another point of comparison is the Kenya Roads Annuity Fund which represents about 16% of the RF resources.

26 As opposed to the entire reconstruction of long road segments funded under the government budget.

Figure 3: Development of the Restoration Concept

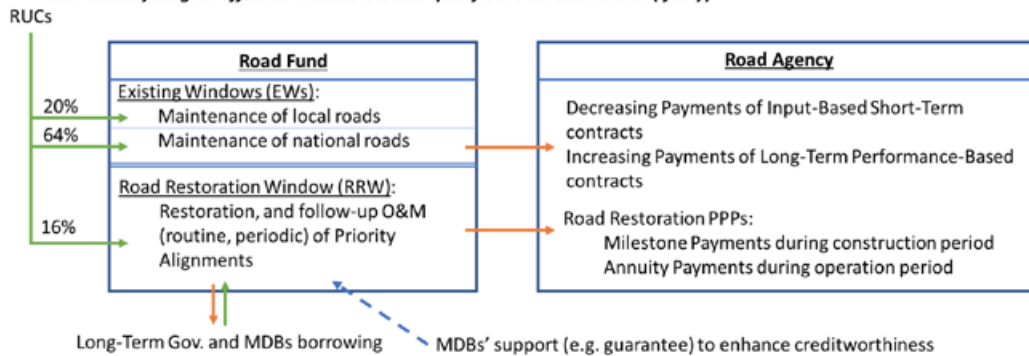
Current situation:

*Each year, about 20% of funds for national roads are unexecuted and carried over, sometimes partially (or not)
Some RFs may be authorized to fund investments but it is usually funded from Treasury subsidies and not bundled with maintenance
Maintenance of local roads is managed by local governments with or without assistance from RA*



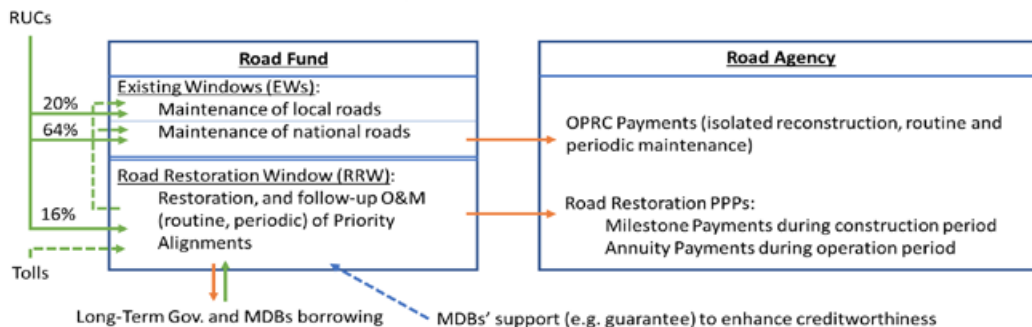
Restoration Concept – ramp-up phase:

*Increased traditional RUCs (fuel levy) to bridge maintenance gap, cover isolated reconstruction and replace unreliable Treasury Subsidies
EWs and RRW authorized to fund investment if bundled with maintenance in Long-Term Performance-Based and PPP contracts
EWs target local contractors and increases their capacity to enter into Long-Term Performance-Based contracts
RRW initially targets offshore contractors and qualified local contractors (if any)*



Restoration Concept – “cruising” phase:

*Tolls are collected on selected restored Priority Alignments and net revenues are transferred in full to RRW
Excess revenues of RRW are transferred to EWs and may cross-subsidize local roads
EWs does not fund input-based contracts anymore, and focuses on long-term Performance-Based contracts
Local Contractors have increased their capacities. They can bid on OPRCs and Road Restoration PPPs (either as consortium's members or consortium's lead)*



Source: Authors' analysis.

50. Fuel levy as well as other user charges would need to be raised and adjusted for to increase RFs' resources during the ramp-up phase. On average, the fuel levy represents 76% of RF revenues in SSA. Raising the fuel levy to at least US\$15c/l equivalent would lift annual RF revenues significantly in many countries: they would reach US\$600M in Ivory Coast and about US\$300M in Namibia, Ghana and Cameroon. Vehicle registration fees contribute to about 10% to 20% of RF revenues but are not common in all SSA countries. Raising them or introducing them would also increase RFs' revenues significantly.

