Financing the Road Network in Sub-Saharan Africa
Deconstructing History and Exploring the Future

Fred Amonya

Centre for Transport Studies
Imperial College London
London SW7 2AZ
United Kingdom
Tel. +44 (0) 20 7594 6043
f.amonya@imperial.ac.uk

Also:

Senior Consultant
Mott MacDonald Group
Stoneham Place
Stoneham Lane
Southampton
SO50 9NW
Tel. +44 (20) 2380 62 8925
Fred.Amonya@mottmac.com.

Submitted: July 2008

Words: 5823 (excluding 1 table & 3 figures)

Abstract: *This paper attends to institutional challenges Sub-Saharan Africa (SSA) faces in its attempt to capture private finance for transport infrastructure management. The paper starts with an exposition of the state of the road network in SSA, identifying a major gap in investment. This gap is partly attributed to the worldwide notion that roads are a public good. This notion is not consistent with history, the paper argues. The first engineered roads were mainly private, and improvements in technology should allow roads to be treated as a private good that can be subjected to market forces of demand and supply. Where demand is high, road space should be packaged and taken to the marketplace. The domestic capital market in SSA is however dismally capitalised. Further, the international market considers the region too risky. An emerging wave of infrastructure sovereign bond is identified as a way to leverage international finance and lower the risk level of major projects in the region. The paper however cautions that engaging the international market, and infrastructure asset management entities, demands a transformation of transport institutions in the region. The requisite institutional transformation is discussed, guided by a model of institutional change, and using data on transport institutions of SSA in the last fifty years. In conclusion, the paper remarks that institutional change is a gradual process and the character of this change should inform any quest for private finance.*

1 INTRODUCTION

Sub-Saharan Africa (SSA) is home to approximately a quarter of the world population that live on less than a dollar a day *(1)*. Secondly, SSA is the only economic region where income poverty has been on the rise in the last decade. On the other hand, Africa has one of the highest income inequalities in the world. The average Gini coefficient is greater than 0.7 (*2*). Strong equitable growth is therefore needed. It is a two-pronged battle.

At the equity front, rural peasant farmers - who constitute over 70 percent of the population - should commercialise and diversify. They need the opportunity to competitively trade their produce, and hence both tap and enhance economic growth. At the moment, poor transport infrastructure is a major constraint. Freight and insurance costs amount to about 15 percent of export earnings, far higher than the average for developing countries - estimated at 6 percent (*3*). To ameliorate this situation, a reliable rural transport network is necessary. At the growth front, transport users are demanding higher levels of service. However, roads in many cities of SSA are gridlocked, and are in poor condition.

This paper argues that the financing and management of high volume urban and interurban roads should be assigned to the private sector. This would create fiscal space for rural road networks, which are less attractive to private finance. This approach would deliver a network that can facilitate progress towards the first goal of the Millennium Development Goals. That is, halving income poverty estimate of 1990 by the year 2015. The current state of the SSA road network is discussed in the following section.

2 STATE OF THE NETWORK

The SSA road network is approximately 1.5 million kilometres. Heggie et al. (*4*) estimated the value of the road network at 150 billion US dollars. Using an asset accumulation rate of 5.5 percent, the road network is equivalent to approximately 15 percent of the region's gross domestic product (GDP). In spite of the high value of the road network- and importance to economic growth - efforts to preserve, renew or develop the network have been dismal. This was more so in the 1990s. The World Bank estimates that in 1990, 17 percent of SSA road network was paved. However, by 1998 the value had fallen to 15 percent because of poor maintenance. Many of the paved roads deteriorated to gravel standard. And as expected, the deterioration was not confined to paved roads. The gravel road network is very unreliable. Currently, only 15 percent of the gravel roads are passable in all weather.

Table 1 presents road investment needs, excluding rehabilitation, of SSA in comparison with other developing regions. The construction and maintenance need of SSA, relative to its GDP, is similar to the ratios for the other regions. This finding is not surprising because the estimates are based on predicted economic growth, and not desired growths consistent with development goals. Five-year estimates of annual road investment requirements (as opposed to needs) for 15 SSA countries are in the range of 1.5 to 2.0 percent of their GDPs. These estimates assume 7 percent regional GDP growth rate that is consistent with the assumptions in the Millennium Development Goals (MDGs).

