Assessment of Selected Road Funds in Africa

Case Study of Benin, Ethiopia, Ghana, Kenya and Zambia

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Foreword

A country can enjoy neither internal cohesion, economic growth, nor social advance without a good transport system. Inadequate transport systems are the rule rather than the exception in Africa. The Sub-Saharan Africa Transport Policy Program (SSATP) works to facilitate policy and institutional reforms that advance sustainable management and financing of transport services in Africa.

Bad roads have been endemic in Africa for decades. The Road Management Initiative (RMI) is the component of the SSATP whose primary objective is to render the management of road systems sustainable. At present, nineteen African countries are collaborating within the framework of the RMI. The RMI has been heavily engaged in reforms aiming at financial stability of road management, in particular road maintenance, and has worked on the concept of Road Funds for well over a decade. During this period, the concept of “second generation” Road Funds, funded by levies on the road users and managed by Boards representing all stakeholders in the roads system, has begun to mature.

This paper shows that Road Funds have had some success in stabilizing road financing, improving works programming efficiency, and encouraging a resurgence of the domestic contracting industry. Also, a key effect of the introduction of second generation Road Funds has been the consultative process, which has been used in formulating the structure of the Funds, and the public disclosure of their performance. As a result, the reform process enjoys general public support in the case study countries.

However, the paper also shows that the funding stability provided by a well-functioning Road Fund is not in itself a guarantee that a road system will be well maintained and managed. Among the reform issues which need further attention are: broaden the Road Fund resource base; strengthen the capacity of road management agencies to plan and implement road maintenance in a timely manner; systematically address the needs of roads outside the trunk road network; and build the capacity of local contractors and consultants. These issues are being addressed separately by the RMI and other components of the SSATP.

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Abstract

In response to the deteriorating condition of the road network and the high associated economic costs, various stakeholder consultations were held during the 1980s under the umbrella of the Road Management Initiative (RMI), which set the broad outline of a new policy framework for the road sector. The new policy framework advocates establishment of dedicated Road Funds (RFs), managed by autonomous road boards as commercial entities and made up of user representatives who both gain the benefits from the road facilities they provide and bear the cost of any increase in charges which they approve.

The issue has been controversial because some see the road funds as a form of earmarking, hampering the optimal allocation of resources, and infringing on requirements of efficient cash and financial management. In contrast, others view road funds as offering a mechanism to insure stable financing of a low profile activity with particularly high rates of return.

This paper examines road fund performance in five countries (Benin, Ethiopia, Ghana, Kenya and Zambia) where reasonably extensive implementation experience exists. The country study is based on three guiding principles: (i) have they improved resource allocation? (ii) have they improved operational efficiency? and (iii) have they improved road maintenance? Findings of this paper are based on an assessment of the structure and process of setting up and implementing the road funds as well as an assessment of the objective achievements to date. The paper should be viewed as a work-in-progress, and the analysis would be updated periodically as the conditions and macroeconomic environment changes.

While all countries have not moved at the same pace, they have progressed to various stages to introduce institutional and financial reforms, in the spirit of the RMI. Specific progress has been recorded in increasing incremental resource flows to road maintenance and in improving the allocation and efficiency of resource use. The evaluation suggests, however, that setting up stable financing arrangement is a necessary but not a sufficient condition to ensure that a sustainable basis of road maintenance is attained, with improved service delivery across all levels of the road hierarchy. The paper develops a set of indicators to determine institutional, financial and technical performance of the road funds.
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Assessment of Selected Road Funds in Africa:  
Case Study of Benin, Ethiopia, Ghana, Kenya and Zambia¹

Synopsis

The rehabilitation of the road networks, as well as the build up of institutional and financial capacity for their continued maintenance, is the most critical challenge confronting transport planners and policy-makers in Africa. To address road maintenance needs, Road Funds (RFs) were set up during the 1970s in a number of African countries. Experience with the Road Funds (referred to as the “first generation” Road Funds) was not entirely satisfactory. The RFs were set up as a line item in the national budget which represented plain earmarking of government revenues to finance a service that was administered and delivered by government departments and allocated according to pre-defined priorities. They often fell short of their goals as manifested in poor governance, poor collection and disbursement, and inadequate contribution to the Fund for yearly maintenance of the country’s road network.

In response to the deteriorating condition of the road network, and the high associated economic cost, various stakeholder consultations were held during the 1980s under the umbrella of the Bank-managed and donor-financed Road Maintenance Initiative (RMI), which set the outlines of a new policy framework for the road sector.² Since 1988 the RMI has worked to build awareness about the importance of road maintenance and has supported country level programs designed to identify the root cause of the problem and initiate actions needed to set the management and financing of roads on a sustainable long-term basis. As part of the new policy framework, referred to as the “second generation” Road Fund, and reflecting the pioneering experience of Zambia, the concept of second generation RF has emerged. Second generation road funds are intended to support commercialization of road management, increase domestic resources made available to road maintenance and increase efficiency of resource allocation and use. In the new arrangement, road financing is entrusted to a new autonomous body, jointly managed with road users, and financed “off-budget” by designated road user charges, based on user-pays principle.

This paper is a review of experience with the operation of second generation Road Funds in Benin, Ethiopia, Ghana, Kenya, and Zambia.³ The choice of countries was influenced by: (i) continuity in the existence of second-generation RFs for four to five years, even though the institutional arrangements in some of these countries are still evolving; (ii) diversity in the institutional arrangements presenting an instructive comparison; and (iii) availability of data because of the World Bank and other donors’ direct involvement in setting up and assisting with the RF Boards, as part of the on-going investment programs in the road sector. While all countries have not moved at the same pace, they have progressed to various stages to introduce institutional and financial reforms, in the spirit of the RMI. The specific circumstances faced by each country defy generalizations and make it necessary to evaluate the progress in the context of the original design, national priorities, and objective achievements.
This review is conducted in three sections. First, the institutional and management structure of the Road Funds in each of the countries is evaluated. Second, the process of setting up and implementation of Road Funds is analyzed, including adequacy, stability and performance monitoring of the flow of funds. Third, the objective achievements are evaluated, as measured by the quality of the road network, operational efficiency, allocation efficiency and development of the local construction industry.