51. During the cruising phase of the Restoration Concept, EW would only fund long-term OPRCs as local road contractors improved capabilities would enable them to successfully implement this type of contracts. Meanwhile, RRW could collect additional revenues from tolls (or other forms of distance-based charges) derived from suitable restored Priority Alignments. As shown by the qualitative assessment of road funding instruments (see Section III.1), road tolling represents a promising revenue generation tool for RFs. The Brazilian, Colombian and Polish case studies show that initial resistance against new tolls can soften if road users associate tolls with the direct benefits they accrue from using better roads. While tolling systems should be administered by RFs/RRWs, it is recommended that their operations be outsourced. Toll revenues (net of collection costs) should be retained in full by the RRW and potentially be tax-exempt. Over time, as the combined traditional toll revenues exceed the costs borne by the RRW, excess revenues could overflow to the EW and cross-subsidize the maintenance program of local roads.

52. The Toll Policy adopted should aim at setting affordable, consistent, transparent and fair pricing of road usage. It should also regulate tariff revisions. Since tolls would be collected by the public sector, their pricing system would need to be designed to be welfare-oriented, contrary to a private concession scheme where it is profit-oriented²⁷. The Toll Policy should address, *inter alia*: the pricing formula that should consider the differentiated wear and tear caused by different types of road users (e.g. HGVs vs. light vehicles); the type of roads targeted for tolling, the method to adjust tariff rates to account for price escalation, congestion pricing, etc. Currently in SSA, HGVs rarely pay their fair share of road user charges, although some countries started experimenting with HGV charges²⁸.

53. For obvious economic reasons, a selection system based on road condition and demand must be set to prioritize where restoration financing is implemented in SSA. The road sections targeted for restoration should be part of the national paved Priority Alignments and regional trade corridors where higher traffic volumes occur. Most of these Priority Alignments are bituminous two-lane roads connecting larger urban centers. Their traffic volume varies between 4,000 and 12,000 vehicles per day (vpd), while their condition ranges between 20% to 60% in good condition, 30% to 50% in fair condition, and 10% to 30% in poor condition. They often lack adequate safety infrastructures, have not been adapted to climate change, and their original design has not incorporated the need to accommodate increasing traffic volumes. RFs must commission regular independent road condition and traffic volume surveys to be knowledgeable about evolving road demand and conditions. This will allow them to target the right Priority Alignments.

27 Bonnafous, A. The economic regulation of French highways: just how private did they become? Transport Policy, 41. 2015.

28 Namibia for example recently started experimenting with the satellite-based tracking systems for HGVs, already in use in Europe; with the collaboration of ICT firms, this development could be within the reach of many African countries sooner than later.

54. A pipeline of Restoration Contracts should be prepared and then implemented at a pace commensurate with the level of RRW resources so that the cumulated RRW's cash-flow balance stays positive at all times. The financial simulation model shows that there is a significant difference between the number of restoration contracts that can be funded solely with traditional resources versus traditional resources magnified by toll revenues.

55. Preparation, awarding and management of Restoration Contracts will require significant efforts from the RAs with support from a PPP Unit. The RAs should be tasked with the preparation of the pipeline of Restoration Contracts. It should team up with a PPP Unit since these contracts would be implemented as Road Restoration PPPs. Preparing and implementing PPPs can prove considerably time-consuming for contracting authorities,

particularly when they have no prior PPPs expertise. Substantial pre-tender work (e.g. Priority Alignment selection, robust feasibility studies including traffic forecasts, standardization of tender documents, appropriate bundling of Priority Alignments, etc.) will be needed from RAs to reduce transaction costs, secure bidders' interest and foster maximum competition among them. Private Sponsors will be more likely to participate in a bidding process if the tendering system enables scalability (enough investment to justify the sunk costs) and offers a prospect for replicability (bidding for similar projects).

56. Accordingly, Restoration Contracts should first be piloted with RFs that present the potential to transition to a 3rd Generation status and generate at least the equivalent of US\$100m in annual revenues.

2. Restoration Concept financial modelling impact

57. A customizable Excel financial model was developed to test the impact and limitations of the Restoration Concept for various plausible scenarios. The user can test a large set of financial and technical assumptions against a Restoration program and the follow-up maintenance contracts over a 30y period and by extension simulate the total length of roads restored and fully maintained thereafter. Among the key assumptions are: i) the RF's level of resources; ii) whether tolls would be raised and under what terms (e.g. tariffs, and their coverage of the restored Priority Alignments); iii) the road condition; iv) the contract duration; and v) the mix of debt and

equity and associated costs. The model is adjusted for a customizable inflation and denominated in USD. The depreciation of RF and toll revenues is incorporated and covered by customizable catch-up mechanisms.

