

Sub-Saharan Africa Transport Policy Program

Discussion Paper No. 6

Road Management and Financing – RMF Series



Financing of Road Maintenance in Sub-Saharan Africa

Reforms and progress towards second generation road funds

Mustapha Benmaamar

September 2006



The SSATP is an international partnership to facilitate policy development and related capacity building in the transport sector in Sub-Saharan Africa.

Sound policies lead to safe, reliable and cost-effective transport, freeing people to lift themselves out of poverty, and helping countries to compete internationally.

The SSATP is a partnership of

- 32 SSA countries
- 8 Regional Economic Communities
- 3 African institutions
UNECA, AU/NEPAD and AfDB
- 7 active donors
EC (main donors), Denmark, France, Ireland, Norway, Sweden and The World Bank (host)
- Numerous public and private State and regional organizations

The SSATP gratefully acknowledges the financial contribution and support from the European Commission, the Governments of Denmark, France, Ireland, Norway, Sweden, and The World Bank.

More publications on the SSATP website

www.worldbank.org/afr/ssatp

The findings, interpretations, and conclusions expressed here are those of the author and do not necessarily reflect the views of the World Bank, UNECA or any of their affiliated organizations.

TABLE OF CONTENTS

Abstract	8
Acknowledgements	9
Introduction	10
Methodology	10
From first to second generation road funds.....	11
Sound legal basis.....	12
Clear rules and regulations.....	13
Agency which is a purchaser not a provider of road maintenance services	14
Strong oversight board	14
Revenues incremental to the budget and coming from road user charges	15
Fuel levy.....	18
Sound financial management systems, lean efficient administrative structure	19
Regular financial and technical audits.....	20
Availability and disbursement of funds.....	20
Allocation of road funds resources and meeting maintenance needs.....	21
Road network conditions.....	22
Road management	23
Conclusion.....	26
References	28

List of Graphs

Graph 1: Independence of chairperson versus public relations efforts	15
Graph 2: Levels of RUC and direct channeling to road funds (%)	17
Graph 3: Fuel levy/Road user charges (%)	18
Graph 4: Level of fuel levy (in US cents/ liter).....	19
Graph 5: Average time for paying undisputed contractors bills (in days)	21
Graph 6: Coverage of routine and periodic maintenance needs (%).....	22
Graph 7: Amount of maintenance work contracted out (%)	24

ABSTRACT

The evolution of the “second generation” road funds in Sub-Saharan Africa (SSA) has been quite rapid since the idea began to take shape in the early 1990s and since the first such fund was put into place in Zambia in 1993. There are currently at least 27 countries in SSA with road funds in place and this number is likely to increase further in the coming years as a result of ongoing reforms in West and Central Africa.

The paper discusses the evaluation criteria for assessing second generation road funds and gives an overview of their performance. It also identifies the constraints encountered by road funds in their move towards second generation road funds. The objective of the analysis is to deepen the understanding of best practice in order to provide guidance to countries setting up or restructuring road funds.

This paper presents the result of an analysis of a data base used as a tracking system that summarizes the state of advance of reform implementation in 30 countries in SSA with a particular emphasis on road funds performance. The findings are supported by visits to a number of SSA countries and a survey conducted among road fund managers to measure performance indicators of the road sector institutions.

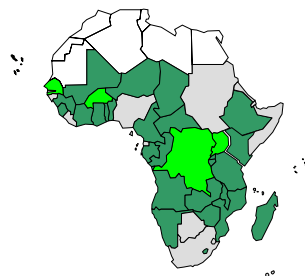
Overall, the road maintenance needs are becoming more visible. Road funds have secured a more stable and predictable flow of funds for road maintenance but country progress varies widely and, although a country might have established a road fund, this does not necessarily mean that it is either fully efficient, or fully autonomous. In most cases, the establishment of a road fund has not resolved the insufficiency of funds for road maintenance. The results also show that more efforts are required to capture and sustain the efficiency gains that could derive from the improvement of road management practices and better use of available resources.

ACKNOWLEDGEMENTS

The work described in this paper forms part of the Sub-Saharan Africa Transport Policy (SSATP). The research was undertaken with the collaboration of the African Road Maintenance Funds Association (ARMFA). The author would like to acknowledge the assistance of, and comments and suggestions made by Jerome Obi Eta, Steve Brushett, Dieter Schelling, Ian Heggie, Joseph O. Haule, Ajay Kumar and Olav Ellevset. The views expressed are those of the author and not necessarily those of the SSATP.

INTRODUCTION

According to a recent review of the status of road sector policy reforms in SSA (RMI Matrix 2006¹), there are at least 27 countries in SSA² with road funds in place. This number has shown a substantial growth since 2000 and is likely to increase further in the coming years as a result of ongoing reforms in West and Central Africa (the countries in light green on the map). Senegal, Burkina Faso and the Democratic Republic of Congo are undertaking studies for the creation of second generation road funds. Uganda, after being for many years the only country in East Africa without a road fund, is in the process of establishing one.



The objective of this paper is not to discuss the opportunity of establishing road funds or whether they are the appropriate mechanism to secure sustainable funding for road maintenance programs. The decision to introduce or eliminate road funds is discussed in length in relevant literature including a paper presenting the International Monetary Fund's position on road funds (Potter, B. H., 1997). The general recommendation is for such a decision to be based on practical and systematic assessment of the context and the available options for reconciling micro and macroeconomic objectives (Gwilliam K. and Shalizi Z., 1999).

This paper discusses the evaluation criteria for assessing second generation road funds. It also identifies the constraints encountered by road funds in their move towards second generation road funds. The objective of the analysis is to deepen the understanding of good practice in order to provide guidance to countries setting up or restructuring road funds.

METHODOLOGY

The findings presented in this paper are derived from an analysis of a database (RMI Matrix) used as a tracking system and developed by the Sub-Saharan Africa Transport Policy Program, SSATP (see footnote 1) under the Road Maintenance Initiative. The RMI Matrix is

¹ www.worldbank.org/afr/ssatp

² Benin, Burundi, Cameroon, Congo Republic, Chad, Cap Verde, Côte d'Ivoire, Djibouti, Ethiopia, Gabon, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, RCA, Rwanda, Tanzania, Togo, Zambia, Zanzibar and Zimbabwe.

updated on an annual basis, and summarizes the state of advance of reform implementation in 30 countries with a particular emphasis on road funds performance.