Structure

Each of the countries under review has an autonomous Roads Board managing a Road Fund, with different structural and functional contexts, allowing for an instructive comparison. In all the countries examined in this study, the Road Fund Board/Administration is institutionally separate from road administrations.4

Zambia was among the first countries to reform road institutions and set up a National Roads Board (NRB) in October 1994 by regulation under an existing Ministerial Order. In contrast, Road Fund Boards in Benin, Ethiopia, and Ghana were set up by a Parliamentary Act in, respectively, August 1996, March 1997, and August 1997. The Kenya Roads Board Act was enacted by the Parliament in January 2000 and the Board was established in July 2000. In principle the RF Boards are responsible for resource generation, allocation, and evaluation. The RF Boards in all the countries under review serve as financier of services rather than as provider of services. The programming, tendering, evaluating, negotiating, awarding, supervising, and managing of contracts are the responsibility of the road administrations. The composition of the Roads Board is different in different countries—in Zambia and Ghana the Boards have a dominant private sector representation, while in Ethiopia and Benin the Boards are dominated by the public sector (in Ethiopia, the composition of the Board is revised every two years allowing for changes in structure based on past experience). The Kenya Roads Board Act specifies dominant private sector representation. The Road Fund Board in each of the countries is supported by a Secretariat to perform the day-to-day functions. The Zambia Roads Board Secretariat consists of eight professional staff and is supported by Management Support Services Team. The Ethiopia RF Secretariat is supported by nine professional staff (approved staff of 27), Ghana by a thirteen staff Secretariat and Benin by a three staff Secretariat. The administrative and operating expenses for the Secretariat in Zambia, Benin, Kenya and Ghana are paid from the Road Fund and are about 3 percent of the RF collections; in Ethiopia, administrative expenses are allocated from the Ministry of Finance and are less than 1 percent of the RF collections. In all the countries, the Secretariat salary is competitive with the private sector.

Evaluation of the early performance of the RF Boards suggests that, while it has been easy to set up institutional arrangements, implementation of concomitant policy and legislative framework throughout the sector has been more difficult. The difficulties result from the mind set and governance in the countries, which go beyond the mandate of reforms in a particular sector. It also takes time to build the institutional capacity needed for sustainable reforms. Implementation of institutional reforms in Zambia remain somewhat weak, despite a strong user representation and dynamic leadership of the Roads Fund Board. This is largely because of a lack of action on the part of government with respect to the definition, clarification and
assignment of authority with matching responsibility as well as the legal foundation for the Board’s control over setting user rates and collection of proceeds. In contrast, the Ghana Road Fund has a firm basis, with detailed internal and external monitoring procedures to ensure efficient use of money and accompanied by monthly progress reports and external financial and technical audits. The Road Fund in Ethiopia has the strong support of the government as laid out in the Road Sector Development Program (RSDP), a strong bureaucracy and evidence of political will to support reforms in the roads sector. However, even after two years of existence, the Ethiopia RF Secretariat is yet to be fully established, with less than 30 percent of the designated professional positions filled.

Process

Second-generation RFs were established to provide stable sources of financing for road maintenance and were to be managed by user represented autonomous Boards. This was in sharp contrast to the first-generation RFs era, when road operations were often centrally planned activities, undertaken by government roads departments, relying on earmarked treasury allocations, and donor contributions. Planning focused on capital expenditure with little consideration of future maintenance needs. Only a fraction of the amount budgeted for maintenance was actually released.

Recognizing the link between economic development and the quality of the road network, governments adopted large-scale liberalization and public sector reforms as policy objectives. As part of this effort, second-generation RFs were established, funded by user charges, and identified separately from general taxation. The fuel levy is the dominant source of contribution to these RFs in all the countries examined (more than 90 percent). The basis of setting up the fuel levy varies in each country. In Zambia and Benin, the fuel levy is a fixed percentage of the wholesale price, and is set at 15 percent in Zambia (USc3 per liter in 2000) and 10 percent in Benin (USc2.5 in 1999). In Ghana and Ethiopia the fuel levy is a fixed charge per liter, set at USc8 in Ghana and USc4.4 in Ethiopia in 2000.

Revenues accruing to the Zambia Road Fund are sufficient to address only about 30 percent of the road maintenance needs, as compared to Ghana and Ethiopia RFs, which are able to address about 80 percent of the assessed road maintenance needs. In Benin, the RF revenues are enough to address maintenance needs of the main network only. The requirements will be greater if some sort of holding maintenance is carried out to preserve roads in a fair condition awaiting periodic maintenance or keeping roads passable awaiting rehabilitation. Given the substantial backlog from the past, a large part of the network is “non-motorable” and requires rehabilitation to return to a “normal” state prior to application of the routine maintenance.

There is some merit in relating fuel levy to assessed maintenance “needs” (as practiced in Ghana and Ethiopia) rather than a fixed percentage of fuel price (as followed in Zambia and Benin). The danger of setting fuel levy as a percentage of the fuel price is that collections may have no relation to maintenance needs, and RF revenues may fluctuate with changes in the macroeconomic environment. In Kenya, on the other hand, inflation has eroded the value of nominal sums, and full maintenance funding is not available. While the introduction of a fuel levy is a big step forward, it still remains a proxy (indirect) charge for road usage. In addition,
the fuel levy does not usually discriminate between users and non-users of roads. Arrangements to diversify road user charges, with the possibility of introducing direct charges for road use will need to be explored. Zambia National Roads Board has solicited additional funds from international transit tolls, weigh bridge fines, motor vehicle license fees, etc. However, so far, legislative reform leading to broadening of the RF resource base has not been effective.