58. The cost of Restoration Contracts has been assessed for scenarios associated with the typical condition of national priority roads in SSA countries and other logical and realistic assumptions. Based on road conditions described previously, unit rehabilitation costs derived from known studies, and financing assumptions drawn for recent PPP schemes

in SSA, ten scenarios were established for a nominal 100km stretch of roads²⁹. Four of these scenarios were computed in the financial model³⁰: two high-case and two low-case scenarios based on the volume of works implied, respectively labeled A1, B1, C3 and C4. A1 and B1 restoration contracts were structured as 15y Government-Pays PPPs and C3 and C4 as 10y OPRCs owing to their lower estimated cost³¹. The respective nominal non-discounted costs from the public sector's point of view amounted to about US\$117M for A1, US\$113M for B1, US\$68M for C3 and US\$65M for C4.

59. Assuming no tolls are raised, a RF collecting about US\$125M equivalent in annual revenues³² would only be able to fund 4 Road Restoration PPPs over a period of 30 years (i.e. would be able to restore and fully maintain 400 km of Priority Alignments). An RF collecting US\$625M of annual revenues would be able to fund 23 of these contracts or restore and fully maintain 2,300 km of Priority Alignments over the same period. RFs collecting annual amounts between these two limits would be able to restore a proportional length of roads as shown by the linear relationship between RF revenues and km restored.

60. Assuming that (1) tolls can be raised on 50% of the length of all restored Priority Alignments, (2) the average toll is equivalent to US\$5c/km and (3) the AADT is 8,000 vpd, then a RF collecting

US\$125M per year would be able to restore 10,000 km of Priority Alignments over 30 years. This figure is to be compared with the mere 400 km that could be restored in the absence of tolls. It shows how the outcome of the Restoration Concept (total length of restored and thereafter fully maintained Priority Alignments) increases linearly with traditional resources and exponentially if tolls are collected on some sections of the restored Priority Alignments. In the case of the Kenya, whose RF collected US\$625M in 2017, an increase of the toll coverage from 20% to 30% of the Priority Alignment network would induce a leap from 5,000 km to 10,000 km of restored and maintained priority roads over 30 years. Despite the challenges associated with any tolling program, these numbers illustrate the need for SSA Governments to seriously consider the tolling option.

61. If SSA countries agree to raise the fuel levy to the minimum recommended level of US\$15c/l and adjust it regularly to account for inflation, Ivory Coast and Mozambique would join Kenya among the RFs collecting more than US\$500M annually while Namibia and Ghana would collect about US\$300M annually. Consequently, Mozambique, Kenya, and Ivory Coast could restore 2,800, 2,300, and 2,200 km of Priority Alignments over 30 years without raising any toll. If tolls were raised using the assumptions previously described, these countries would be able to restore and maintain nearly all of their national road networks.

29 Other notable assumptions: direct O&M costs increased by 15% to consider the Project Company's own costs (staff, headquarters, taxes and insurance) in case of privately financed Restoration contract, and reserve accounts waived for government loan to the RRW. Moreover, the cost of installation and operation of the tolling system is included in the restoration contract. As a conservative estimation, it is assumed that the toll operator will be hired during the last year of the construction period. Another year is then allowed to train the work force and test the equipment. Hence, assuming three years for the construction period, tolling could become effective 5 years into a restoration contract on the entire or selected sections of the restored road.

30 The financial model built in an Excel spreadsheet is provided with the report.

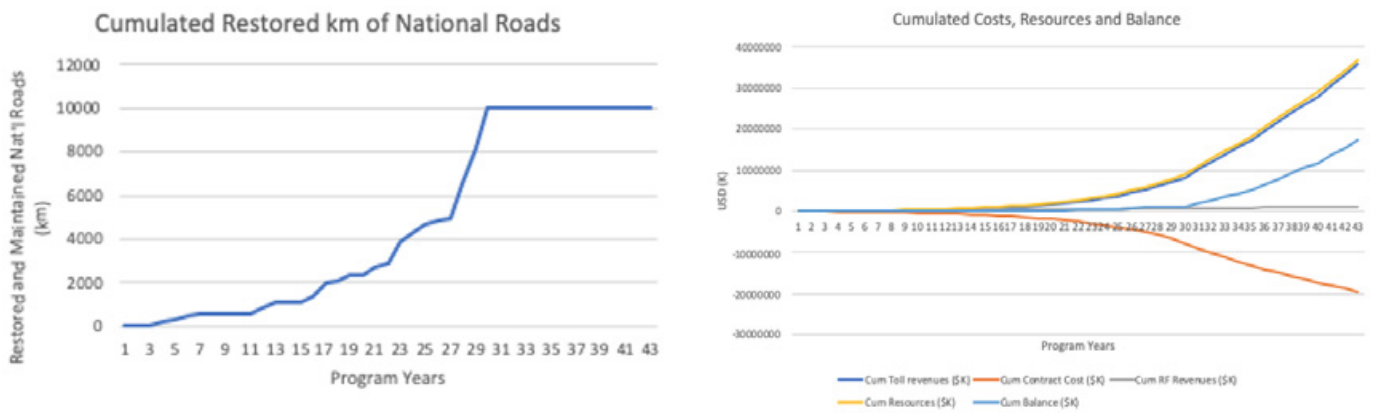
31 The simulation model allows testing a restoration program composed of a mix of Government-Pays PPPs and OPRCs. Conversely, lower cost scenarios can be bundled and treated as PPPs.