The findings are also based on a survey to measure performance indicators of the road sector institutions, conducted regularly among the 25 members of the African Road Maintenance Funds Association, ARMFA³. The survey questionnaire covers issues on road financing, road management, road maintenance programming and contracting industry. Out of a total of 25 road funds approached, 20 have responded to the survey questionnaire.

The findings are supported by the outcome of a number of visits to SSA countries undertaken under the SSATP work program and by preliminary results of two studies on legal and institutional review of road funds and agencies in SSA.

FROM FIRST TO SECOND GENERATION ROAD FUNDS

Roads have to compete for their preservation for funds against other more visible and popular sectors like health, education or law and order and this usually places them at a considerable disadvantage in the annual budget debate. Many countries around the world responded to the growing shortage of finance by attempting to earmark selected road related taxes and charges and depositing them into a special off-budget account, or road fund, to support spending on roads. This alternative approach was tried in a number of SSA countries such as in Burundi, Senegal and Gabon, following examples of countries in Europe and Asia. These funds were not entities as such but national budget line items managed by the sector ministries concerned but they were intended to be dedicated to the funding of road maintenance.

The performance of such funds was however mixed, and generally quite poor. Some of the common problems cited were poor financial management, absence of independent audits, extensive use of funds for unauthorized expenditures, diversion of funds, and weak oversight. As a result, most of these earlier road funds, sometimes known as “first generation” road funds, have actually been closed down (e.g. Russia) or had their institutional and management arrangements reviewed (e.g. Gabon, Madagascar and Burundi).

The road sector reforms championed by the Road Management & Financing, RMF/SSATP, towards the end of 1980s were intended to address these weaknesses as well as to enhance road management efficiency (Brushett, 2005). Under the leadership of the Road Management Initiative (RMI), the notion of a road fund was brought back into focus, but this time as part and parcel of a comprehensive approach to road sector reform under which roads were to be managed like a business and where users would play a much stronger role than hitherto in the management of road maintenance. It was proposed that users actually pay on a fee-for-

³ www.armfa.org.

service basis for the use of roads, the argument being that users might even be prepared to pay a higher charge (compared to equivalent taxes) if they could be certain that the funds generated would be used for road maintenance (not a guarantee under the “first generation” road funds).

Emerging from this process is the so called “second generation” road fund. A critical dimension of this form of road fund was the creation of a specific legal and institutional framework, which would assure proper management of the funds and accountability to users and government. “Second generation” road funds are thus governed by specific legislation which sets out the roles and responsibilities of a representative management board to oversee operations and a secretariat to manage the business of the road fund on a day-to-day basis. The legislation has generally sought to set up an institution, which has a unique mandate for securing resources and channeling these funds to mandated road agencies. The second generation road fund has become a significant feature of sector reform programs and strategies for improving road maintenance in at least a half of the countries of SSA.

The key characteristics of these, as generally understood (Heggie, IG. and Vickers. P., 1998), are set out below:

1. Sound legal basis – separate road fund administration, clear rules and regulations.
2. Agency, which is a purchaser not a provider of road maintenance services.
3. Strong oversight, board based private/public board.
4. Revenues incremental to the budget, coming from charges related to road use and channeled directly to the Road Fund bank account.
5. Sound financial management systems, lean efficient administrative structure.
6. Regular technical and financial audits.

The next sections will discuss the practical issues related to meeting the above criteria. This will also determine the extent to which the adopted legislation and organization in various countries facilitate or not the institutional objectives of second-generation road funds.

SOUND LEGAL BASIS

The design stage of road funds is critical in meeting the main criteria of second- generation road funds and the six criteria stated above should be used as the guiding principles when drafting the road fund legislation. The review of a database on road funds legislation produced under the 2004 RMF/SSATP work program (Road Fund Legislation Database, SSATP, 2004), shows that a number of road funds were poorly designed and is far from meeting second generation road funds conditions. The legislation falls short in addressing the following principals.

- **Administrative autonomy:** The objective of administrative autonomy in many cases is not met since the reporting Ministry (Ministry of Public Works), the owner and shareholder of the road business is often the service provider through its department of roads. Recent experiences in West Africa show that at the establishment stage of road funds, the Ministry tends to use its powers to control the procedure for the designation and appointment of the chairperson, the board members and the road fund manager. These institutional arrangements and practices undermine the road funds autonomy (e.g. Tanzania and Gabon).
- **Financial autonomy:** A number of road funds are financially dependent and are still relying on general taxation as one of the main source of their revenues (e.g. Benin, Ethiopia and Mali). Similarly, legislation of some road funds allows expenditure on other activities than road maintenance interventions (e.g. road rehabilitation and upgrading, road department's overheads...). It is hardly mentioned in the reviewed legislations that the road funds should be responsible for the collection of funds revenues and rarely stated that the proceeds should be channeled directly to their bank accounts.
- **Regular auditing:** There are countries where the requirement for regular technical and financial audits is not stated in the road fund legislation and cases where audits are a requirement but not budgeted for in the road fund expenditure. (e.g. Benin and Madagascar).

More autonomy is one of the cornerstones of a more commercial approach to road management and financing. Road funds and road agencies managers cannot behave commercially until they are able to operate without interference in day-to-day management. The first step to achieve this is usually to amend the road sector legislation to enable the road fund to operate at arm's length from government.

Currently 18 road funds out of 27 were established by a law and the remaining by a decree. Considering the limits of the existing legislation described above, the recommendation to establish road funds by a law should be made only if there is a clear understanding of the main criteria of second generation road funds by all parties, particularly the legal experts.

CLEAR RULES AND REGULATIONS

The main legislation establishing road funds is not expected to cover all administrative mechanisms and the rules and regulations of road funds. The preference with second generation road funds is thus to have legislation, which is short and enabling, accompanied by published financial rules and regulations specifying how the road fund is to be managed. This provides more flexibility, since it enables the regulations to be revised from time to time without the need for further legislation.

