

DEVELOPING A SUSTAINABLE FUNDING FRAME-WORK TO SUPPORT THE ROAD TRANSPORT SUB-SECTOR IN KENYA

WHAT ROLE FOR PUBLIC-PRIVATE PARTNERSHIP?

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Abstract: Road transport sub-sector accounts for 90% of passenger and freight surface transport in Kenya. The latest available reports on road network condition show that it is characterized by very poor pavement surfaces of all types. This condition is largely attributable to inadequacy in funding for road development, rehabilitation and maintenance. A much bigger problem however, is the lack of a proper or comprehensive funding framework to support the sub-sector. Until very recently, the roads sub-sector was owned, managed and financed by the government, with the public-sector often implementing much of the works. The role of the private sector was for a long time restricted to implementing contracts to the designs and standards established by the government. Overtime, the private sector has continued to play an increasing role in the delivery of services and in the basic management. Financing arrangements, though shared have however, remained largely within the public sector. This paper develops the building blocks for a sustainable funding framework and suggests a raft of road financing options for the country. More importantly, it proposes a new model for the sector, which widens and deepens the involvement of the private sector through a partnership framework with the public sector. It also discusses some of the possible elements in such a partnership.

Keywords: Concession, Kenya, Public Private Partnership, Roads

I. INTRODUCTION

An efficiently functional roads transport sub-sector is critical to economic growth in Kenya. This realization has led to attempts over time by the government to set up funding mechanisms for the sub sector. In 1984 for instance, the government introduced road toll to assist it raise the needed revenue that could be used on road maintenance in addition to the already existing crop

cess. As the economy expanded however, the financial needs for road maintenance expanded more than proportionately. In an attempt to avoid the anticipated public outrage over increased road toll charges the government introduced Road Maintenance Levy Fund (RMLF) in 1993, the proceeds of which were to be fully applied to road maintenance. The other more conventional sources of financing like the (Government of Kenya) GoK annual budgetary allocation, bilateral and multilateral loans and grants and other user charges however, continued to be used to develop new roads. All these sources combined generate just about 1.5% of the country's GDP, which is then allocated to maintenance, rehabilitation and development of the entire road network.

The prevailing poor state of the Kenyan roads today (40% of paved road and 14% of unpaved are in good condition, the balance being fair, poor, or very poor) can in large part be attributed to an array of factors including; inappropriate institutional framework, inadequate financing arrangement, poorly allocated funds and an inappropriate mix of development, rehabilitation and maintenance programs.

II. INAPPROPRIATE INSTITUTIONAL FRAMEWORK

Part of the blame particularly for poor road maintenance policies comes from the institutional framework within which roads are managed in Kenya. Responsibility for the road transport infrastructure is fragmented among different departments and levels of government, who are not optimally linked. These include;

- Ministry of Transport (responsible for overall multimodal transport sector policy)
- Ministry of Roads and Public Works (MoRPW) (responsible for formulation of and coordination of road sub-sector policy through the Roads Department)

- The Ministry of Local Government (responsible for policy formulation for Local Authorities who in turn are implementing agencies for urban and unclassified rural roads)
- Ministry of Tourism and Wildlife (responsible for roads in National Parks and Reserves through the Kenya Wildlife Service)
- The Kenya Roads Board (KRB), a statutory body under the MORPW, which funds and coordinates all maintenance works through the Road Fund and finally
- The Ministry of Environment and Natural Resources (responsible for roads within designated forest, through the Forest Department).
- The Kenya National Highways Authority (KNHA) (a statutory body under the MORPW, responsible for the management, development, rehabilitation and maintenance of national roads).
- The Kenya Rural Roads Authority (KRRRA) (responsible for the management, development, rehabilitation and maintenance of rural roads).
- The Kenya Urban Roads Authority (KURA) (responsible for the management, development, rehabilitation and maintenance of all public roads in the cities and municipalities in Kenya, except where these roads are national roads)

Ownership, incomplete assignment of management and control of the road infrastructure is therefore predominantly vested in the government of Kenya and its agencies. This arrangement results into responsibilities for the entire road network. But more importantly, it cannot provide the necessary incentive to market roads as part of the market economy implying that the roads are managed like any other social service with multiple goals.