32 In 2017, eight SSA countries had a RF collecting that amount or more. However, none of these RF had automatically adjusted resources.

62. **Figure 4 presents the output of the simulation model using the average revenues of US\$115m currently collected by SSA’s RFs.** It also assumes that tolls would be collected. If tolls were raised on 50% of the restored Priority Alignments, a typical RF would be able to implement over 30 years up to 100 restoration contracts (52 PPPs and 48 OPRCs)³³, 36 follow-up maintenance contracts, and restore 10,000 km of Priority Alignments. The number of Restoration Contracts would gradually ramp up from an

average of 1 per year during the years 1-10, to 3 per year during the years 11-20 and then to 9 per year during years 21-27³⁴. This snowball effect type of growth would give RFs, RAs, and their associated PPP Units time to upgrade their skills and management capacity. This simulation also quantifies the magnitude of the tolling effect: after 30 years, the cumulated traditional adjusted RF revenues would reach about US\$750M annually, whereas the cumulated toll revenues would top US\$8bn.

Figure 4: Cumulated Restored roads. Contract costs and resources.



33 Ideally, all contracts should be structured as PPPs. The simulation can be computed accordingly but we chose to use a combination of both that looks more realistic in our view.

34 The restoration program is suspended in year 27 because the restored network nearly covers the common length of the national networks

3. A Road Restoration PPP model to scale-up private sector participation in Sub-Saharan Africa

a. Typical features of a Road Restoration PPP

63. The proposed model of Road Restoration PPP addresses the identified impediments to more private sector participation and leverages lessons learned from the analyzed road PPPs. It is intended to be adapted and replicated in various SSA countries.

64. A Road Restoration PPP would be structured as a Government-Pays PPP with demand risk retained by the public sector. Annuity Payments would flow from the RRW carved into the RF. Milestone Payments could be made during the construction period covering a portion of CAPEX. The Project Company would finance the remaining CAPEX with a mix of debt and equity. The share of CAPEX covered by private finance and Milestone Payments would need to be adjusted to consider an RF's RRW capacity to pay.

65. A Road Restoration PPP would focus on the reconstruction and improvement of existing Priority Alignments with a possible capacity increase. It would include operations and

maintenance. The whole duration of the PPP would be no less than 15 years, including a 3-year construction period, but could be longer (e.g. 20 to 25 years) to optimize life-cycle management or increase affordability (for example, if the project includes significant capacity increase or upgrading) among other factors³⁵.

66. A typical Road Restoration PPP would not necessarily be CAPEX-intensive. A Road Restoration PPP would entail minimal upgrade works as it would target brownfield sections of the road network's Priority. Despite this relatively low risk profile, these projects would still need to benefit from scalability and replicability to lower their transactions costs, both for the RA/RF and the sought-after private sponsors. Additional strategies designed to make these contracts more attractive to private sponsors could entail bundling several Priority Alignments into a single Road Restoration PPP.

Table 2 provides a summary of Road Restoration Contracts' main features.

35 ADB, EBRD, IDB, IsDB, MIF, PPIAF and WBG. The APMG Public-Private Partnership certification guide. Chapter 5: Structuring and drafting the tender documents and contract. 2016.

Table 2: Proposed typical features of a Road Restoration PPP.