Now that the objective of diversifying the road funds revenue base is becoming a priority, the legislation for the establishment of road funds should be supplemented by appropriate regulations that explicitly clarify the collecting and channeling mechanisms of all road user charges including revenues generated by vehicle license, transit fees, road tolls and overloading fines. With the exception of Chad and Benin, few countries have a complementary legislation that sets out clear procedures for revenues collection.

AGENCY WHICH IS A PURCHASER NOT A PROVIDER OF ROAD MAINTENANCE SERVICES

The separation between the purchaser (the Road Fund) and the service providers (Road Departments and Agencies) is fundamental when developing sound road sector reforms. This principle is often ignored and sometimes deliberately so when drafting the road funds legislation. The main reason for wanting to do this is road fund boards tend to cumulate too many conflicting responsibilities, which often include funding, planning and managing road works. In such cases, they act both as the customer for the services provided, as well as the provider of those services. This creates an obvious conflict of interest, which weakens financial discipline and compromises efforts to control costs and maintain quality.

In a number of countries particularly in Anglophone Africa, the road fund board cumulates both oversight and executive powers. These boards are also responsible for managing the national road network (e.g. Kenya) or have taken responsibilities for activities, which were beyond their initial mandate (e.g. Zambia). This has created a conflict of interest and both countries (Zambia and Kenya) have recently undertaken reforms to establish separate road agencies and transform their road fund board into a separate road fund administration.

In many cases responsibilities between the road fund and road agency boards overlap. It is not clear-cut whether the road fund or the road agency should be responsible for the payment of contractors' bills. In general, road agencies and departments are responsible for programming, procurement and management of road maintenance contracts and road funds for the payment of contractor's bills. Most countries are now reviewing their institutional arrangements to separate the financing from the management and implementation of road works (e.g. Malawi).

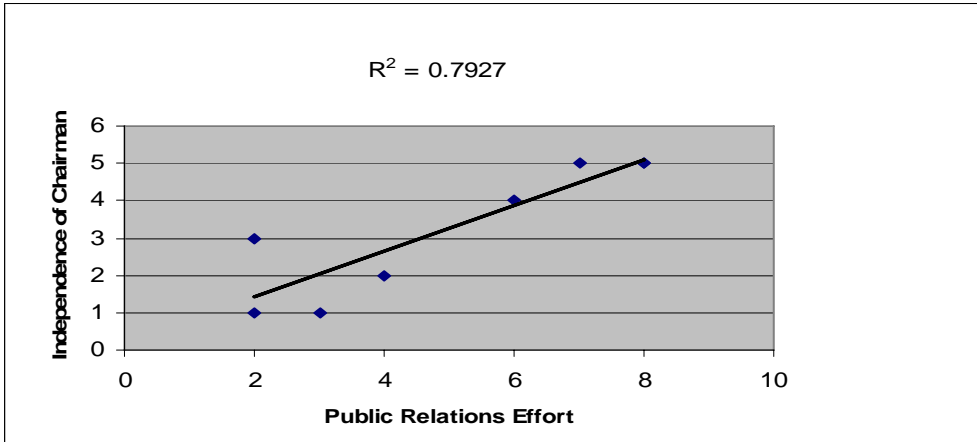
STRONG OVERSIGHT BOARD

The road fund should have a Road Fund Board, where users are represented by the majority of members. Board members are nominated by their constituencies and elect an independent chairperson. It is also recommended that there should be procedures for adjusting the road user fees to cover the expenditure needs and the board should be able to recommend such

changes to policy makers. The board should eventually have powers to set its own tariff within guidelines laid down by the Ministry of Finance.

All countries report that there is a management board in place. All these boards have mixed representation of private and public sector, though there is yet no conclusive evidence to suggest what is generally the best size and composition for effectiveness. Findings of research work carried out at the University of Birmingham, UK (Adjete S. B. 2004) show that the size and the proportion of private board members do not affect road fund revenues but the independence of chairperson has a major impact on the increase in revenue and on public relations (Graph 1).

Graph 1: Independence of chairperson versus public relations efforts



Source: Adjetey Sowah B.: Research Thesis, University of Birmingham, UK, 2004

Through the RMI Matrix it is noted that the average size of road fund boards is 12 members but this size varies from 5 members in Mozambique and Namibia to 24 in Republic of Congo. On only 12 road funds boards is the private sector representation in the majority.

There are not many examples of effective oversight boards. In most cases, the chairperson of the board comes from the public sector and designated and appointed by the Parent Ministry. The board members have generally a weak understanding of second generation road funds principles, particularly among private sector representatives. This places them in a disadvantaged position for advocating their constituents’ interests and needs. In general, the board members still behave as taxpayers rather than shareholders and customers of the road fund.

REVENUES INCREMENTAL TO THE BUDGET AND COMING FROM ROAD USER CHARGES

Second generation road funds are in principle expected to depend on road user charges for their revenues and to be largely independent of direct treasury funding (general taxation). In

practice, this has not always proved to be the case and for a number of road funds such as in Ethiopia, Mali, Gabon and Benin road user charges are less than 50 percent of all resources. However, for 15 of the countries, road user charges account for 80 percent or more of revenues. Fuel levy has normally been the most important and consistent source of user funding, though the returns from the countries suggest that efforts to diversify towards vehicle license fee, transit fees, overloading fines and road tolls are having some effect (Table 1).

Table 1: Breakdown of Road User Charges (%)