The consequence of this is that there is no clear price for roads, users do not pay for roads directly and road agencies are not subjected to any vigorous market discipline. Instead of being financed solely through user charges, the roads are therefore largely financed through budget allocations determined as part of the annual budgetary process. The problem with this is that;

- Such allocations bear little relationship to underlying needs (i.e. to the cost-effectiveness of road expenditures at the margin) or to the user's willingness to pay.
- There is no hard budget constraint (i.e. no direct link between revenues and expenditures) no price to ration demand (do users want more or less of particular road services?), and
- Expenditures are not subjected to the vigorous tests of the market place (how much road spending can the economy afford?)

Because road users do not pay for roads directly, they are not forced to choose whether and how to make a journey.

A) INADEQUATE FINANCING ARRANGEMENTS

The KRB's Road Fund (which includes RMLF) is not sufficient for maintenance of the entire road network. Ministry of Transport estimates for the year 2006/2007 for instance show that backlog maintenance alone requires approximately 21.4 billion Kshs. per year, over the next seven years. Periodic and routine maintenance require an additional 15 billion Kshs. per year, while urgently needed network expansion and capacity enhancement is estimated to require 15 billion Kshs. per year.

An improved road network would therefore require approximately Kshs. 51.4 billion per year, which translates to 4% of GDP (which is recommended by World Bank). At present however, only approximately 20 billion Kshs (about 1.5% of GDP) is allocated for maintenance, rehabilitation and development of the entire road network. For these inadequacies, road rehabilitation and development in Kenya has become too critically dependant on development partner support.

Inadequate funding as detailed above has led to low investment and unsustainable road maintenance policies in the country. Low investment has resulted into high congestion in urban areas, and lack of funds for maintenance has resulted into the decay of the road network. As is expected, the initial impact of this funding crisis has been to increase road transport costs in terms of travel time, Vehicle Operating Cost (VOC), road conservation, pollution and road accidents. The long term impact would be to reduce commercial and agricultural competitiveness in international and regional markets and consequently, to slow down the overall economic growth of the country.

B) TOO FEW AND POORLY ALLOCATED FUNDS

Road maintenance in Kenya is underfunded mainly because road users do not pay enough for their use of the road network. Like everyone else, the car owners pay import duties and excise and sales taxes which go into the general tax revenue kitty. But the road user charges (fuel levy, international transit fees) which only the motorists pay, rarely goes to cover 25% of expenditures on road maintenance. Much of the road expenditure is therefore still financed from general tax revenues and donor- financed loans and grants.

C) TOO MUCH NEW INVESTMENT

Road maintenance is also under funded because the government still spends too much on new investment

(mainly upgrading existing roads and building feeder roads). Perhaps such new construction is favored because they are politically more visible and glamorous. In a nutshell, it is evident that the basic problem is one of inadequate and unsustainable funding to support the requisite road infrastructure development in Kenya.

II. A MODEL FOR ENSURING AN ADEQUATE AND STABLE FLOW OF FUNDS

In view of the foregoing problems, it is prudent that road network funding frameworks be based on models that can promote economic efficiency thereby helping to generate sufficient revenues to operate and maintain the road network on a sustainable long-term basis. To do so, we suggest, as a starting point that such a model should be able to put the roads into the market place by influencing the demand for travel (whether and how to make the journey), as well as the supply of road services. In this regard, we address two critical questions:

- Which instruments can be used to charge road users?
- Which principles should guide the pricing and cost recovery policies that are applied to roads?

A) SELECTING APPROPRIATE CHARGING INSTRUMENTS

Currently, the main instruments used to charge road users are levies/taxes on transport fuels, international transit fees and tolls. Parking charges are common in urban areas of Kenya, and weight distance fees are used in the main trunk roads. Instruments best suited to Kenya are vehicle license fees, which have since been abolished, fuel levies and international transit fees. Parking charges as presently collected are not best suited because they are difficult to administer, and therefore suffer from high levels of avoidance and leakage. But if collected under contract they are an important source of revenue and can be used to manage urban traffic. Few roads in Kenya carry sufficient traffic to make widespread tolling economic, while weight distance fees are difficult to administer.

B) ENSURING EFFICIENCY PRICING OF ROADS

In order to maximize net economic benefits, road user charges should be set equal to the cost of resources consumed when the road network is used. Two costs must be considered in this regard:

- The cost of damage done to the road surface by the passage of vehicles (i.e. the variable cost of operating and maintaining the road network)
- The additional cost that each road user imposes on the other road users and on the rest of society (i.e. the cost of congestion)

Congestion is the classic negative externality in the road sector and is the one that should ideally be taken into account when estimating the optimal user charge. The basic principle behind efficiency pricing is that additional road capacity should be financed through congestion charges. Capacity should therefore be expanded only when the annual costs of road congestion are equal to the annualized costs of expanding capacity.