The evidence on the stability of the RF base offers mixed results. The Road Fund Boards have not always been successful in protecting the flow of funds and stabilizing resources for road maintenance. In Zambia and Benin, the fuel levy is channeled into the RF account from the Petroleum Commission through the Ministry of Finance, creating delays. In Zambia, RFs continue to be impacted by “budget” allocations, with long elapsed time and large arrears. However, the Zambia Roads Board is working to reduce delays and streamline procedures beginning FY01. In Ghana and Ethiopia, the fuel levy is credited directly from Petroleum Enterprise into the RF account, regularly on a monthly basis, creating a stable basis for the RF. It may be too simplistic to assume that RFs will always be inviolate. It is essential to design RFs to maximize the probability that they will not be abused, rather than simply legislating a RF into existence. Raiding of the RF may still be possible because of legal or bureaucratic holes in the system. MoFs usually find a way for using funds for national emergencies (which may even be justified) as well as for non-emergencies. The structural safeguards necessary to provide protection to the Road Funds require a strong political will. Full commercialization of the road sector would provide a strong barrier to such intervention. In addition, adequate user representation and transparent dissemination of the Board’s activities are required to establish a check-and-balance system to improve accountability in the day-to-day activities. It is important for the RFs to be supported by well established enforcement tools to recover money owed to the RFs.

One requirement of the second-generation RFs is to set up arrangements for independent monitoring of performance of the flow of funds and the quantity, quality and cost of the road works. The available evidence offers mixed results. In Zambia, the ability of the NRB to manage the RF is compromised by an absence of a framework for annual planning, programming and budgeting, though efforts are being made to develop an Annual Works Program based on the needs of the road agencies, as in the case of the IDA-financed SIP. The Zambia RF accounts are prepared on a quarterly basis and audited by an independent external auditor. Though preparation of audited accounts is a big step forward in improving accountability in the use of funds, the accounts are prepared without any explanation in the use of funds and leave a number of unanswered questions. In Ethiopia, special procedures have been introduced to monitor the performance of the National Roads Agency (Ethiopian Road Authority, ERA) based on preparation and approval of payment certificates and monthly progress reports. The weaker regional and urban authorities have a long way to go before any performance based systems can be established. Currently, they have to report on funds utilization. Ghana Roads Fund Board has established proper planning and programming of road works with well defined disbursement and accounting procedures, which have facilitated timely contracting arrangements. Arrangements to systematically carry out independent technical audit are still lacking in most countries, with the remarkable exception of Ghana.
Objective achievements

Setting up dedicated financing arrangements, even under second-generation principles, is a necessary but not sufficient condition to ensure a sustainable and stable basis for road maintenance—which ultimately translates to improved service delivery and operational efficiency. Clearly, in all the countries examined, establishment of the RFs has helped increase funding for road maintenance and enhanced transparency in the use of funds. However, the critical issue is to what extent the RFs have increased production efficiency and service improvements. In this analysis, performance of the RFs is evaluated in terms of four parameters: (i) quality of the road network; (ii) operational efficiency; (iii) allocative efficiency; and (iv) development of local construction industry.

Quality of the Road Network. The absence of detailed time-series data on road condition makes it difficult to empirically establish road improvements. However, a comparative evaluation based on available data indicates an increase in the length of “good” quality paved roads in the countries examined. Moreover, it is difficult to separate effects on road condition from maintenance and rehabilitation. In Zambia, the impact of reforms in the roads sector, in terms of improved quality of road network, is substantial, and there appears to be a sound strategic framework in place to reverse the deteriorating trend and address the neglect of past decades. In Ethiopia, the proportion of main roads in “good” condition has increased from 15 percent in 1996 to 25 percent in 1999. In Ghana, the proportion of “good” roads has increased from 21 percent in 1997 to 30 percent in 1999. However, the benefits of improved maintenance have been confined to the main and urban roads. The condition of the rural/feeder road network seems not to have improved. Even when funding is available, lack of capacity at sub-national level is a key constraint to poor maintenance of the rural road network.

Operational Efficiency. Improved contract management and disbursement arrangements have resulted in a reduction in road maintenance cost per kilometer by 10 percent to 20 percent in Zambia, Ethiopia, and Ghana. In Zambia, a community initiated cost sharing road improvement scheme has also been introduced. Well-managed contracts financed from the Road Fund have enabled timely payments to contractors, which is resulting in lower contract rates for road maintenance. The share of maintenance works contracted out has increased to almost 90 percent in Zambia and Ghana; although in Ethiopia road maintenance is still done using force account. ERA is seeking to improve its effectiveness by establishing commercial operations in maintenance districts and jointly implementing performance contract agreements with the RFA. Gradually, ERA also expects to introduce contracting for maintenance works. In any case, road maintenance expenditure in Ethiopia has more than doubled over the past five years.

While these are encouraging trends, and represent a significant departure from the past, road administrations still suffer from past ills of the civil service, and technical assistance and knowledge sharing is required over some time before effective arrangements can be put in place. Evaluation of maintenance works carried out in the past year in Zambia and Kenya reveal a number of shortcomings, mainly resulting from limited local capacity, technical constraints, and inability to manage contractual arrangements. In Kenya, road users seem to have received poor value for money. The funds have been allocated to roads with little economic priority and, in some cases, without compliance with the contractual agreements. Neglect of
the past has not only resulted in deterioration in roads quality but has also compromised local capacity to plan and carry out maintenance work. The absence of a fully functional maintenance management system makes it difficult to ensure that the maintenance budget is correctly allocated; the budget is often well below what would be economically rational. In addition, not all the money collected in the RF is being disbursed. In Ethiopia, less than 40 percent of the Road Fund has been disbursed over the past two years (mainly because of the lack of capacity especially in regional and urban agencies), and the remaining amount is invested in treasury bills. In Benin, incapacity to disburse the available RF has resulted in surplus over the past three years, which can be quite dangerous when other government departments are strapped for resources. Experience with other RFs has shown that large unspent cash balances usually leads to “raids” on the RF.