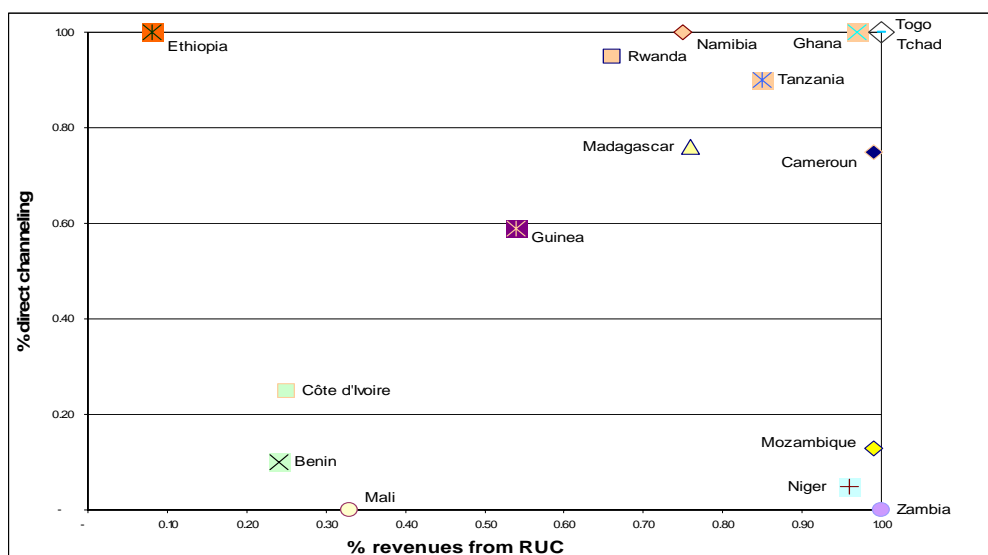
Country	Fuel levy	Road tolls	Transit fee	Vehicle license fee	Overloading fines	Total
Chad	61	6.5	32	0	0.5	100
Benin	52	43	5	0	0	100
Namibia	75	0	5	20	0	100
Burundi	60	24	0	16	0	100
Lesotho	67	25 ⁴	0	8	0	100
Mali	75	0	25	0	0	100
Rwanda	62	2	36	0	0	100

Source: RMI- Matrix, 2006

Channeling of road user charges is an important consideration to ensure ready availability of funds for works execution. There is still a substantial number of countries however, that do not benefit from direct payment of road user charges and this has been known to cause delays and accountability issues as far as road fund revenue is concerned. The RMI Matrix indicates that only 13 countries report that direct channeling is in place. Graph 2 presents a quantifiable performance indicator that measures both the percentage of revenues of road funds, which is, raised from road users charges (fuel levy, vehicle license fees, transit fee, road tolls and overloading fines) as opposed to general taxes, and the percentage amount of these road user charges that is channeled directly to the road fund's bank account. This indicator measures the level of financial autonomy of road funds from the treasury.

⁴ Includes revenues collected at tollgates on all vehicles leaving Lesotho and short-term permit fee on foreign trucks entering Lesotho.

Graph 2: Levels of RUC and direct channeling to road funds (%)



Source: RMI Matrix, 2006

Graph 2 shows that a number of road funds now have considerable financial autonomy (the countries at the top right of the graph). These road funds raise most of their revenues from road user charges and most of the proceeds are channeled directly to their bank account. This does not imply that they raise enough revenues to meet maintenance needs. For example, Madagascar road user charges are raised solely from a fuel levy, which is only 4 US cents/liter, one of the lowest levels of fuel levy in SSA. The efficiency with which the available resources are used in these countries becomes therefore an immediate priority.

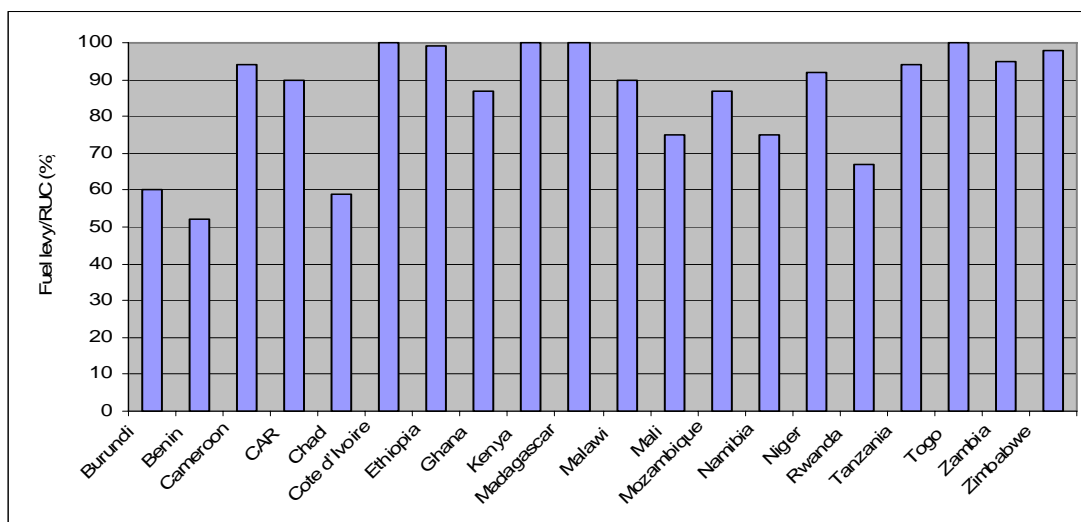
There are countries, however, including those which were among the first to establish road funds in SSA (e.g. Benin and Ethiopia), which still have the majority of their revenues dependent on general taxation. For few countries (e.g. Niger, Zambia and Mozambique), most revenues come from road user charges but the proceeds are not deposited in their bank accounts, these revenues still transit through the treasury.

Experience suggests that it is easier to create a road fund with an initial road user charge than to adjust that charge on a regular basis. With the exception of Chad, which allocates 60 percent of its oil tax revenues to the road fund, most countries allocate a fixed levy in US Cents/liter and no systematic adjustments are sought to revise road tariffs. Most road fund boards have no real powers to adjust road tariffs. The decision to adjust road funds revenues still remains in most cases the responsibility of the Minister of Finance.

FUEL LEVY

All countries have established a fuel levy as the main road user charge revenues. Graph 3 presents comparative information on the share of fuel levy as a percentage of the total road user charges revenues of each country. For the majority (two thirds) of road funds, 80 percent or more of user charge revenue is in the form of fuel levy. In few cases fuel level represents 100 percent of road user charges revenues (Ethiopia, Kenya and Togo) while road user charges are relatively diversified in Chad and to a certain extent Benin, Burundi and Rwanda (Table 1). Fuel levy is also the principal means of raising road user charges but not all countries have been successful in adjusting the level to reflect maintenance needs.