Attempting to set up efficiency pricing is important because it is consistent with the desire to link revenues and expenditures. In such a case, it is absolutely necessary, that no costs are financed through subsidies or other transfer payments, because this will then have the effect of weakening market discipline. With efficiency pricing, the road tariff (pricing) should therefore reflect the costs of operating and maintaining the road network and increased road spending should automatically result into a rise in the road tariff (even though this will also reduce VOCs). This leads to three basic pricing and cost-recovery policies;

- i) Road tariff (ideally the variable element of it) should not be set lower than the variable cost of operating and maintaining the road network.
- ii) The road tariff and the taxes and charges used to support local access roads should be set such that collectively, they cover all road costs.
- iii) Whenever there is significant road congestion, the road tariff should also include congestion costs.

In order to operationalize the above outlined policies, three practical problems are bound to arise. First, the variable costs of maintaining different types of roads differ significantly. According to Heggie and Vickers [1], this ranges from;

- 0.026 to 0.177 cents per vehicle/km on main road network
- 1.499cents per vehicle/km on high volume local access roads
- 1.035 to 1.321 per vehicle/km on rural road network

The total costs of maintaining different types of roads also vary from:

- a low of 0.224 cents per vehicle/km on the main network to
- a high of 7.637 cents per vehicle/km on the rural road network.

If road charges are strictly based on costs, then this would involve wide differentials between different types of roads and different central and local government road agencies. A practical set of user

charges should therefore involve a great deal of averaging.

Second, the variable costs of maintaining the road network also differ significantly with vehicle type. Cars impose relatively small costs on the road network while articulated trucks impose costs almost 12 times larger [1]. In principle, an articulated truck should therefore pay 12 times more than a car. If the main charging instrument is fuel levy, the articulated truck will only pay three and a half times more than a car since, on the average, it takes in about three and a half times as much fuel as a diesel car. This problem can be avoided by switching to weight – distance fees which can be more accurately calibrated to reflect underlying road- use costs.

The final problem relates to how license fees and fuel levy are set to ensure the variable element of road tariff paid by each class of vehicle (the fuel levy) covers the variable costs that their vehicles impose on the road network and that the road tariff, taxes and other charges used to support local access roads collectively cover all road costs.

The fuel levy by itself as illustrated above, tends to generally undercharge articulated trucks while overcharging other vehicles, particularly buses. Prior to its abolishment in Kenya, the road license fee was used more as an access fee, set to cover only fixed costs. In view of the illustrated shortcomings of fuel levy as an instrument, it is imperative that license fee be used to compensate for it. The combined license fee and fuel levy should therefore be set to ensure that each vehicle class covers the variable costs it imposes on the road network.

III. ROAD NETWORK FINANCING OPTIONS

Based on the above outlined model on appropriate charging instruments and efficiency pricing, we propose the following road maintenance, investment and rehabilitation financing options for Kenya.

A) FINANCING MAINTENANCE

Our funding framework suggests that the costs of operating and maintaining the inter-urban road network should be financed through the road tariff. For roads in the urban and rural areas at least the variable costs of operating and maintaining the network should be financed through the road tariff. The balance of the required expenditures in urban and rural roads should then be financed from local revenues, such as parking charges, cess, local property, taxes etc.

An important feature of this framework is that it focuses attention on the affordability of a fully funded road maintenance program and hence on the need to

define a core road network that users are willing and able to fully finance. In this arrangement therefore, non-core roads should then either receive minimal maintenance or be handed over to lower levels of government.

B) FINANCING NEW INVESTMENT

There are sound economic reasons for wanting to finance road improvement and extension by taxing those who benefit. There are also sound economic reasons for wanting to finance increased road capacity on congested roads through congestion charges. In the case of inter-urban roads, it is difficult to confine charges to beneficiaries, except on roads that carry high volumes of traffic (which therefore lend themselves to tolling).

The choice of financing instruments for overall inter-urban network therefore boils down to either financing all the new investments from the general taxes (channeled through government development budget) or financing new investments by charging all the road users. Our frameworks suggests that only by forcing road users to pay the full costs of using the road network – including the cost of investment – will the size of the network be constrained to what is affordable and only then, will essential investments be carried out regardless of the state of the government budget and new roads be constructed only when resources are available for maintenance.