Resource allocation. In terms of allocative efficiency, the second generation RFs are much better set up, with their commercial orientation and strong constituency, as compared to the classic first-generation Road Funds. However, resource allocations for road maintenance continue to be dictated by “standard formula” rather than a planned review of programs put forward by various road administrations. This is most apparent in Zambia, Kenya, Ethiopia, and Benin. The disbursements are biased towards urban and main roads to the detriment of the rural/feeder road network. In Kenya, substantial contractual commitments have been made on the non-core road network while facing increasing demands on the core priority network. In addition, even the planned expenditures are not fully disbursed, especially for the rural road network, primarily because of a lack of capacity at the regional level. In Ethiopia, for example, only about 20 percent of the planned allocations for the rural road network were disbursed during FY99 because of the lack of absorptive capacity.

The RFs in Zambia and Kenya have not been mostly immune to the kinds of political interference that has impacted the classical first-generation Road Funds. Resources have been diverted to rehabilitate roads in the capital city over the past two years to the exclusion of road maintenance needs of the country’s network. This is not surprising: after years of resource constraints, executing agencies have—for the first time since establishment of the RF—resources at their disposal. The first beneficiaries have been residents of large capital cities, in view of their high political profile, and because most ardent supporters of the RF are urban residents, who also account for a dominant share of car ownership. However, to ensure sustainability of the RF and address the broader issues related to the quality of the road network, it is critical that, in the coming years, attention is given not only to high volume urban roads but also to rural/feeder road networks, to ensure equitable distribution of resources.

Capacity of local construction industry. The RF has helped to insulate road maintenance contracting and payment issues from financial uncertainties. One of the impacts of the RF has been on improvements in work programming and a move towards contracting and the resurgence of the domestic contracting industry, which has brought efficiency gains in resource use. In Zambia and Ghana, for example, force account is used for only less than 10 percent of the maintenance works in recent years. In Zambia, the number of local contractors has increased from four in 1994 to 450 in 1999, and local consultancy from 6 to 20 over this period. In Benin, the share of maintenance works carried out using force account has declined from 47 percent in 1997 to 40 percent in 1998. There is, however, considerable scope for further improving the
capacity of local construction industry in all of the countries examined. In fact, one of the key constraints to efficient use of RF resources is the lack of local capacity in road maintenance.

Key lessons emerging from this analysis.

- The common thread across all reviewed countries is that incremental user charges are being collected for road maintenance, managed by autonomous Roads Boards, with a clear separation between financing and executing functions as well as transparency and accountability in the use of funds. Funding for maintenance shows consistent increases, but the amounts are still short of total requirements.
- Roads Fund Boards arrangements represent progress on management, accountability, transparency and increased awareness on the need to address long neglected road maintenance needs and this is expected to result in efficiency gains in the long run.
- Setting up dedicated financing arrangements is a necessary but not sufficient condition to ensure that a sustainable and stable basis of road maintenance is established, which translates to improved service delivery. It is equally necessary to ensure that: (i) political commitment exists to safeguard the use of money; (ii) there exists a check-and-balance governance system to restrict government’s discretionary powers and arbitrary use of funds; (iii) aggregate resources are sufficient to cover all of the road network; (iv) road user fees are based on the maintenance “needs” of the road network; (v) RF Boards are capable of defining and enforcing contractual agreements; (vi) RF Boards include diverse interest groups to ensure equitable distribution of resources; (vii) clear allocation of responsibility between RF Boards and government road departments; and (viii) road administrations have the capacity to carry out road maintenance works efficiently and effectively.
- While maintenance of main and urban road networks has improved, the quality of feeder/rural road networks continues to deteriorate. This is partly a reflection of an inadequate planning and programming framework and partly a lack of capacity in the regional administrations. Years of neglect has limited the capacity of the road agencies to carry out maintenance works, a deficiency most apparent in rural and feeder road agencies.
- Gains in productivity efficiency have been registered only when the RFs were instrumental in fostering the outsourcing of works and services with private suppliers.
- Revenue-raising through Road Funds should match absorptive capacity rather than identified maintenance expenditure needs.
- Ability of the Road Fund Boards to determine user fees/expenditures, even when supported by some legal basis, in practice may not always be exercised. The best that can be hoped for is that: (i) Boards are capable of working out and supporting sustainable financing strategy based on road user charges; and (ii) Boards are successful in convincing governments (still the ultimate owner and decision maker) that it is in the national interest to raise charges to meet road maintenance needs.
- There is no clear evidence yet to support the notion of an optimum size (number) and mix (public vs. private) in the composition of the Road Funds Board. These decisions will be influenced by the country’s size, length of the road network, characteristics of the work, role of the civil society, and governing arrangements.
Technical auditing functions should involve continuous auditing of projects-in-progress for improving performance. This would eliminate projects being technically audited after the event rather than during the event. There is a need to: (i) establish a credible and independent external auditing process to monitor the quantity and quality of work and ensure transparency and accountability in the use of road maintenance funds, most of which are now derived directly from the road-users; (ii) set up appropriate responsibilities for reporting and follow-up of the audit recommendations to ensure its effectiveness; (iii) develop an updated and rationalized inventory and condition survey of the classified road network.