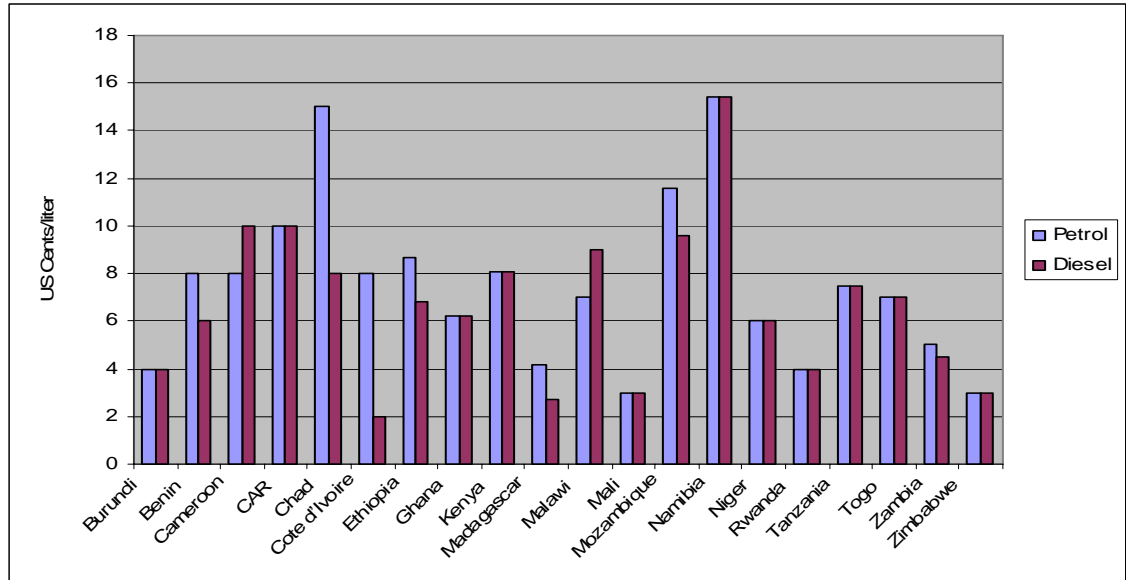
Graph 3: Fuel levy/Road user charges (%)



Source: RMI Matrix, 2006

Graph 4 indicates that the level of fuel levy varies significantly across countries and the average fuel levy in US cents/liter is currently 8 and 7 for petrol and diesel respectively. Studies carried out, inter alia by RMI (PAM, 2004), suggest that fuel levy should not normally be less than US 10 cents per liter to meet all maintenance needs and for Sub-Sahara Africa the average is probably much higher at about US 13 to 15 cents per liter. Very few countries have reached this level (Chad and Namibia) and although 11 countries report fuel levy at US 8 cents per liter or better, this is in most cases just enough to meet routine maintenance needs.

Graph 4: Level of fuel levy (in US cents/ liter)



Source: RMI Matrix, 2006

SOUND FINANCIAL MANAGEMENT SYSTEMS, LEAN EFFICIENT ADMINISTRATIVE STRUCTURE

The chairperson should be a person of standing and the board should be supported by a small secretariat headed by a manager appointed by the board. The secretariat is responsible for the day-to-day management along commercial lines. The road fund should be managed according to sound commercial principles. It should have clear disbursement procedures and funds disbursed should be subject to an independent financial audit and a selective technical audit.

The size of road funds' secretariats varies from 6 in Niger to 70 in Djibouti where internal staff directly collects revenues (transit fee). The average size of secretariats is 19 employees. Similarly, road funds overheads vary from 2 percent to 30 percent (Djibouti) with an average of 5 percent of the total road funds budget (4 percent excluding Djibouti). The size of the secretariat is not always proportionate to the road funds turn over.

One of the main constraints affecting the management of road funds is the selection process used for the recruitment of the Executive Secretary. The recommendation to select the Executive Secretary through open competition is sometimes disputed by the parent Ministry that tends to directly appoint an Executive Secretary among civil servants staff and sometimes without providing incentives (a market based salary). This practice favors political

interferences in the day-to-day management of the road funds and the allocation of resources to non-planned activities.

The completion process of the survey questionnaire on road funds performance revealed a lack of technical capacity of some road funds. The Executive Secretaries are generally not sufficiently equipped with necessary data to measure the performance of their road funds.

REGULAR FINANCIAL AND TECHNICAL AUDITS

Most road funds carry out independent technical and financial audits but the audits are not always budgeted for internally and not undertaken regularly. There are still road funds that rely on external funding to carry out financial and technical audits. The terms of reference of audits cover in general the review of the appropriateness of financing and operating procedures and the daily management of road funds but little emphasis is placed on reviewing the performance of the supervisory board with respect to their obligations under the legislation act.

The results of financial audits indicates that, in general, funding arrangements are more transparent than in the past but there are still interferences from the parent Ministry in day to day management of road funds. There are still decisions to carry out non eligible activities, which are imposed by the parent Ministry on the road fund management (e.g. maintenance work on non priority roads).

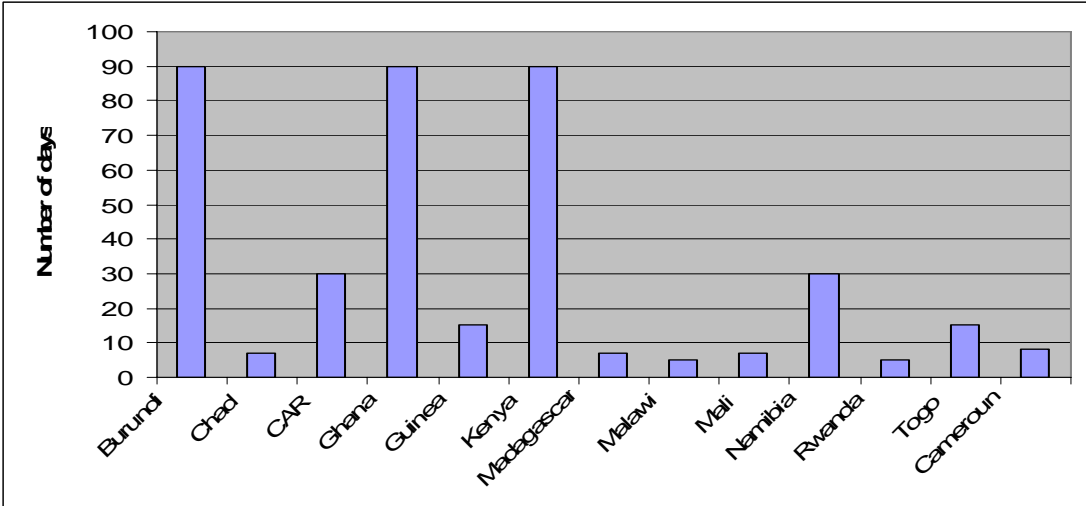
The results of technical audits are, however, in many cases disappointing. In general, the conclusions of audits reports indicate that maintenance works are not carried out in cost-effective ways. This is a result of a combination of inadequate planning, technical specifications, procurement and execution, and deficient supervision and control of road maintenance works. The recommendations of technical audit reports are occasionally discussed in stakeholders workshops, which lead in the development of action plans, but their implementation is not forthcoming since the responsibilities are often diluted.