For local government roads, the overriding objective concerning new investment should be to ensure that local governments undertake only priority projects. Local governments should therefore be required to demonstrate the priority of their investment programs by paying part of the costs from local revenues (e.g. land rates, congestion charges or other forms of property tax). The balance of the expenditure should then be financed by the road tariff or through government development budget.

C) FINANCING ROAD REHABILITATION

Kenya has a large backlog of deferred maintenance. Ministry of Roads and Public Works' estimates show that backlog maintenance in 2007 for instance required a staggering Kshs. 150billion. Given that the government is short of fiscal revenue at the moment, it has four possible conventional financing options:

- i) Re-allocating existing spending from new construction to rehabilitation
- ii) Seeking development partner- financial loans and grants.
- iii) Sale/issuance of infrastructure bonds
Relying on the road tariff.

Option one offers little hope due to the political interest that new construction elicits. The second option is already in use with development partners financing much of the on-going rehabilitation programs. In the short term the government is servicing such loans from the general tax revenues. This means that other sectors are being taxed to finance road rehabilitation programs. This practice is not sustainable under the present fiscal conditions and in the long term. Besides, donor financing will not be available indefinitely. This leaves us with two realistic long term options; financing road rehabilitation programs in the country through the issuance of infrastructure bonds and through the road tariff. Ultimately, these two options should lead to initiation of a functional public-private sector partnership (PPP) in funding of road network infrastructure in Kenya.

IV. FUNDING ROADS BY PUBLIC-PRIVATE SECTOR PARTNERSHIPS

PPP, is a contractual relationship between the public and private sector where: the private sector finances the development of a road or part of it; the cost and return is met through performance related payment over time to the private sector for a service (the payment may include levies and tolls); each of the contracting parties contributes according to their key strengths. The agreements usually involve a government agency contracting with a private company to renovate, construct, operate, maintain and/or manage a facility or system. While the public sector usually retains ownership of the facility or system, the private party gets decision rights in determining how the project or task will be completed.

Globally, there exist several types of PPP structures and they differentiate upon the responsibilities and risk allocation between the public and private sectors. The PPP spectrum range from a simple commercialization of assets that remain under public ownership to full privatization of facilities, with several schemes in between that may involve joint public-private financing. The World Bank [3] classifies private involvement in road infrastructure provision into four categories;

Concessions: Which occur when a private entity takes over the management of a state owned road for a given period of time during which it also assumes significant investment risks. Concession schemes can be classified into the following categories; a) Rehabilitate-Operate-Transfer (ROT); b) Rehabilitate-Lease-Transfer (RLT); c) Rehabilitate-Rent-Transfer (RRT); d) Build-Rehabilitate-Operate-Transfer (BROT).

Greenfield Projects: In which a private entity or a public-private joint venture builds and operates a new road project for the period specified in the contract. The project usually returns to the public sector at the end of the concession period. Greenfield projects can be classified into the following categories; a) Build-Lease-Own (BLO); b) Build-Operate-Transfer (BOT); c) Build-Own-Operate-Transfer (BOOT); C) Build-Own-Operate (BOO).

Divestures: These occur when a private entity buys an equity stake in a state-owned toll road company through an asset sale, public offering, or mass privatization program. Divestures are categorized into two; a) full and b) partial.

Management and Lease Contracts: In which a private entity takes over the management of a state-owned road project for a given period. The road project is owned by the public sector, and investment decisions and financial responsibilities also remain with that sector.

The Government of Kenya (GoK) has for a while been tinkering with the idea of concessioning the busiest network of roads- the Northern Corridor (Mombasa-Nairobi-Malaba and Mau Summit-Kisumu-Busia). Even though traffic flows along this network, at 2000-3000 vehicles per day [4] are still relatively light by developed country standards, they are high enough to generate the benchmark 12% economic rate of return for the upgrading investment. Outside the Northern Corridor, there is little potential for conventional full road concessions using toll financing, given the light average daily traffic (ADT) flow of 500-1000 vehicles per day. World Bank [4] however, suggests that maintenance concession using shadow tolls, financed from the fuel levy, could be feasible on roads with an ADT of 500 or higher. This finding implies that a very large proportion of the main road network in Kenya is potentially feasible for maintenance concessions.