TABLE 1 Estimated Annual Road Investment Needs by Regions (Billion US$)

	Sub-Saharan Africa	East Asia & Pacific	South Asia	Europe & Central Asia	Middle East & North Africa	Latin America & Caribbean
Construction	4.1	12.1	6.6	9.8	3.3	2.8
Maintenance	3.4	8.5	15.8	16.5	3.6	4.1
Total	7.5	20.6	22.4	26.3	9.9	6.9
Percentage of GDP	1.22	0.68	2.25	1.20	1.56	0.28

Notes:

1. *The investment needs were estimates for 2005-2010 by Fay et al. (5), and are based on predicted growth not required growth aimed at meeting development targets.*
2. *The estimates exclude rehabilitation needs.*

3 EXPLAINING THE ROAD INVESTMENT GAP

3.1 The Approach

This section contends that the current road investment gap in SSA, and indeed most of the world, is to a large extent caused by the notion that roads are a public good. A public good, in the strict sense, is a commodity that is both non-rival and non-excludable (*6*). Non-rivalry means the marginal cost of consumption is zero. Non-excludability means the commodity cannot be practically withheld from one consumer without withholding it from all.

This section explains why the provision of public goods is the domain of the public sector. Arguments against the notion that roads are a public good then presented. This is followed by an explanation on how roads attained the public goods notion - by tracing the origin of roads. Note that the paper does not appeal to history in dispelling this notion but in explaining it. The effect of the public goods notion on policy in SSA is then analysed. Finally, it is argued that the notion hinders efficient delivery of road infrastructure.

3.2 Public Goods and the Marketplace

A public good in the marketplace is a perfect recipe for market failure, most economists will assert. The argument is compelling. Public goods can be consumed simultaneously by everyone and no one can be excluded (i.e. non-rival and non-excludable). Being selfish and yet rational, consumers would avoid paying their fair share of the cost of the commodity – and hence the so called free-rider problem. If handed to the private sector, therefore, the provision of public goods would always fall short of allocative efficiency. Secondly, in the case of roads, the externality issue emerges. Roads offer benefits, and disbenefits, to non-users. It is therefore argued that to ensure social benefits closely match social costs, the public sector must provide roads. The next section explains why roads should not be considered a public good, and how externalities associated with road provision can be internalised.

3.3 Dispelling the Public Goods Notion

The high level of service the modern road user demands decreases with traffic loading. The reduction in level of service relates more obviously to spatial capacity. However, the structural capacity of roads also decreases with traffic loading, albeit in smaller proportions compared with spatial capacity. It cannot therefore be correct to assert that the marginal cost of road use is zero. Secondly, because of developments in technology, it has become much easier to ensure excludability of roads. Demand management in the world's major cities is a vivid example. In summary, it is easy to sympathise with the view that public goods and services such as national defence should be provided by the public sector. Roads are, however, far detached from a true public good.

Closely related to the public goods notion is the externalities argument. That is, non-user effects dictate that roads be provided by the public sector. Externalities such as environmental effects can be internalised under private sector regimes. Internalisation is achieved when road users pay for the difference between the marginal social cost and marginal private cost. Two issues arise. The first is assigning monetary values to the externalities, in other words, establishing an efficient pricing mechanism. The second issue is ensuring an efficient charge collection system. Pricing road externalities is a complex, and topical, subject that is indifferent to method of provision. With respect to user-charge collection system, payment for negative externalities (mainly vehicle emissions) is currently done through fuel levies, but technology is widening options to incorporate electronic monitoring. This approach can be used irrespective of whether a road is provided by the public or private sector. In addition, private sector provision of roads does not make internalisation of local externalities (e.g. noise and property prices) more complicated. To this end, Block (*7*) presents a detailed treatise. The following section explains the public goods notion by appealing to history.

3.4 Tracing the Public Goods Notion

Engineered roads can be traced back to the Roman Empire (44 BC – AD 476). That is not to belittle paths used by early communities, to gather food and other necessities, which date back to the Stone Age. This paper does not present a detailed history of roads but focuses on privately financed roads. A deeper consideration of the origin of roads is presented in Amonya, 2006 (*8*).

Literature on privately financed roads in the Roman Empire is scarce. However, a rich collection of history of private roads is available in respect of the eighteenth and nineteenth century Britain. During this period, aristocrats owned private roads commonly called turnpikes. These private roads were of better quality than publicly managed roads, and included most of the strategic roads. This is captured in the following extract from Block, 1983 (*7*).

> But history shows, if two noticeable instances establish a rule, that when highways come to play a major part in transportation, the view of them in strict collective terms breaks down both in theory and practice. This was the rule in the 18th and 19th centuries when the growing commerce of the Industrial Revolution turned to the public road for accelerated and cheapened movement. The local governments were unable to take care of traffic; and turnpike trusts of a quasi-private nature were set up to exploit the discoveries of Telford and McAdam on a business basis. Toll gates might seem offensive by customary usage, but there was effective logic in the idea that highway service, unlike other basic government activities, might be developed by ordinary investment standard and financed by specific beneficiaries, rather than the general public.