Feature	Description
Type of PPP project	Brownfield DBFOMT linked to Annuity Payments. Demand risk retained by the public sector. Private Sector to take works completion risks and/or maintenance risks (i.e. Annuity Payments can be reduced if road condition falls below a certain threshold).
Scope	Rehabilitation/reconstruction of existing paved roads, including bridges, culverts, roads intersection, etc. Localized upgrading (from gravel to pavement) and capacity increase. Operation and maintenance, including periodic maintenance and renewal.
Length	Length to be determined, but should cover a significant portion of a Priority Alignment
CAPEX	To be determined regarding affordability for the public sector. Possibility to bundle several Priority Alignments under the same contract to make contract sizeable and if practical from a technical point of view.
Milestone Payments	To be determined regarding affordability for the public sector.
Contract Duration	Not less than 15 years and up to 20-25 years, including a construction period of about 3 years.
Contracting Authority	Road Authority.
Project Company Revenues	Annuity Payments (twice a year or quarterly) made by the Road Fund.
Gov. Support	As owner of both the RA and the RF, the Government would be expected to step-in in case of revenue shortfall regarding Annuity Payments or early termination payments.
Potential WBG Support	Entities of the WBG can provide a range of financial instruments (loans/credits and guarantees) to either the Project Company or the Government (and its agencies).
Other Support	Application for Global Infrastructure Facility funding to fund advisory services (either project definition or project preparation and structuration activities).

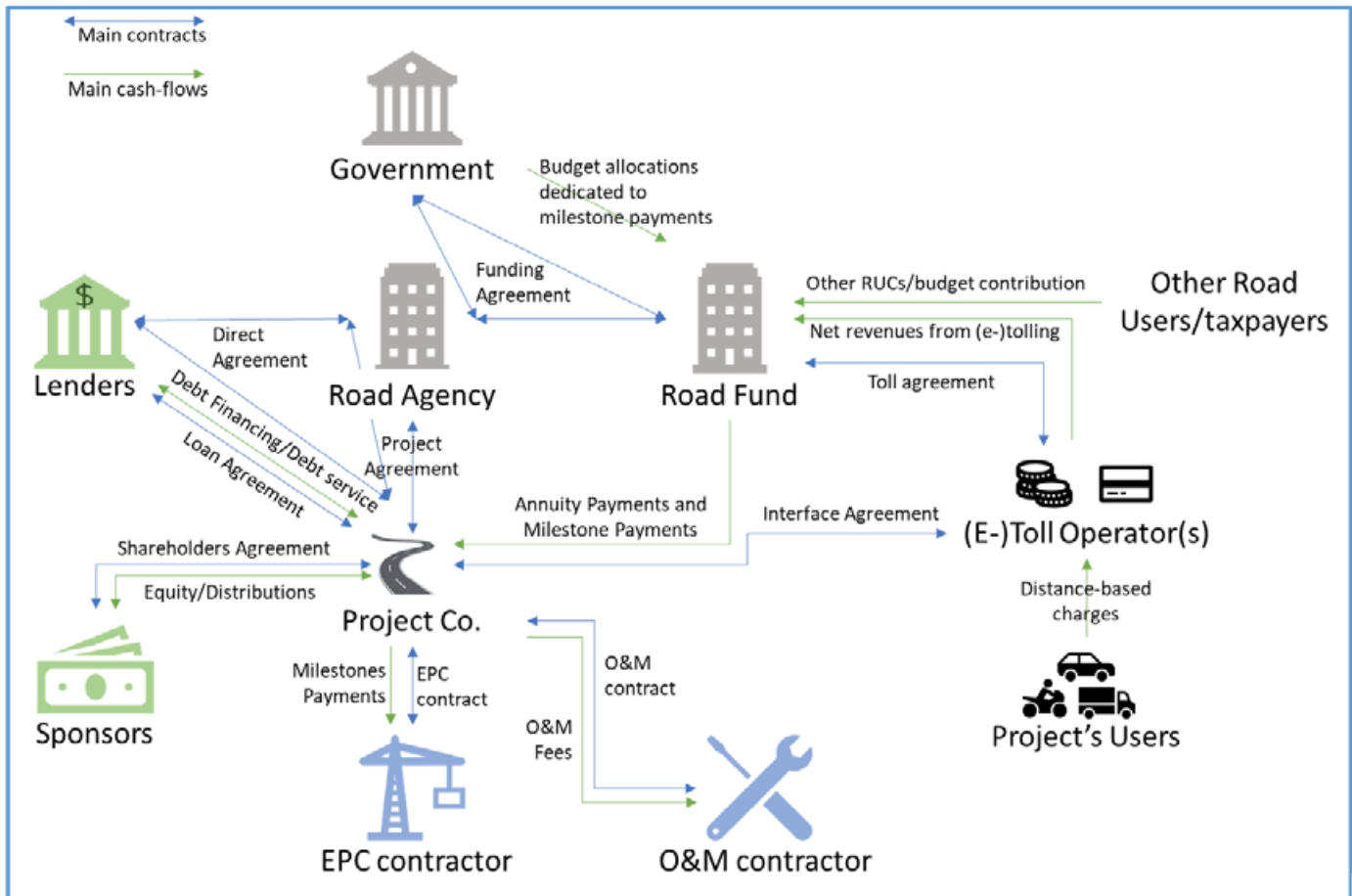
Source: Authors' analysis.