1 This paper has benefited from comments from a number of colleagues in the Bank. I am especially indebted to Pedro Geraldes who generously shared his insights throughout the various drafts and who was instrumental in initiating this empirical study. Special thanks are to: Yusupha Crookes, Kenneth Gwilliam, Stephen Brushett, Thor Wetteland, Snorri Halgrimsson, Simon Thomas, George Banjo and John Riverson. The preparation of the Benin case study was assisted by Sandrine Azemard.

2 Studies conducted during the early 80s on road deterioration focused attention on maintenance as the key to improving the road network.

3 The paper is aimed at three groups of audience: first, macro-economists in the Fund and the Bank to provide evidence on operational experience with setting up of RFs in terms of accountability, budget management and performance; second, Bank operational Team Leaders to examine how well the RFs have performed in the past and to determine longer term utility and generalizability of such arrangements; and third, respective client countries to generate a greater awareness and commitment to develop a strategic basis to address financial, institutional and operational aspects of strengthening delivery in the roads sector based on past experiences.

4 This arrangement is in contrast to some other countries (Malawi, Mozambique) where Road Fund Administration is not fully separate from road agency or Uganda, where Road Fund or Board does not exist.

5 Available evidence suggests that USc 10 per liter may be a rough benchmark to realize full maintenance of the road network in Zambia.

6 The estimates of road maintenance needs are based on the assumption that the road network is maintainable. However, neglect over many years has resulted in much of the network deteriorating to a point where rehabilitation is necessary before maintenance is possible. This requires that estimates of maintenance needs be prepared in a dynamic context with a gradual improvement in road conditions from poor to fair to good and monitoring the roads quality over a period of time.
1. Introduction

The rehabilitation of the road network, and the build up of institutional and financial capacity for their continued maintenance, is the most critical challenge confronting transport planners and policy-makers in Africa. Since 1988 the Road Maintenance Initiative (RMI) has undertaken to develop awareness about the importance of road maintenance and has supported country-level programs designed to identify the causes of the problem and initiate actions needed to set the management and financing of roads on a sustainable long-term basis. One of the key building blocks of the RMI approach is the establishment of a reliable source of finance through the creation of autonomous Road Boards administering Road Funds into which designated road user charges are paid.

In the past, critics have opposed the creation of RFs because they were believed to represent a form of earmarking, which is seen as distorting the allocation of resources, hampering budgetary control, imparting inflexibility to the revenue structure, and infringing on requirements of efficient cash and financial management (Deran, 1965). Implicit in the argument against setting up dedicated revenue sources is the premise that “government budget makers are fully informed of the benefits and costs of alternative public actions and that they will choose those actions that produce the greatest net advantage” (Oakland, 1989). In the context of a deteriorating macroeconomic environment, when the priority is to cut government deficit and restore fiscal sustainability, earmarking arbitrarily limits the flexibility of budget managers. Following this logic, it may be argued that any constraints on their choices such as may be produced by earmarking rules are not desirable (World Bank, 1986). Potter (1997) has argued that poor governance or government’s lack of self discipline may make it impossible to maintain roads even with the existence of a statutory Road Fund.

The public choice perspective on earmarking directly challenges the central tenet of the collective rationality framework underlying the public administration approach. From a purely microeconomic efficiency argument, RFs are seen as offering the advantages of decentralization—assuring a better fit between what is demanded by the public and what is supplied. According to Gwilliam and Shalizi (1999), RFs can “compensate for political or administrative myopia and ensure the allocation of resources to a low-profile economic activity with particularly high rates of return.” They have also suggested that “the issue is not one to be resolved on general principles, but on a case-by-case basis.” The justification for RFs, in their view is that, “given the possibility of charging directly for road infrastructure use and of devising a system of fund governance by users, this is a field where more commercial forms of organization might improve the allocation of resources.” Potter (1997) views RFs “as a means of delivering efficient road maintenance services on the way to an approach where road maintenance is wholly commercialized and outside the public sector.”

From an operational perspective, the most appropriate approach may be to examine how governments in fact choose to spend their money. Evidence suggests that government’s have a
strong and persistent tendency to underspend on some things, including roads and, in particular, on road maintenance. Within the current budget envelope available to most countries, the Ministry of Finance is rarely able to fully finance maintenance from the general budget. Efforts to increase road user charges by taxation on road users are often not politically acceptable, precisely because it is not treated as a specific charge for road use, and is not directly allocated to road expenditure. In addition, roads are typically poorly managed and underfinanced because of weak institutional frameworks. In the absence of regular maintenance, it has been shown that roads deteriorate to a point where the cost of their restoring is three to five times that associated with a policy of timely and effective maintenance (Harral and Faiz, 1988). The cost of poor road management and inadequate road financing are borne primarily by road users through increased VOC. The World Bank’s Operations Evaluations Department (OED) database supports the assessment that road maintenance is a highly productive expenditure (Heggie and Vickers 1998, Heggie 1995).

However, experience with the “classic” Road Funds set up in the 70s and 80s has not been entirely satisfactory. They have often fallen short of their goals, especially in African countries, as manifested in poor governance, poor collection and disbursement, and inadequate contribution to the Fund for yearly maintenance of the country’s road network. The Funds were just a line item in the national budget, and they never reached the level and sustainability necessary to have a working RF. In addition, these “first-generation” Road Funds were only an instrument for plain earmarking of government revenue to finance a service administered and largely delivered by the government departments. In response to dissatisfaction with the “first generation” RFs, a new generation of RFs—“second generation” RFs—have emerged in Africa during the 1990s, with the objective that RFs should be run like “businesses and not administered like social services” (Heggie, 1995). These second-generation RFs are characterized by being funded by “user charges” and identified separately from general taxation. Successful establishment of RFs requires complementary reforms in four important areas or “building blocks” as suggested by Heggie (95): (i) independent management by establishing professional management agencies run according to sound business practices to obtain value for money; (ii) ownership by involving road users and civil society stakeholders in the management of roads to encourage better management, demand for efficiency, and control of monopoly power; (iii) financing by stabilizing road financing through securing an adequate and stable flow of funds; and (iv) responsibility by securing clear definition, separation, and assignment of responsibilities with matching authority and performance targets. As these four reforms are complementary, all of them have to be implemented through a comprehensive reform program if the objective of effective and sustainable road management is to be obtained. Without all four, proper commercialization may not be attained, and only part of the ultimate objective of “good” road services may be achieved.