Private investment in roads was not restricted to Britain. Block (*7*) discusses the contribution of private finance to road network improvement in the United States in 18th to early 20th centuries. One must then question when and why the momentum of private financing of roads was lost. It is safe to say that the World Wars (1914-1945) contributed to the demise of private roads. During the Wars, roads turned into an instrument of military advancement. Consequently, the private sector was crowded out of road provision. After the Wars, the private sectors of both countries were weak – especially Britain. Road financing became a domain of government. After 1960, the private sector became more pronounced in road provision. The public sector started contracting out its supply function (retaining the client role). In Britain, the private sector has played an increasing role in road provision culminating in the first design, build, finance, and operate (DBFO) scheme in 1994.

The African story closely mirrors that of the West. In the eighteenth and nineteenth centuries, footpaths in SSA were largely managed by agents of tribal chiefs. When engineered roads came into being, the main roads were managed by the state whilst communal roads remained under the management of local leaders. The interesting feature of the management of the communal roads is that individual households took responsibility for identified strips of road. This means there was a sense of individual ownership of the roads albeit under the umbrella of the community. The management of the main roads, on the other hand, reflected trends in the West. Management responsibility increasingly drifted away from individuals to the state. To the Anglophone countries of SSA, London was a major source of finance for the roads. These roads served as conduits for raw materials to British industries. Writing in 1920, Shelford (*9*) offered a narrative on this trade dynamic. Today, SSA still largely depends on Western public organisations for financing of road management. However, greater attention is now paid to the private sector as an alternative road financing avenue. The main obstacle on this financing path is the notion that roads are a complete domain of the public sector: a public good.

The preceding discussion asserted that the current upsurge in private financing of roads is a recovery from the eighteenth and nineteenth centuries. This thesis posits that the strong perception that roads are a public good is a remnant of the Wars. The following section examines the effect of the public goods notion on the present structure and agency of the roads sector in SSA.

3.5 Transport Policy in SSA

This section contends that had it not been for the notion, transport policies in SSA, and indeed the rest of the world, would have been more geared towards meeting the needs of the road user. First, an historical background of transport policy in SSA is examined. Key weaknesses in the policies are then highlighted. The contribution of the public goods notion to these weaknesses in policy is then scrutinised. In a shift from the normative to positive, the section concludes with an overview of donor-driven attempts to introduce road policies that embrace market discipline.

When most African states attained independence 40-50 years ago, the public sector (public works departments) performed both client and supplier roles. Ministries of works and transport were not only responsible for roads but also government buildings and estates, and water supply. Secondly, ministries of works and transport did not have jurisdiction over all roads. Often, urban roads were under another government ministry, with municipalities receiving instructions on the management of their roads from the central government ministry. To date, responsibility for the management of some roads is not clear. As expected, the ministry of works and transport was overwhelmed by a growing demand for good infrastructure. These weaknesses in transport policy are captured in Box 1.

BOX 1 Key Weaknesses in Road Policy and Management in SSA

- Poor Policy Frameworks: This is the main problem, which cascades from policy level to road network management and project levels, and manifests itself in subsequent weaknesses. The provision of roads has been treated as public social service, which must be financed from general tax revenues. However, reforms associated with corporatisation, followed by attempts at commercialisation of road management, have alleviated this problem.

- Lack of Clear Responsibilities: This stretches from unclear roles at ministerial level to poorly defined staff job specifications at the road management level. While good progress has been made at the ministerial level, duplication of roles is still common at the road management level.

- Inadequate Financing: This is a global problem. It is only acute in SSA because of low tax revenues and poor appropriation of the revenues. Road users have historically not paid their fair share for the service, high fuel taxes have been just that: taxes, not user fees. The resulting road deterioration has hurt growth [freight and insurance account for approximately 15% of export earnings in SSA].

- Thin Skills Base: Technical and management skills shortage is a problem in SSA just like the rest of the world. Inadequate finance in SSA compounds the problem. With exception of donor financed projects, staff pay is poor. Staff motivation is low, and does not measure to the challenges that the network poses.

Sources: Adapted from Heggie, 1998 (*4*)

Historical weaknesses in road policy have been outlined. Next, the fundamental causes of these weaknesses are dredged. Two key political developments have influenced road policy in SSA: the World Wars and the quest for independence.

Post War road policies in the West reverberated to SSA. As discussed in the preceding section, the thinking at the time was that roads were a public good that had to be financed and managed by the public sector. The practice of private ownership of roads of the 18th to early 20th centuries had been quashed by the Wars. Then, whilst independence might have presented an opportunity for a change in policy in SSA, the indigenous capital base was too narrow to finance road management. This was not helped by eroded confidence, in the foreign markets, that followed the Wars and the struggle for independence.