b. Typical commercial structure of a Road Restoration PPP

67. **The proposed commercial structure is derived from a typical PPA with the RA acting as Contracting Authority while the RF is the designated “off-taker” tasked with making annuity payments to the private Project Company.** The RF would shoulder the payment risks in this structure, including

Milestone Payments during the construction period. These payments would be made from the RRW using a mix of revenue sources as described previously. RRW's capacity to pay for these PPPs could be further buttressed by the RF's ability to contract long-term commercial loans from local and/or international banks (i.e. using its future revenue flows as collateral as shown in Figure 5).

Figure 5: Proposed typical commercial structure of a Road Restoration PPP.



Source: Authors' analysis.

68. Alternative commercial structures could be adopted without substantially changing the envisioned PPP structure. These could be tailored to countries with different institutional frameworks (e.g. no RA, or PPP Unit as the Contracting Authority), alternative toll operation schemes, or even alternative funding mechanism for Milestone Payments during the construction period.

69. Other contracts could be specific to the proposed structure:

- **The funding agreement.** This agreement would be signed between the Government, the RA and the RF. It would be part of the tender documents to give visibility to bidders on how payments to the Project Company would be governed. Its

purpose would be to give enough confidence to private sponsors that RF's payments would carry acceptable credit risks. This contract would address, *inter alia*: the responsibilities for making Milestones Payments for works, Annuity Payments, Early Termination Payments and Payment Procedures including, but not limited to, Payments' approval process.

- **Toll agreement.** Some of the Priority Alignments could be tolled once restored. Whether there will be only one or several toll operators depends on the Government's decisions. The toll agreement would be signed between the toll operator and the RF. It would govern, *inter alia*: the technical specificities to ensure interoperability in case several toll operators co-exist on the tolled network, performance objectives in terms of toll collection and organization of flows from the users to the RF. The toll system could be developed and managed under various schemes (from traditional public procurement to PPP schemes).
- **Interface agreement.** Based on the assumption that the tolling system would be developed and managed by a third-party (i.e. not the Project Company itself). This interface agreement, would govern, *inter alia*: technical issues like access to the site to install the system and/or to operate/manage the system, mutual liquidated damages, etc.

c. Key risks allocation for the proposed Road Restoration PPP

70. **The key risks allocation proposed below is intended to guide the structuring of balanced and bankable Road Restoration PPP program.** Some of these risks should be mitigated during project preparation. For the risks that will be dealt with after financial closing, mitigation mechanisms would be reflected in the project agreement.

71. **Key risks include**^{36,37}:

- **Land availability (risk of delay and cost overruns in the acquisition of the land necessary to develop the project.).** This risk is mitigated by the fact that Road Restoration PPPs focus mainly on the restoration of existing Priority Alignments. However, Right-of-Way should ideally be fully cleared before financial close. Any remaining Right-of-Way (e.g. for service areas proposed by bidders) should be cleared within a specified timeline. In case of WBG support (e.g. IDA/IBRD credit/loan), Right-of-Way clearance could be a condition precedent for drawdown;
- **Environmental and social risks (i.e. delays and/or cost overruns in obtaining environmental clearance and conducting resettlement/compensation of impacted population).** The Resettlement Action Plan defined and approved by the Government as part of the full ESIA (Environmental and Social Impact Assessment) study should be implemented before commercial close by the Contracting Authority. However, the Project Company would be responsible to implement the agreed environmental action plan during the entire contract duration;

36 https://ppp-risk.github.org/risk_category/road/

37 PPP in Infrastructure Resource Center for Contracts, Laws and Regulations (PPPIRC). Matrix of risk distribution for roads. March 200