AVAILABILITY AND DISBURSEMENT OF FUNDS

The availability of funds all year around to implement road maintenance programs has become one of the advantages of road funds as opposed to funding through general budgets. For comparison, the time difference between the budget and road maintenance cycles in Burkina Faso, which has not established a road fund yet, is currently around nine months. The results of the survey on road funds performance indicators show, on average, road funds have an amount of two months equivalent of road maintenance works as a minimum amount of cash available in their bank accounts. This should not imply that road funds raise suffi-

cient revenues to meet all the assessed demands for maintenance but does contribute to the reduction of time in paying contractors bills.

Graph 5: Average time for paying undisputed contractors bills (in days)



Source: RMI Matrix, 2006

One of the major constraints hampering the promotion of small and medium enterprises (SMEs) is the irregularity of work contracts and long delays for payment of works done. The reduction of these delays is one of the performance indicators of road funds that have been identified by ARMFA members. The reduction of delays should contribute to the promotion of SMEs and to bringing down road maintenance unit costs in the long run. There is in general a direct relation between the channeling of road user charges and the average time required to pay the bills but this is not systematic.

Most road funds in SSA pay contractors directly. The road fund boards of Tanzania and Ghana disburse funds through a revolving fund to implementing agencies and do not directly pay contractors and consultants. In Ghana, this has extended delays in paying contractors bills (90 days) and the road fund board has recently decided to pay directly contractors' bills. Graph 5 indicates that the time period for paying the undisputed contractors' bills varies from 5 to 90 days with an average time of 32 days. The results of the survey on performance indicators show an average rejection rate of bills of 5 percent. This is a low rate and is not consistent with the findings of technical audit reports. This may indicate a weakness in the supervision and control of maintenance works and/or a lack of internal auditing.

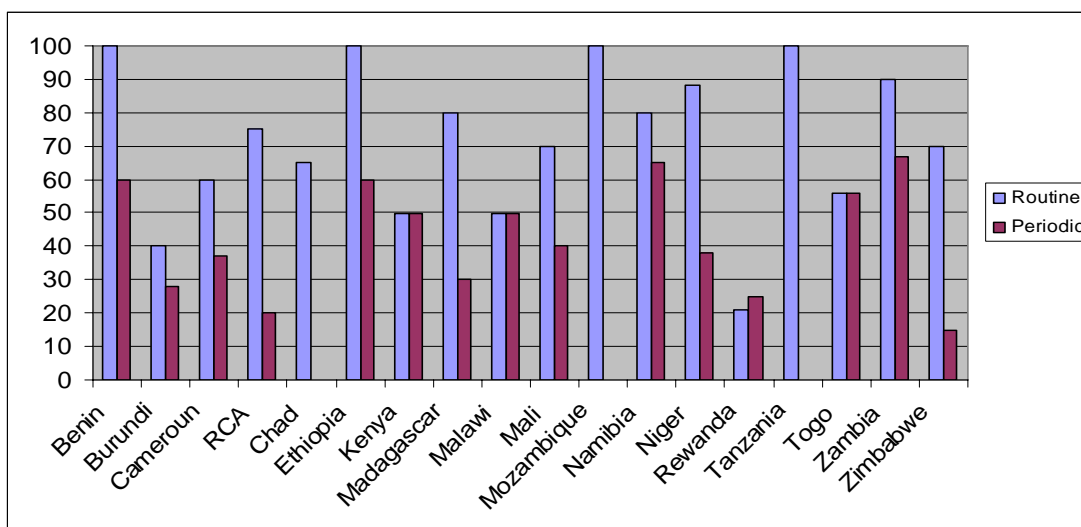
ALLOCATION OF ROAD FUNDS RESOURCES AND MEETING MAINTENANCE NEEDS

The majority of countries are using formulae to allocate funding between main, rural and urban roads. Countries allocate on average about 60 percent to main, 18 percent to rural and

15 percent to urban roads. Not in all cases are road funds obligated to fund maintenance on all parts of the road network. While all road funds allocate funds to urban roads except Burundi, six⁵ allocate no funds for rural roads. In some cases such as Rwanda, 60 percent goes to urban roads and in the case of Lesotho; none of the funds goes to main roads.

In terms of the adequacy of funds being raised, the RMI Matrix considers how far countries have come towards meeting firstly routine maintenance needs of the public network and secondly all maintenance needs (including periodic). The picture presented is rather mixed (Graph 6), although the level of achievement is somewhat disappointing in view of the increase in the level of resources being raised. This may suggest that there is quite a wide variability between countries in terms of how maintenance needs are assessed and the efficiency with which these needs are addressed. Over all, under funding has been reduced but it remains a serious problem. The reported fact of about one third of countries meeting routine maintenance needs is a large improvement on the situation 10, even 5, years ago. Not surprisingly, the performance on all maintenance requirements is less impressive, although it is noted that around 10 countries are above 50 percent of needs.

Graph 6: Coverage of routine and periodic maintenance needs (%)



Source: RMI Matrix, 2006

ROAD NETWORK CONDITIONS

One result towards which road management reform is expected to contribute is road network condition. This data is added to the RMI Matrix but its update in order to track any forward

⁵ RCA, Chad, Ivory Coast, Djibouti, Gabon and Niger

progress in the numbers has proved extremely difficult. The definition and measurement of what constitute a good and bad road condition is not standardized and may vary significantly between countries. The data when available is approximate and not collected in a systematic way. The data will need to be refined in future and it may be useful to distinguish for example the variation in the condition of road networks due to road maintenance works financed by the road fund from the improvement of conditions as a result of rehabilitation projects funded by development partners.