In a bid to improve SSA road network, the donor community - led by the World Bank - has attempted to introduce road policies that embrace market principles. This initiative entailed creating clear responsibilities in the relevant ministries, and improving the financing of roads. The current initiatives follow institutional restructuring, which include the first generation road funds of the 1970s (*4*). The first generation road funds used earmarked government revenues and were dogged by poor governance. In response, the second generation road fund was devised. Unlike its predecessor, road financing under the second generation road fund was to be entrusted to an autonomous body. In other words it was to operate off-budget. Early success stories of this new generation road fund included Ghana and Zambia in the 1990s. A few other SSA countries have since embraced the financing arrangement. In relation to the second generation road fund, Gwilliam et al. (*10*) write:

> While these are encouraging trends and represent a significant departure from the past, road administrations continue to suffer from past ills of civil service; and technical assistance and knowledge sharing is required over some time before effective arrangements can be put in place. The absence of fully functional management systems makes it difficult to ensure that the maintenance budget is correctly allocated and is often well below what would be economically rational.

Even the most efficient second generation road fund would require extra financing to manage a network that can stimulate and support the economy. Private sector finance is required. Whilst it is appreciated that engaging private sector investors would be too onerous for most road authorities in SSA, it is a journey to be made. The following section explores the private finance option. Examples of good practice are drawn from other developing regions, particularly South Asia.

4 CLOSING THE INVESTMENT GAP: THE PRIVATE FINANCE OPTION

4.1 The Approach

This section explores private financing of roads, particularly high volume roads. That is, roads carrying at least 10,000 vehicles per day (*11*). For low volume roads, Ivarsson (*12*) presents an interesting financing model. The model draws from Swedish experience, and is centred on the strength of local social cohesion. Malmberg (*13*) also offers a financing arrangement for low volume roads, using examples from SSA, and the model similarly exploits strong social cohesion. Subsequent discussion in this section focuses on private financing of high volume roads. Capturing private finance for high volume roads would provide fiscal space for the low volume roads.

4.2 Private Finance Initiative

The modern form of private infrastructure financing can be traced to 1992 in the UK. The first sector to benefit from the new financing arrangement was health. Faced with a glaring road maintenance backlog, the Treasury further exploited a thriving free market climate to capture the finance and management expertise of the private sector for road management. The Department for Transport – through the Highways Agency – started procuring road service as opposed to infrastructure. Focus shifted from recipe specification to performance specification. A typical PFI framework, modified for developing countries, is shown in Figure 1.

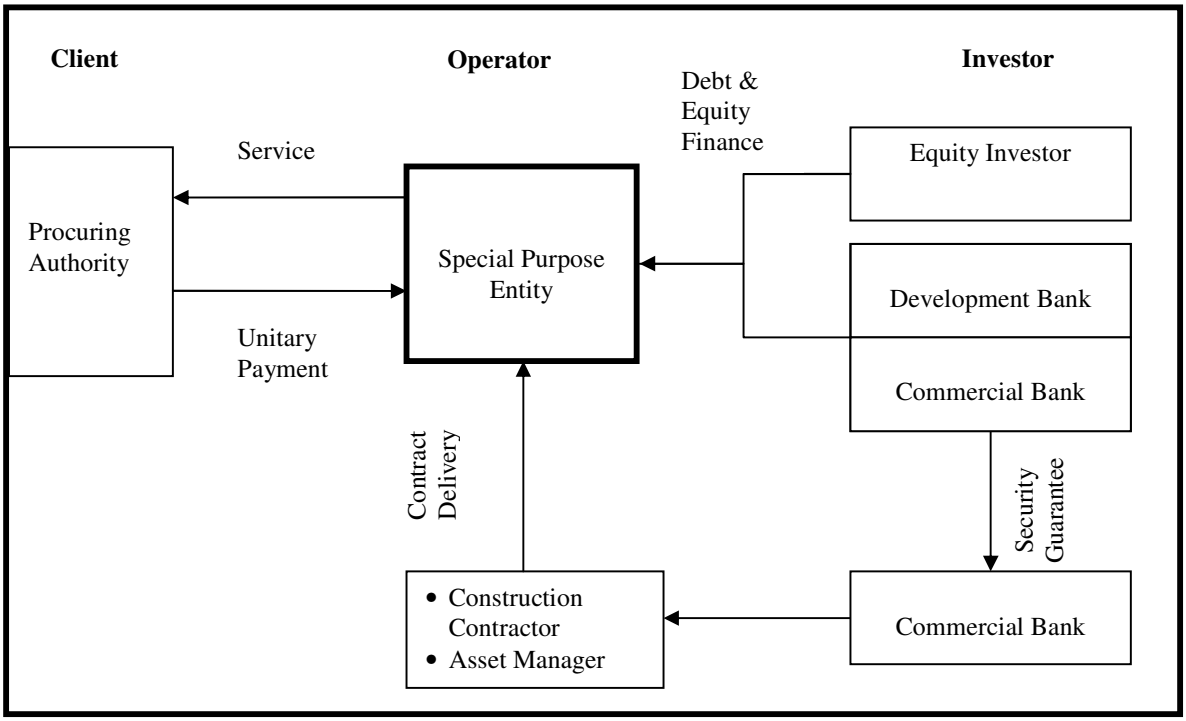

FIGURE 1 Typical PFI framework.
Source: Adapted from HM Treasury (*14*)

The basis of PFI procurement strategy is allocative efficiency in risk transfer and management. The potential for efficiency gains is supplemented by the off-balance-sheet nature of the procurement strategy, which relieves governments of public sector net cash requirement (PSNCR) constraints. Subsequent discussion expounds on two components of the PFI framework: equity and debt financing. The future of equity and debt markets in SSA is explored.