- **Demand and “off-taker” risks (i.e. when resources collected from project users are below forecasted revenues and/or RF is not able to meet its payment obligations).** Annuity Payments will be made by the RF irrespective of whether the forecasted revenues from the tolled sections are met or not. The funds available in the RRW will be mobilized to that aim. To help bidders assess the off-taker risk, the funding agreement, as well as the last financial and annual reports of the RF should be part of the tender documents. Since the concept of carving out an RRW will be a novelty, a payment guarantee from the Government, possibly counter-guaranteed by IBRD/IDA, could be included in the tender documents; at least until the RF has gained sufficient market credibility to free itself from this requirement;
 - **Maintenance and operation costs (i.e. project maintenance - routine and periodic - and operation costs are higher than expected).** As this refers to life-cycle management of the road, this risk should be transferred when possible to the Project Company. Bidders will make their own traffic studies that will be reviewed by their lenders to determine the cost of maintenance (particularly the share of HGVs). To face the periodic maintenance costs, Lenders will require the Project Co. to use a portion of the Annuity Payments to flow into a specific reserve account. Since axle load regulation enforcement in SSA often represents an unmitigated risk; specific contractual clauses might be inserted in the PPP documentation to address this risk;
 - **Availability and performance risk (i.e. road condition becoming sub-par).** From the Project Company’s point of view, this risk can materialize through Performance Deductions and/or Liquidated Damages that will be deducted from its Annuity Payments. RA/RF will seek to limit this risk since a well-maintained roadway will increase and preserve users’ willingness to pay a toll whenever the road is tolled. The selection of adequate and reasonable Key Road Performance Indicator targets will be the basis of a balanced risk allocation between the Project Company and the RA/RF;
 - **Foreign exchange risk (i.e. currency mismatch between revenues and debt/equity).** Depending on country context, there are different options to mitigate this risk. The Contracting Authority may wish to propose in the tender documents that a percentage of Annuity Payments (capped and to be proposed by bidders) be denominated in a hard currency. If that percentage does not fully cover debt service and equity distributions, then the Project Company can investigate securing financial hedging products (i.e. foreign exchange swaps) for the unsecured portion of its revenues/payment obligations;
 - **Currency convertibility and transferability (i.e. inability to legally convert local currency into hard currency and/or transfer converted currency - cross-border investments only).** Depending on country context, Lenders and Equity Investors in the Project Company may wish to contract a Political Risk Insurance (PRI) that can provide coverage against this risk.
- 72. The so-called “acceptability” clauses are related to the public sector’s rights and aim at increasing political acceptance of the PPP scheme.** These clauses include, inter alia: refinancing gain sharing mechanisms, social inclusion targets, control and auditing of the contracting authority over the Project Company’s activities.

V. SSATP and World Bank Group assistance to implement the Restoration Concept



1. A checklist of activities to implement the Restoration Concept

73. The following recommendations aim at guiding the implementation of the Restoration Concept in SSA countries where RF exhibits a potential for 3rd Generation status. Since many RFs in SSA have slid back from 2nd Generation Status or have never reached it, this study recommends technical assistance to invert this trend in such cases.

74. Depending on country context, the implementation of the Restoration Concept is expected to require a multidimensional WBG support to client countries. This support would range from increasing knowledge (on national network condition and traffic; on local contractors and financiers' skills and capacities, etc.) to Road Restoration PPP programming, structuring, tendering and further management as well as passing potential reforms (national procurement framework, RF's mandate and/or legal nature, tolling policy, PPP framework, restructuring of an existing National Infrastructure Bank, etc.).

75. Regarding Road Restoration PPPs only, entities of the WBG can provide a range of financial (loans/credits, guarantees and insurance products) and non-financial (technical assistance, advisory services) aiming at increasing affordability and attractiveness of Road Restoration PPPs^{38,39} to either the Contracting Authority or the Project Company. IBRD/IDA loans/credits provided at favorable or concessional terms to the Government can co-finance Milestone Payments, thus lowering the cost of capital and increasing affordability for the public sector. IFC loans to the Project Company can help mobilize the private financing needed, increase affordability through longer tenors and favorably impact the PPP structure. IBRD/IDA guarantees to

the Project Company can mitigate the off-taker and early termination payment risks while helping attract Lenders and Equity Investors. MIGA Political Risk Insurance products can insure cross-borders investors (either lenders or equity providers) against some political risks (e.g. currency convertibility) and thus help mobilize private finance.

76. The timing and mobilization of WBG financial and non-financial instruments to implement the Restoration Concept and Road Restoration PPPs should be optimized and coordinated to ensure client countries buy-in. These instruments are either tailored to the Public Sector or future Project Companies (as well as its Lenders and Equity Providers). They are likely to be mobilized at different phases of the Concept implementation timeline. For example, IBRD/IDA Technical Assistance would likely be needed during upstream phases to help client countries assessing Priority Alignments or identifying gaps in their institutional/legal frameworks that may prevent or hamper the implementation of Road Restoration PPPs. IDA/IBRD credits/loans and guarantees would likely be discussed with client countries during the Project's appraisal phase so that guarantees can be proposed as part of the tender documents⁴⁰. Finally, during the tendering phase, bidders may request MIGA Political Insurance Products and IFC loans.