This paper reviews experience with operation of the selected second generation RFs in Zambia, Ethiopia, Kenya, Ghana and Benin, which have been set up to provide a stable flow of funds to support operation and maintenance of roads. While all countries have not moved at the same pace, they have progressed to various stages to introduce institutional and financial reforms, in the spirit of the RMI, and represent different stages of development. Due to the short period for which these funds have been in existence (two to five years), one has to exer-
cise caution in interpreting the results coming out of their implementation. The available data and audit reports give some indication of their performance, though a much fuller and reliable data base will have to be developed to monitor the performance of the RFs over time. A number of observations are made which will have to be revalidated as more information becomes available and the RFs become more mature and institutionalized.

The real test of the restructured RFs is how well they pass the test of independent management, user ownership, sustainability in flow of funds, efficient resource allocation, and introduction of commercial principles in practice, and what has been their impact on the quality of road network. Following this introduction, each of the aspects is discussed for five countries in Section 2. The country specific analysis is divided into three sub-sections. First, the institutional and management structure of the Road Funds are discussed. Evidence is sought to answer the following questions: (i) Does the structure of the Roads Board introduce professional management run according to sound business practices? (ii) Does the Roads Board have adequate representation of road users and civil society stakeholders to encourage better management, demand for efficiency and control of monopoly power? and (iii) Does the Board have a firm legislative basis with clear terms of reference?

The second sub-section discusses the processes involved in the RF management. Evidence is sought to answer the following questions; (i) adequacy of road financing: Has the RF succeeded in stabilizing road financing by securing an adequate and stable flow of funds—as measured by: change in road funding in real terms or the percentage share of estimated maintenance requirements funded; share of contract works outsourced? (ii) stability of road financing: Have the financial reforms guaranteed security of assigned revenue streams and designated allocation of expenditures? (iii) performance monitoring: What are the arrangements to monitor the performance for flow of funds; and the quantity, quality and cost of road works?

The third sub-section discusses the objective achievements realized since establishment of the Road Fund. Evidence is sought to answer the following questions: (i) What has been the im-
pact of RF on the quality of road maintenance—as measured by the change in the share of roads in good condition over the period? (ii) Has the RF contributed to improved operational efficiency—through strengthening the balance between resource mobilization, planning, implementation, and monitoring? Have they been able to introduce better incentives for managing resources, as measured by the quality of supervisory capacity, auditing requirements and development of standards or norms in the sector? (iii) Have the RFs improved the capacity of executing agencies and local contracting industry to perform more efficiently by guaranteeing availability of secure and stable funding sources? (iv) Has the RF improved resource allocation—for example, by ensuring funding for economically high return but politically low profile activities? Are the funds allocated appropriately within the sector and across regions? What is the maintenance expenditure share of the total road budget?

1 From the road users’ perspective, an increase in the level of resources channeled into road maintenance has strong appeal as they reap private benefits from lower transport costs, i.e., a hypothetical 10 percent increase in fuel price (from an increase in fuel levy) would increase operating cost of cars by 1.5 percent and of light commercial vehicles by 2.2 percent. However, as the increment is dedicated to road maintenance, vehicle operating costs would reduce by 5.4 percent and 9 percent for cars and light commercial vehicles, respectively (3:1 benefit cost ratio).
2 Country Specific Experiences

BENIN

Institutional/Management Structure

The RF in Benin was established by a decree in August 1996 as a separate “government entity for road maintenance funding.” The RF is legally and financially autonomous and has a separate account. All resources are transferred to a commercial account (opened in a commercial bank), and a convention was signed between the government and the RF administration laying down the agreed framework. The Road Fund Board (Management Committee) is composed of nine members, of which four are from central ministries, three represent user groups, and two represent transport operators. The Board president and vice-president are appointed from among the committee members for two years; the current president is from the public sector. The RF Board is accountable to the Supreme Management Administration (Review Council, “Conseil de Revue”) consisting of one representative from the Ministry of Planning and Economics Restructuring Ministry and two donor representatives.¹

Road Fund Board Composition

Represented Ministries
Rural Development Ministry
Planning and Economics Restructuring Ministry
Environment, Housing, and Urbanism Ministry
Civil Service, Labor and Administrative Reform Ministry

Users’ Groups
Agriculture Chamber
Commercial Chamber
Transporters’ organization

Operators
Drivers’ organization

The RF Board is supported by a Secretariat, consisting of three professional staff—Director (contracted by the Board for a three years renewable period), Accountant and Management Controller (selected and contracted by the Director also for a renewable three-year period). The current Director came from the Ministry of Finance and his successor, to be appointed at the end of 2000, is expected to be a private sector representative. The primary function of the
Board is to: (i) implement RF global policy as laid down by the Review Council; (ii) receive financial evaluation reports; (iii) propose and justify changes to RF levels; and (iv) manage controls, audits and inspections. The Director is responsible for executing decisions made by the Review Council and the Management Committee on a day-to-day basis and manage RF disbursements.