4.3 Equity Markets

A strong equity market is an important conduit for tapping private savings for infrastructure development. The foundation of most companies engaged in private financing of roads is a vibrant stock exchange. In this respect, SSA has 22 stock exchanges, but most are in their infancy. Most of the stock exchanges were established after 1990, the exceptions include Nairobi Stock Exchange (1920s) and JSE Limited of Johannesburg (before 1900). Market capitalisations of SSA stock exchanges are generally less than 50 billion US dollars; JSE Limited of Johannesburg, with a market capitalisation of approximately 580 billion US dollars, is an outlier. Not only are the market capitalisations low, private contribution is small. In some cases, private investors account for less than 10 percent of the total market capitalisation.

Unlike SSA, South Asia has numerous stock exchanges established before 1950 and have market capitalisations in excess of 500 billion US dollars. Age is no excuse for the poor performance of SSA stock exchanges. Had age been the overriding factor, Nairobi Stock Exchange would be a global giant. The reasons for the abysmal performance of SSA stock exchanges are diverse. They stretch from historical issues to poor governance, and poor savings culture. Moss et al. (*15*) offers a wide and deep consideration of these issues. The rest of this section examines the future of SSA stock exchanges and how the roads sector could benefit from growth of the stock exchanges.

A pan-African stock exchange was mooted over five years ago. This regional exchange would be a major boost to investment in the region in two key ways: increased domestic liquidity, and improved access to global markets. The result would be a mushrooming of private equities across the region. Private equities are driving major infrastructure investment around the world. The private equity arm of Infrastructure Development Finance Corporation (IDFC-PE) of India is but an example. Box 2 discusses the development and achievements of IDFC-PE.

BOX 2 Private Equity in Road Financing – IDFC India

The private equity arm of Infrastructure Development Finance Corporation of India (IDFC-PE) was formed in 2003 in response to the country's acute infrastructure financing problems. The main sponsors are the Government of India and International Finance Corporation (IFC). The equity firm has also attracted both domestic and foreign private investments. The main investment target of IDFC-PE is rapidly growing infrastructure companies. The firm's portfolio history reveals over 6 billion US dollars in transportation, energy, and telecommunications. Despite the apparent success of IDFC-PE, it has faced some tough challenges. Notably, investors demand very high rates of return that reflect high risk perceptions associated with private finance investment in the region. The poor risk ratings are reverberations of the Asian financial crisis of 1997.

Source: Paper-Specific Research

Private equity development in India offers four important lessons for SSA. First, an unwavering government initiative is required for the equity market to take-off. Secondly, support from international donor agencies is vital. The third lesson is that a vibrant equity market is only a reflection of an enterprising domestic private sector. Government policies supportive of a free market economy are important. Finally, whilst foreign investment is crucial, it must not form the backbone of the equity market. Post Asian financial crisis is good testimony.

4.4 Domestic Debt Markets

Commercial lenders in SSA have traditionally provided short-term loans to construction companies. These short-term loans typically entail repayment periods not exceeding five years. Bonds, on the other hand, are still a domain of governments. Corporate bonds are rare. Road financing under PFI models, however, requires long-term commitments by lenders. That means higher risks than in traditional short-term debts. This partly explains why PFI commercial lenders seem extremely risk-averse. The other reason is that unlike equity investors, lenders do not exercise managerial control over the investments. Neither do they share the profits of efficient and innovative investment management. However, since debt repayment depends on project cash flow, lenders share the downside of these investments. In light of these risks, borrowers for privately financed infrastructure would prefer domestic debt markets.

Domestic debt lenders are naturally more robust to local risks than foreign markets whose price for SSA country risks would be beyond the reach of most projects. Currently, bank lending has almost a complete dominance over the bond market as a source of corporate financing. The only SSA country with a notable corporate bond market is the Republic of South Africa (RSA). Figure 2 shows corporate bond issuance as a percentage of GDP for selected countries. The high performance of Malaysia traces back to the Asian financial crisis of the late 1990s. Following the crisis, many Asian countries were forced to rely less on foreign borrowing and depend more on local domestic bond markets. Malaysia's corporate bond issuance, for instance, increased by over 50 percent between 1997 and 1998. This demonstrates the robustness, and hence importance, of domestic bond markets in capital mobilisation for infrastructure.