The improvement in the road conditions requires a comprehensive road transport strategy. The Tanzania Road Fund Board reports a significant improvement in conditions of the trunk and regional road networks over the period 2001-2005 (Tanzania Road Board, 2006). The rapid improvement in road conditions in Tanzania cannot however be attributed to the funds generated by the Road Fund alone. The reversal of long-term decline in road quality is seen as the result of a combination of three factors:

- (i) The increase in the institutional capacity of the road sector through the establishment of a road fund in 1998 and a road agency in 2000;
- (ii) The increase in the financial and management capacity. Immediately after the establishment of the Road Fund and the Road Agency, many donors and government road development programs were implemented. It is important to note that whereas the Road Fund budget for the Tanzanian National Roads Agency, TANROADS is about US\$ 50 million, the total value of works executed by TANROADS amount to more than three times as much;
- (iii) The increase in the execution capacity for the implementation of a stabilization strategy using a low cost spot improvement approach. The creation of the road fund has sustained a stable flow of funds for road maintenance and hence provided a basis for the development of local small-scale contractors.

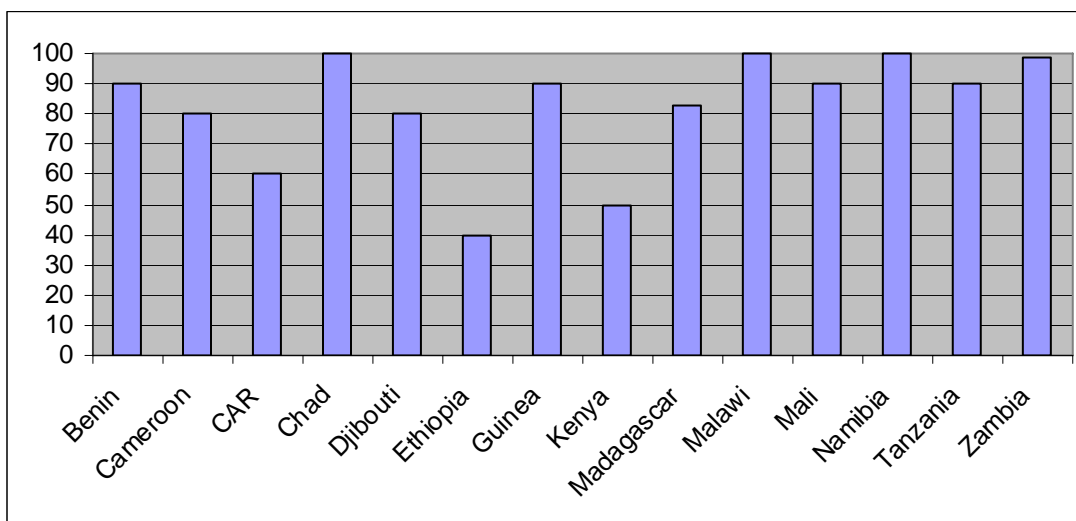
The subsequent question is whether there is an appropriate regulatory framework in Tanzania that guarantees a competitive transport market and to what extent the efficiency gains, derived from road conditions improvement, have been passed on to the road user.

ROAD MANAGEMENT

The assessment of road sector reforms should not be limited to the adequacy of road financing mechanisms (Road funds) alone but requires a comprehensive analysis which includes the improvement in the organization of road management services (Service providers). Thus, the review of road funds performance cannot be complete without a review of the commercialization of the road management and the efficiency with which the available resources are used.

There are a number of factors that enhance organizational effectiveness (Talvitie, A., 1996) such as decentralized programming, improved data collection, output based maintenance contracts (Stankevich, N. and al, 2005) and contracting out road maintenance works. On the latter, it is worth noting that most road agencies and departments contract out 80 percent or more of maintenance works (Graph 7) but there are countries that are lagging behind (e.g. CAR (60 percent), Kenya (50 percent) and Ethiopia (40 percent)).

Graph 7: Amount of maintenance work contracted out (%)



Source: RMI-Matrix, 2006

Output based maintenance contracts in SSA are gaining pace since the first pilot project was put into place in Chad in 2004. There are currently a dozen⁶ countries that are experiencing or are about to engage in these innovative contracts and this number is likely to increase further in the coming years with the increase of managerial capacity of local contractors. With the exception of the Tanzania's road fund, which plans to fund about 30 percent of the pilot contract, there is however little involvement of road funds in these first output-based maintenance contracts projects.

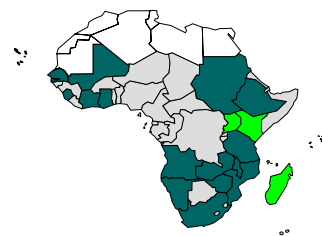
Local capacity for the collection and management of road database and programming of maintenance interventions remains a challenge in most countries. Only about half of the countries are equipped with road management systems for the prioritization of maintenance

⁶ Chad, Cap Verde, Tanzania, Madagascar, Mozambique, Burkina Faso, Zambia, Rwanda, Kenya, DRC and Nigeria.

work programs of main road networks and there is an urgent need to better use and sustain the available systems (McPherson K. and Bennett C.R., 2005).

The RMI Matrix 2006 suggests that the reform of road management through the creation of road agencies has lagged behind the creation of road funds, but that the pace of change has recently started to increase such that 16 countries⁷ have this in place (including South Africa).

There are currently a handful of long established road agencies (Angola, Ethiopia and Ghana) as well as a number that have recently been created (Zambia, Senegal and Mali). The Matrix indicates however that only 8 agencies have management boards in place and in only three cases are the private sector in the majority. Road Agencies in Uganda, Kenya and in Madagascar are being established (the countries in light green on the next map).



Most progress in commercialization⁸ of road administration has been made in Southern Africa, mainly due to the strong impetus provided by the Southern Africa Transport and Communications Commission (SATCC). SATCC covers 12 Southern and East African countries and they have been encouraging the reforms under a 1998 ministerial protocol. The protocol stresses the need to commercialize the management and financing of roads to enable them to become self-sustaining, to preserve the road assets and to reduce dependence on outside assistance. Most of the Southern African countries have established road agencies, which are members of the Association of Southern African National Roads Agencies, ASANRA⁹.