77. Designing WBG support to client countries for implementing the Restoration Concept, whether a replicable and standardized turnkey solution⁴¹ or a flexible one-stop-shop window⁴², is beyond the scope of this study. Nonetheless, Table 3 provides a checklist of activities that could use the support of the WBG.

38 World Bank Group. Maximizing Finance for Development in Transport. Getting from concept to investments. Report 2: Operational Guidance. 2019.

39 World Bank Group. World Bank Group Guarantee Products, Guidance note. April 2016.

40 As was the case for the Ganta-Zwedru road corridor rehabilitation PPP in Liberia.

41 See for example the scaling solar initiative (<https://www.scalingsolar.org/>).

42 See for example InterAmerican Development Bank's PPP framework (<https://blogs.iadb.org/bidinest/en/support-structuring-public-private-partnerships/>).

Table 3: Checklist of activities to perform to implement the Restoration Concept.

Surveys and data analyses

Upstream phases of implementation.

- Independent survey and assessment of the national road network to (1) improve knowledge of road condition and traffic levels and (2) select Priority Alignments to be restored and, further on, potentially tolled;
- Appraisal of the road contracting industry to assess local contractors' ability to participate in PBCs, OPRCs and Road Restoration PPPs;
- Appraisal of the financial industry to identify (1) local commercial banks and local institutional investors (e.g. pension funds) and assess their capacity to provide long term-financing and (2) any existing National Infrastructure Bank and assess its capacity to address long-term financing gaps;
- Legal and institutional gap analysis to identify (1) areas for improvement in the road asset management ecosystem, (2) necessary improvements to the RF legal mandate, structure and legal status (e.g. moving from an administration to an SOE), (3) areas for improvement in the PPP framework, and (4) areas for improvement in the public procurement framework.

Institutional and legal reforms as appropriate

Upstream phases following the outcomes of data analyses.

- Road Fund reform e.g. changing RF legal status, creating an RRW, enabling the funding of spot reconstruction bundled with maintenance in long-term contracts;
- Financial sector reform e.g. enabling local institutional investors to provide long-term financing for public infrastructure projects, reforming/restructuring an existing National Infrastructure Bank;
- Toll policy elaboration;
- PPP framework adjustment as required;

Capacity building

Upstream and midstream phases of implementation.

- Road contractors: Advertise and explain the Restoration Concept, organize classroom and on-the-job training programs on PBCs, OPRCs and Road Restoration PPPs to improve their capacity to qualify and bid successfully;
- Financiers: Advertise and explain the Restoration Concept, improve their project finance skills and capacity to provide long-term financing;
- Public sector institutions: Assistance to RFs (e.g. management of resources, disbursement processes, reporting and auditing) and RAs (e.g. additional skills and staff needed to manage the PPP contracts);

Road Restoration PPP programming and implementation

Midstream phases of implementation.

- **Fundraising for advisory services:** prepare and manage application for Global Infrastructure Facility funding⁴³. Funding may support programming as well as transaction implementation activities and is compatible with advisory mandates executed by either an independent advisor or by IFC;
- Preparation of a pipeline of Priority Alignments to be restored using Road Restoration PPPs based on surveys and data analyses;
- Drafting of standardized tender documents (Request for Qualifications, Request for Proposal, project agreement, direct agreement, funding agreement, toll agreement and interface agreement);
- Market sounding in order to (1) collect private sector stakeholders' feedback on standardized tender documents and improve them as appropriate, and (2) identify market gaps requiring WBG financial instruments (e.g. payment guarantees, Political Risk Insurances);
- Tendering the Road Restoration PPPs. If the market sounding reveals that WBG financial instruments will be necessary to support bankability, these instruments should be made available as early as possible in the tender process.

2. Next steps

78. Activities that could be undertaken promptly by the WBG are proposed below:

- Collect private stakeholders' feedback on the proposed Road Restoration PPP model;
- Initiate the design of WBG support to be presented to client countries;
- Prepare pitchbooks and business cases to canvass potential pilot countries (e.g. Ivory Coast and Kenya); and
- Organize a workshop during the next SSATP annual meeting to discuss and elicit feedback on the Restoration Concept.

43 <https://www.globalinfrastructure.org/>

Photo Credits

Cover Page: Trevor Samson, World Bank

Page 4: Romel Simon. World Bank

Page 6: Simone Mc Courtie. World Bank

Page 12: James Martone. World Bank

Page 13: James Martone. World Bank

Page 14: Romel Simon. World Bank

Page 21: Trevor Samson, World Bank

Page 30: Wenxin Qiao. World Bank

Page 31: Trevor Samson, World Bank

Page 43: Curt Carnemark. World Bank