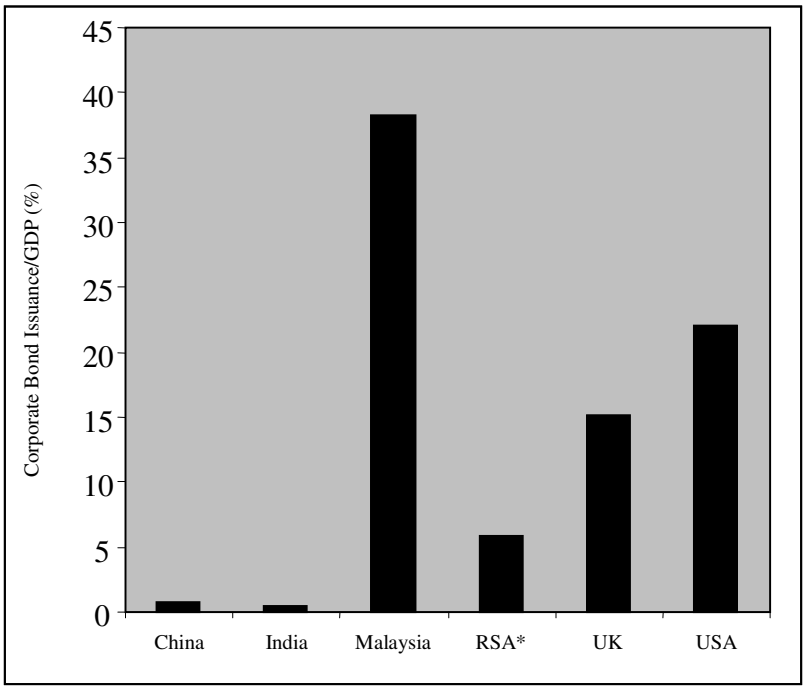

FIGURE 2 Corporate bond markets of selected countries.
Note: * Insignificant for other SSA countries
Source: IMF (16)

Numerous reasons have been posited for the abysmal performance of the corporate bond market in SSA. The basic argument is that the poor state of the bond market reflects the poor economic situation of the region. Low per capita income means that most households have to use all their earnings merely to stay alive. However, high income inequality (average Gini coefficient of greater than 0.7), indicates availability of local disposable income – albeit within a small proportion of the population.

Kahn (17) argues that domestic policies and aid inflow have been responsible for the lacklustre performance of some of the corporate bond markets in SSA. Inefficient social security institutions are singled out as evidence of poor policies. Concessionary lending, it is argued, has crowded out the domestic private debt market. In East Africa, for instance, Kenya has a more vibrant corporate debt market than Uganda. Whilst aid to Kenya was cut-off in the 1990s, most of Uganda's fiscal deficit was financed by donor aid. As a result, there has been less pressure on Ugandan government to engage in long-term domestic borrowing – which would invigorate the bond market. Kenya's more aggressive drive to develop the private market should partly explain its recent sovereign rating (*18*), the first in the region. Standard & Poor's gave Kenya a sovereign rating of BB, which is the best below investment grade. The rating imparts further impetus on the country to improve its investment climate.

Despite the current low level of activity in SSA corporate bond markets (outside RSA), the future looks bright. The telephone sector is reaping from the corporate bond market. The mobile phone provider MTN, for instance, has issued corporate bonds in Uganda – in addition to capital raised in the South African market (*19 & 20*). However, the telephone industry is more attractive to the corporate bond market than the roads sector. Returns in the communications sector are much quicker. In relatively immature investment environments like SSA that are perceived to be unstable, long-term investments are associated with poor risk ratings, which translate into high cost of capital. Nonetheless, private financing of roads is emerging in SSA, outside RSA. The nascent privately financed road projects in SSA, including RSA success stories, are discussed in the following section.

4.5 Tapping International Finance: Sovereign Bonds

With the exception of RSA, the domestic markets in SSA cannot at present wholly finance major transport projects. As a result, a few countries in SSA are focusing on the international markets using the sovereign bond instrument. In October 2005, Ghana successfully listed a Eurobond in the London Stock Exchange raising US$750 million, becoming the first outside RSA to utilise this financing option. Gabon followed in December 2007 raising US$1 billion. At least five other SSA countries are considering the sovereign bond option, namely, Kenya, Nigeria, Tanzania, Uganda and Zambia. It is anticipated that, as is the case for Ghana, these countries will try to use the funds to leverage private finance in infrastructure PPP contracts.

Sovereign Bonds represent a significant departure from multilateral loans and grants that long characterised major transport projects in SSA. Interest rate and inflationary pressures demand that the funds are used without delay. These pressures far exceed fund utilisation demands under donor finance. A key question is whether the transport institutions in SSA are able to cope with these changes. This is the subject of discussion in the following section.