The RF Board has been successful in protecting the flow of funds and stabilizing resources for road maintenance. The Management Committee has played an important role in safeguarding road users’ interests. In February 2000, the RF Board Director was suspended by the Management Committee for poor performance. The RF administrative expenses have decreased from about 3 percent in 1997 to 2 percent in 1999. However, the RF Secretariat, with three professionals, is not adequate to plan and monitor the use of funds. In addition to channeling resources to road agencies, the RF must have the capacity to prepare annual programs, coordinate activities of different agencies and monitor the use of resources. One of the key constraints facing the roads sector relates to inadequate capacity of the road agencies and of the local construction industry. Unless sufficient attention is given to strengthening this capacity, service performance will continue to be constrained.

Process

A. Adequacy of Road Financing

The sources of the RF are:

• Allocated resources:
  - Vehicle use tax
  - Gasoline tax
  - Road tax
  - Value Added Tax (customs)
  - Agricultural and mines products tax
• Own resources:
  - Concessions payments (tolls and weight control)
  - Investment returns
• Subventions:
  - From the State
  - From donors
• External contributions
• Grants
• Local loans

The fuel levy is set at 10 percent of the wholesale price, of which 92 percent is remitted to the RF for petrol and 100 percent for diesel. In April 2000, the share of fuel levy received in the RF for petrol was 17.7FCFA per liter (USc2.5) and for diesel 16.4FCFA (USc2.3). The gasoline price was 350FCFA/liter (equivalent to USc50. Two tolls were installed on rehabilitated roads in 1998 and two more are planned for 2000.
Total actual Road Fund revenues have remained stable, in real terms, over the past three years. The large variation between planned and actual collections (almost 30 percent) is the outcome of the increase in collections from the Value Added Tax and fuel tax.

### B. Stability of Road Financing

The allocated taxes are channeled to the Road Fund account through the Ministry of Finance (MoF) and are based on their forecasted use during the year. Consistency in under-estimation of fuel tax and VAT during 1997, 1998, and 1999 (Table 1) reflects weaknesses in the planning procedures. However, the increase in actual collection of allocated taxes reflects the effectiveness of the RF Board in generating resources, even though there has been, on average, a four month delay in the flow of funds from the treasury to the Road Fund account. The estimated allocated taxes for 2000 have taken account of their past under-estimation and are more in line with the actual use. Overdue allocated taxes result from delays between the collection dates and the accounting period. They are expected to disappear beginning 2000 as the system for collection improves. The RF negotiates the annual subvention level with the MoF on the basis of the RF estimated budget. This system optimizes resource allocation as long as public finance provides for constant resources flows (which is the case in Benin up to now). The “own resources” (tolls and weight control) represent some 10 percent of the total RF collections and are deposited directly by the toll concessionaire into the RF account.

<table>
<thead>
<tr>
<th>Table 1: Planned and Actual Receipts of the RF (percent share)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td><strong>Allocated Taxes</strong></td>
</tr>
<tr>
<td>62.7%</td>
</tr>
<tr>
<td>12.3%</td>
</tr>
<tr>
<td>21.0%</td>
</tr>
<tr>
<td>1.1%</td>
</tr>
<tr>
<td>28.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vehicle utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdue</td>
</tr>
<tr>
<td><strong>Own resources</strong></td>
</tr>
<tr>
<td>13.1%</td>
</tr>
<tr>
<td>12.6%</td>
</tr>
<tr>
<td>0.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tolls</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total (FCFA million)</strong></td>
</tr>
<tr>
<td>2656</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(US$ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
</tr>
</tbody>
</table>
C. Performance Monitoring

The RF Board has been successful in protecting the flow of funds and stabilizing resources for road maintenance. The funds have increased over the past three years and are able to provide more than 80 percent of the assessed maintenance needs of the road network. Though there has been a delay of up to four months in the flow of funds, especially for fuel tax and VAT in 1998 and 1999, the Board has introduced streamlined procedures and an annual program framework, which is expected to minimize delays and overdues from the Ministry of Finance. The critical issue is not the adequacy of the road fund but the absorptive capacity of the road executing agencies in carrying out the maintenance works. Delays in annual program approval and poor quality control has inhibited performance quality in the past. The RF is in the process of streamlining procedures and introducing performance based contracts, which are expected to improve service delivery from 2000 onwards.

Objective achievements
A. Quality of the Road Network

The total length of the main road network in Benin is 3,426 km (60 percent is unpaved road and the remaining 40 percent is paved road). Between 1998 and 1999, length of the road network in "good" condition for the unpaved roads has increased from 237 km to 501 km (from 11 percent to 25 percent) and for paved roads increased from 413 km to 462 km (from 29 percent to 33 percent). In addition, length of the rural road network is about 15,000 kilometer, of which 5,000 kilometer is built roads. Insufficient information is available on the quality of the rural road network.

Table 2: Unpaved Road Network

<table>
<thead>
<tr>
<th>Road network condition</th>
<th>1998 (Km)</th>
<th>1999 (Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>237</td>
<td>501</td>
</tr>
<tr>
<td>Fair</td>
<td>827</td>
<td>815</td>
</tr>
<tr>
<td>Poor</td>
<td>149</td>
<td>815</td>
</tr>
<tr>
<td>Under works</td>
<td>451</td>
<td>561</td>
</tr>
<tr>
<td>To be rehab.</td>
<td>153</td>
<td>0</td>
</tr>
<tr>
<td>To be open</td>
<td>142</td>
<td>142</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2019</td>
<td>2019</td>
</tr>
</tbody>
</table>

Paved Road network:

<table>
<thead>
<tr>
<th>Road network condition</th>
<th>1998 (Km)</th>
<th>1999 (Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>413</td>
<td>462</td>
</tr>
<tr>
<td>Fair</td>
<td>724</td>
<td>822</td>
</tr>
<tr>
<td>Bad</td>
<td>135</td>
<td>79</td>
</tr>
<tr>
<td>Under works</td>
<td>117</td>
<td>24</td>
</tr>
<tr>
<td>Project</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1407</td>
<td>1407</td>
</tr>
</tbody>
</table>
B. OPERATIONAL EFFICIENCY

The RF has provided a secure and stable flow of funds to the central road agency (DROA). However, over the past three years, disbursements fall short of actual collections—late annual program approval, limited local capacity (technical and human resources), poor control quality of works execution, and a loose application of contracts terms has led to delays and low disbursement rates (see Table 3). The actual disbursements were only 55 percent of the planned expenditure in 1998 (40 percent of actual collections), though the performance improved in 1999, with almost 95 percent of the planned resources disbursed (about 85 percent of the actual collections).