In Light of the constraints on public finances and in recognition of the role of the private sector in roads investment, in March 2009, the Government of Kenya (GoK) eventually took a concrete step towards a successful PPP program by passing the PPP Regulations as a subsidiary legislation to the Public Procurement and Disposal Act. Among other things, the PPP regulations establish a steering committee, a special agency of the cabinet that will establish PPP guidelines and procedures, review fiscal liabilities (both direct and contingent) to the GoK, approve proposed PPPs, and generally spearhead the PPP process. The regulations also outline the general guidelines and principles on the implementation of PPPs in Kenya.

While the PPP regulations are valuable as a first step towards addressing the overall fiscal constraints in the roads sub-sector in Kenya, it is worth noting that several other steps are necessary to build a successful PPP program. PPP is important because of; the limited availability of public funds in Kenya; it provides an opportunity to improve the procurement process and final result with; less risk for the government, performance based payments, cheaper whole life costs and better services through innovation due to competition. Since the various categories of PPP work with different levels of success owing to institutional and structural peculiarities of various countries, a critical step towards successful implementation of PPP is the identification of the most appropriate versions of it for a given scenario. This study suggests a new and innovative PPP variant of concessions to supplement the traditional models already in use.

A) THE ANNUITY CONCESSION MODEL

Developed by the National Highways Authority of India, the annuity concession model is a variant of the BOT model in which the private operator is remunerated via fixed, periodical payments (annuity) from a government agency such as the Kenya Highways Authority, rather than through toll proceeds. Under these contracts, the private operator is responsible both for constructing the road and for operating and maintaining it for a fixed period of time (typically ten years).

This model is suitable for use in Kenya for a number of reasons. The World Bank estimates that the break-even point for the private operator under this model does not occur until late in the contract (typically in the seventh year in a ten year contract). This implies that the model transfers responsibility for both bridge financing and performance risk to the private operator. Since the annuity payments in this model are not indexed, the private operator therefore retains any risks associated with higher than anticipated operations and maintenance costs, a typical problem in Kenya that often leads to countless cost variations over the lifetime of a roads project.

In Kenya private operators shy away from PPP because of the level of risks they are expected to shoulder. Annuity concessions are particularly attractive because they transfer certain risks to the private operator while keeping the revenue risks with the government (which retains the right to set and collect tolls). They also carry favour with the financial institutions because they are seen to have secure and stable source of funding (the annuity payments, which are financed by cess). World Bank [2] indicates that annuity concession projects have

been funded with debt-equity ratios of up to 75:25. Typical toll-based projects have debt-equity ratios of 70:30.6

In most financing models debt servicing starts during the construction period. There is no such a requirement under annuity concession, and repayment begins only after the project has been commissioned. Another typical problem in construction contracts that has acted as a hindrance to PPP in Kenya is the massive amounts of advance payments made to the private operator. Concessioning of the Kenya-Uganda railway line was adversely affected by this requirement. In this model, the government does not begin paying annuity until the road is constructed in accordance with quality standards set out in the contract. This model is therefore attractive since it rewards early completion and provides the private operator with a built-in incentive to ensure that the road is constructed in a way that minimizes.

V. CONCLUSION

In order to meet the economic development needs of the country the GoK should facilitate the increase in funding for road infrastructure maintenance, rehabilitation and development to minimum of 4.0% of GDP in order to maintain the network, eliminate the backlog maintenance and carry out subsequent network expansion. In addition the Government should establish a framework of financing road development and rehabilitation through road tariffs, road bonds and other appropriate instruments. In this regard, the government should implement specific strategies to consolidate and generate funds from road user charges and fines.

Secondly, the GoK must move with purpose to consolidate the gains made in establishing a PPP program and ensure that the country achieves its infrastructure objectives. An ideal starting point would be to establish technical body to support the steering committee's decisions, define the responsibilities of the new PPP directorate and identify a pipeline of quality PPPs in the roads sub-sector. In the long-term it may be prudent to consider initiating a Project Development Fund to support PPPs throughout the development cycle.

REFERENCES

- [1] Heggie, I.A. & Vickers, P. (1998). Commercial Management and Financing of Roads. *World Bank Technical Paper* 409.
- [2] The World Bank (2006). *Highway Sector Financing in India*. Retrieved from: <http://www.highwayfinindia.org/>.

- [3] The World Bank. (2004). Private Participation in Infrastructure Database. Retrieved from: <http://ppi.worldbank.org/>.
- [4] The World Bank. (2003). Kenya Transport Sector Memorandum, 3, 26444-KE.