5 USING PRIVATE FINANCE: THE INSTITUTIONAL CHALLENGE

Sub-Saharan Africa is just recovering from the much publicised debt burden and cannot afford inept use of private debt finance, which is largely earmarked for the transport sector. To avoid this pitfall, transport organisations should be buttressed on strong yet agile institutions. In this discourse, a clear distinction is made between institutions and organisations. A definition of the word institution presented by North (*21*) is adopted. That is, institutions are humanly devised constraints that shape human interaction, which includes rules, norms and practices. Organisations, on the other hand, are structures developed to take advantage of opportunities created by institutions. The relationship between institutions and organisations is a reflexive structure-agency interaction that may not always lend itself to clear distinction. A distinction will however assist this discussion.

To understand the institutional challenge SSA transport sector faces, it is necessary to draw from history. For nearly half a century, since the wave of independence in SSA, road institutions in the region have developed around donor finance. This resulted in organisations designed to manage donor funds. Local decision making was limited and slow. The change to commercialisation of road management, under public finance, only started in the last decade (*4*). Just as commercial thinking begins to take root, these organisations now face the complexity of dealing with the international market. These road organisations lack the supporting effect of underlying institutions, which are trying to adapt to private finance forces. Before delving into this institutional transformation, a model of institutional change is presented Figure 3 as a guiding tool.

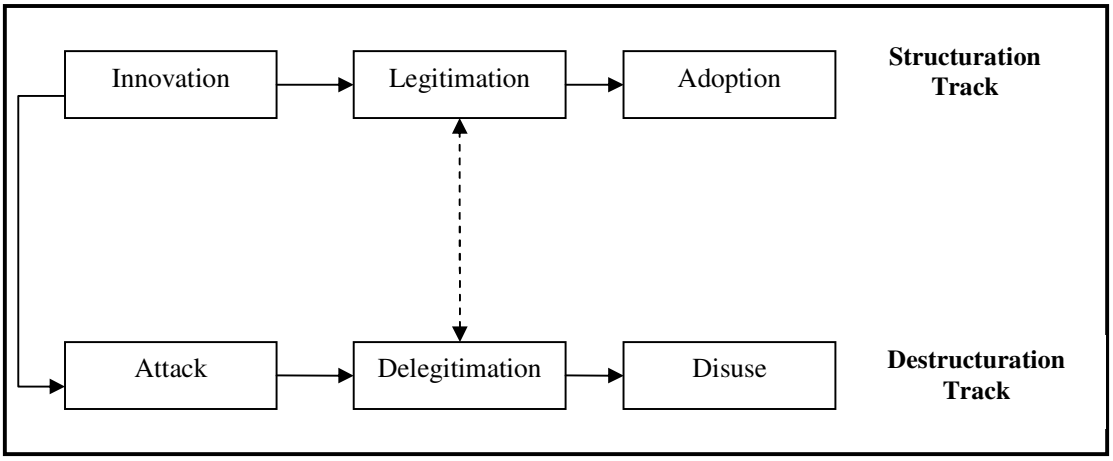

FIGURE 3 A model of institutional change [Adapted from Scott (*22*)].

In its simplest representation, institutional transformation is a two-track process of structuration and destructuration (*22*). The structuration process starts with innovation or adaptation of an innovation, in this case private financing of road management. Parallel to this injection of innovation is the attack of the existing institutions. That is an attack on the existing rules, values, norms and practices that characterise public management of road infrastructure. The structuration and destructuration tracks then go through legitimation and delegitimation respectively. The speed of change at one stage depends on the speed at the other parallel stage. The process of structuration ends with the adoption of the innovation (that is, full institutional adaptation to the innovation), which is accompanied by disuse of the old institution.

To assist SSA join the current wave of private financing of infrastructure, the World Bank is offering the region technical assistance in setting up PPP units. This assistance encompasses both institutional and organisational transformation. This paper however contends that the slowing effect of the delegitimation of the old institutions on the legitimation of new PPP institutions appears not to receive due attention. Some of the nascent PPP units are expected to engage the international market under the fully fledged PPP model, which is the concession contract. This paper argues that management contracts, for instance five-year area wide performance contracts, would allow these PPP institutions time to mature. Such contracts would allow the existing institutions to internalise the concept of purchasing service instead of infrastructure from the private sector, and raise appropriate organisations to deal with this change. Appointing good transaction advisors will facilitate the process of change but cannot substitute for unprepared institutions and related organisations. Transaction advisors should not usurp decision making responsibility from the infrastructure authorities (the public sector). It is therefore vital that these institutions be given time to develop and raise organisations that can cope with the agility of the private sector. In particular, this line of thought should form part of deliberations preceding any quest for infrastructure sovereign bond.

6 CONCLUDING REMARKS

Sub-Saharan Africa should increase road spending three-fold. Otherwise, the network will continue to impede the attainment of MDG growth targets. However, the required increase in spending cannot be wholly supported by the public sector. Private sector finance, and management, is required. The main hindrance to private financing of roads in SSA, and the rest of the world, is the notion that roads are a public good. This notion should be dispelled.