The process of commercialization of road management in SSA requires both a political will and a change of attitude in the way in which roads are managed. The general direction of the reforms can be grouped under four main headings:

- (i) Establishing a more autonomous road agency which operates at arms length from government;
- (ii) Identifying clear roles and responsibilities between the autonomous road agency and the parent ministry;

⁷ Angola, Cape Verde, Côte d'Ivoire, Ethiopia, Ghana, Malawi, Mali, Mozambique, Namibia, Senegal, Sierra Leone, Sudan, South Africa, Tanzania, Zambia and Zimbabwe.

⁸ The word "commercialization" is not synonymous of privatization. In this context, it is used to mean the adoption of any appropriate and sound management practices.

⁹ www.asanra.int.mw

- (iii) Streamlining the structure of the road agency and improving terms and conditions of employment for road agency staff; and
- (iv) Separating the planning and management of roads from implementation of road works and moving away from force account by contracting out implementation to the private sector.

The preliminary findings of the institutional review of four road agencies (e.g. Zambia, Mozambique, Ivory Coast and Tanzania) indicate that the governments are reluctant to give up powers and responsibilities to the new institutions. The roles and responsibilities of road agencies and parent Ministry in some cases were not clearly defined (e.g. Senegal). With the exception of Tanzania, the redeployment of staff and the improvement of terms and conditions of employment have been hampered by a lack of administrative and financial autonomy of the agencies. The capacity and effectiveness of implementing agencies have developed least rapidly, though there are signs of progress resulting from increased security of finance on a multi-annual basis to maintain continuous work programs and particularly in respect of governments and private sector contracting capacity.

CONCLUSION

The second generation road fund has become a significant feature of road sector reform programs in SSA but the efficiency with which reforms have been implemented has led to mixed results. Overall, the road maintenance needs are becoming more visible. Road funds have secured a more stable and predictable flow of funds for road maintenance but country progress varies widely and, although a country might have established a road fund, this does not necessarily mean that it is either fully efficient, or fully autonomous. A number of road funds were poorly designed and are far from meeting second generation road funds conditions and this partially explains numerous structural problems that undermine their performance. While a number of road funds now have considerable financial autonomy, there are a few which still have the majority of their revenues dependent on general taxation. Fuel levy is the most important source of user funding and revenues raised are just about sufficient to meet routine maintenance needs. In most cases, the establishment of a road fund has not resolved the insufficiency of funds for road maintenance. More efforts are required to diversify towards other road user charges (e.g. vehicle license fees) and to channel revenues directly to the road fund. There are very few examples of effective oversight boards. In general, the board members still behave as taxpayers rather than shareholders and customers of the road fund, and the adjustment of the level of fuel levy remains in most cases under the control of the Ministry of Finance.

Some Indicators of Performance of “Second Generation” Road Funds in SSA

- 27 active road funds are in place – of which 9 established since 2000 and 7 in Francophone Africa
- 18 out of 27 are established by a law
- 12 with a board with private sector majority
- 14 road funds rely 80% or more on road user charges as revenues
- In nearly all cases, fuel levy is the principal means of raising road user charges
- Average fuel levy in US cents/liter is 8 and 7 for petrol and diesel respectively
- 11 road funds have their revenues channeled directly to their bank account
- Only about one third of road funds may now be meeting routine maintenance expenditure needs on a regular basis.

Source: RMI Matrix, 2006

The assessment of road sector reforms in SSA cannot not be limited to the review of adequacy of road financing mechanisms (road funds) alone but requires a comprehensive analysis which includes the improvement in the organization of road management services (service providers). There are considerable efficiency gains that could be derived from the improvement of road management practices and better use of available resources. Governments are reluctant to give up powers and responsibilities to the new road agencies and their effectiveness and implementing capacity have developed least rapidly.

The move towards full commercialization of road management is gradual and requires technical support to sensitize country partners in order to overcome obstacles to effective implementation of road sector reforms. SSATP is increasingly engaged in supporting the development of sound road sector reforms in SSA. SSATP provides support to help build the capacity of road sector practitioners through regional associations, notably ARMFA (road funds) and ASANRA (road agencies). These associations are seen as providing the most promising agents for change and knowledge sharing with regard to driving forward institutional development in the roads sub-sector in SSA.

REFERENCES

- 1- RMI-Matrix 2006, www.worldbank.org/afr/ssatp
- 2- Potter, Barry H. 1997. Dedicated Road Funds: A Preliminary View on a World Bank Initiative, PPAA/97/7, International Monetary Fund, Fiscal Affairs Department.
- 3- Gwilliam K. and Shalizi Z. 1999. Road Funds, User Charges, and Taxes. The World Bank Research Observer, vol. 14, No 2, August 1999, pp.159-85.
- 4- Brushett, S. 2005. Management and Financing of Road Transport Infrastructure in Africa, SSATP Discussion Paper No 4. The Sub-Saharan Africa Transport Policy Program.
- 5- Heggie, IG. And Vickers. P. 1998. Commercial Management and Financing of Roads, World Bank Technical Paper No 409. Washington, D.C.
- 6- CD-ROM, Road Fund Legislation Database, Version 1.0. 2004, www.worldbank.org/afr/ssatp.
- 7- Adjetey Sowah B. 2004. An Evaluation of How the Structure of Roads Boards and the Choice of Chairman affects its Performance. University of Birmingham, School of Engineering, Department of Civil Engineering.
- 8- PAM. 2004. Results of the application of the Performance Assessment Model in Uganda, Malawi, Ghana, Kenya and Zambia, Studies carried out, inter alia by RMI/SSATP.
- 9- Tanzania Road Fund Board, 2006: Proposal for Increasing Funding for Road Maintenance.
- 10- Talvitie, A. 1996. International Experiences in Restructuring the Road Sector. Paper presented at Transportation Research Board Annual Meeting, Washington DC.
- 11- Stankevich, N. and al. 2005. Performance-based Contracting for Preservation and Improvement of Road Assets, Transport Note No TN-27. World Bank, Washington D.C.
- 12- McPherson K. and Bennett C. R. 2005. Success Factors for Road Management Systems, Transport Note No TN-Draft, World Bank, Washington D.C.