Private infrastructure financing relies on thriving equity and debt markets. International debt markets are, however, hardly accessible to SSA primarily because of poor country risk ratings. That means a boost in domestic markets is crucial. Domestic markets in SSA - especially corporate bond markets - are weak but improving. Government policies supportive of the private sector, and international donor assistance, is required for the domestic markets to mature. Examples from Asia and South Africa illustrate that strong domestic markets play pronounced roles in financing road networks.

Private finance is not an immediate panacea for road network problems in SSA. Only the most heavily trafficked roads would attract private financing. Capturing private finance would, however, create fiscal space for the low volume roads. Private sector finance however comes with challenges. Perhaps the main challenge is institutional and organisational capacity. The requisite organisations can only grow on supportive institutions. Institutional transformation is, however, a gradually process. The character of this change should inform any quest for private finance.

7 REFERENCES

1. United Nations. The Millennium Development Goals Report 2005. New York, 2005.
2. United Nations Development Programme. *Human Development Report 2005*. International Cooperation at Crossroads. Aid, Trade and Security in Unequal World. New York, 2005.
3. Collier P. and Gunning J.W. Explaining African Economic Performance. *Journal of Economic Literature*. Pittsburgh: American Economic Association Publications, 1998.
4. Heggie, I.G. and Vickers, P. Commercial Management and Financing of Roads. *Technical Paper 409.* Washington, D.C., World Bank, 1998.
5. Fay, M. And Yepes, T. Investing in Infrastructure: What is needed from 2000 to 2010? *World Bank Policy Research Working Paper 3102*. Washington. D.C., World Bank, 2003.
6. Samuelson, P.A. *The Pure Theory of Public Expenditure*. In Stiglitz, J.E. (ed.). The Collected Scientific Papers of Paul A. Samuelson, Vol.2. Cambridge (MA), MIT Press, 1986.
7. Block, W. Public Goods and Externalities. The Case for Roads. *The Journal of Libertarian Studies*, Vol. VII, No.1 pp. 27. Alabama: Ludwig von Mises Institute, 1983.
8. Amonya, F.D. Public-Private Partnerships: Challenges and Opportunities for Developing Countries. *Proceedings of the Third International Roads Federation Conference.* Durban, Inner Circle, 2006.
9. Shelford, F. Transport in Africa by Road, Rail, Air and Water. *Journal of the African Society*. Vol. XIX. No. LXXV. Available at: http://services.oxfordjournals.org/cgi/searchresults?fulltext=roads+africa [Accessed 18 July 2008].
10. Gwilliam, K. and Kumar, A. "How Effective Are Second-Generation Road Funds? A Preliminary Appraisal" *World Bank Research Observer*, Vol. 18, No. 1, pp. 113-128. Washington. D.C., World Bank, 2003.
11. Queiroz C. *Launching Public Private Partnerships for Highways in Transition Economies*. Washington D.C., World Bank, 2005.
12. Ivarsson, S. Private-Public Partnerships for Low Volume Roads: the Swedish Private Roads Association. Stockholm: Private Roads Association, 1999. Available at: http://www.transport-links.org/transport_links/filearea/documentstore/322_Swedish%20Private%20Roads%20Associations.pdf [Accessed 16 July 2008]
13. Malmberg, C. *Financing Rural Transport Infrastructure*. Rural Transport Knowledge Base. Washington D.C., World Bank, 1998.
14. HM Treasury (UK). *Public-Private Partnerships. The Government's Approach.* London. Her Majesty's Stationery Store, London, 2000.
15. Moss, T., Ramachandran, V., and Standley, S. Why Doesn't Africa Get More Equity Investment? Frontier Stock Markets, Firm Size and Asset Allocations of Global Emerging Market Funds. Center for Global Development, Working Paper 112. Washington D.C., 2007.
16. International Monetary Fund. *Global Financial Stability Report 2005*. Washington D.C, International Monetary Fund, 2005.

17. Kahn, B. Original Sin and Bond Market Development in SSA. *Africa in the World Economy – The National, Regional, and International Challenges*. Fondad: The Hague, 2005.
18. Economic Intelligence Unit, 2006. Country Report, Kenya. London, 2006.
19. Uganda Stock Exchange. *Fixed Income Securities Market Segment.* Available from: www.use.or.og [Accessed 9 March 2007].
20. Merrill Lynch. *MTN Successfully Raises R6.3 Billion in the South African Corporate Bond Market*. Available from: www.mtninvestcom.com [Accessed 9 March 2007].
21. North, C.D. *Institutions, Institutional Change, and Economics Performance.* Cambridge University Press, 1990.
22. Scott R.W. *Institutions and Organisations: Ideas and Interests*. Sage Publications, London, 2008.