Evaluation of RF activities during 1998 reveal the following reasons for poor disbursements: (i) delays in planning and preparation of bid documents; (ii) long procurement procedures; (iii) lack of rigor in contract management; and (iv) poor capacity of local construction industry. Following this review, an action plan was prepared by the Road Fund Board to improve planning and programming of maintenance expenditure, including: (i) set-up a review process for road maintenance; (ii) package procurement lots to encourage greater involvement of experienced enterprises; (iii) review DROA's procurement procedure manual; (iv) apply contract terms transparently and consistently; (v) reinforce control and works supervision; and (vi) set up an internal control system in DROA. The procedures are to be implemented in 2000.

Table 3: RF Disbursements

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Road Maintenance/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehabilitation – Works</td>
<td>2604</td>
<td>2399</td>
<td>3012</td>
<td>1488</td>
<td>3421</td>
<td>3300</td>
<td>4092</td>
</tr>
<tr>
<td>DROA (support)</td>
<td>64</td>
<td>58.1</td>
<td>200</td>
<td>184.5</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>DROA: premium</td>
<td></td>
<td></td>
<td>57.5</td>
<td>57.5</td>
<td></td>
<td></td>
<td>66</td>
</tr>
<tr>
<td>RF operating costs</td>
<td>122</td>
<td>74.7</td>
<td>54</td>
<td>56</td>
<td>97.5</td>
<td>97.5</td>
<td>152.5</td>
</tr>
<tr>
<td>Counterpart and others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Investments, etc.)</td>
<td>66</td>
<td>32.5</td>
<td>24.5</td>
<td>45.5</td>
<td>161.5</td>
<td>150</td>
<td>145.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2856</td>
<td>2564</td>
<td>3348</td>
<td>1832</td>
<td>3880</td>
<td>3747</td>
<td>4656</td>
</tr>
<tr>
<td>TOTAL (US$ million)</td>
<td>5.0</td>
<td>4.5</td>
<td>5.6</td>
<td>3.1</td>
<td>6.0</td>
<td>5.8</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Setting up a dedicated Road Fund has been easier than strengthening the capacity of regional road agencies and local construction industry. Incapacity to disburse the available RF budget has resulted in surplus over the past three years, which is quite dangerous when other government departments are short of fiscal revenues. Experience with other Road Funds has shown that large unspent cash balances usually leads to “raids” on the RF.
C. PERFORMANCE OF ROAD AGENCIES AND LOCAL CONSTRUCTION INDUSTRY

The effectiveness of the Road Fund management critically depends on efficiency of the road executing agencies. DROA is the central roads department, under the Ministry of Transport and Public Works, with the responsibility to plan and execute road works for main, urban and regional (rural) roads. DROA is supported by six regional districts. DROA has not been effective in carrying out the road works, resulting in implementation delays and inefficiency in funds disbursements. To improve the management capacity and institutional arrangement, the government financed a study to restructure DROA, with an emphasis on decentralization of activities to regional agencies. However, an evaluation of performance during the past three years suggests that DROA needs to be further strengthened to help modernize its activities, improve accountability, and put in place performance-based contract management. The RF is financing part of the expenditure to support DROA reorganization. Beginning 2000, new procedures are being put in place, with the payment for road maintenance directly linked to effective execution of works.

Efforts to manage works execution effectively are being achieved (independent controller hired), and a program to strengthen local capacity was launched in 1998. As a result, the share of maintenance works done using force account has declined from 47 percent in 1997 to 40 percent in 1998 and is expected to drop further to 37 percent in 2000, with a proportionate increase in works carried out by local contractors. However, this program does not seem to have had significant impact on SMEs’ works quality. Local SMEs lack adequate experience and as part of the RF’s 2000 program, efforts will be made to better involve SMEs in works execution—side road works will be entirely done by local SMEs, and only 37 percent of mechanized works will be executed as force account (lots will enable local SMEs to participate). The RF in collaboration with the Public Works Ministry and DROA are still looking for new ways to help Benin’s small enterprises. To avoid further delays in works implementation, and to enable the RF/DROA to complete road maintenance annual programs, a supporting cell for SMEs has been created, to enhance capacity of local SMEs.

Table 4: Force account vs. local contractors

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Force account</td>
<td>47%</td>
<td>40%</td>
<td>37%</td>
</tr>
<tr>
<td>Local SME</td>
<td>53%</td>
<td>60%</td>
<td>63%</td>
</tr>
</tbody>
</table>
ETHIOPIA

Institutional/management structure

The Ethiopia Road Fund Administration (RFA) was established by proclamation as an autonomous body on March 1997 with the goal of financing road maintenance work of road agencies. The strategic basis of the Road Fund is provided in the government’s Road Sector Development Program (RSDP). The primary functions of the RFA include: administer the fund; issue directives to define collection and disbursement procedures; review annual road maintenance programs of the road agencies and offer advice on coordinating design of the programs; submit annual proposals to the government of programs to be financed by the fund and allocate the funds; review management reports of the road agencies; initiate financial and technical audits and road safety related activities; make recommendations to the government for additional revenue sources and level of tariff required to finance road maintenance programs; and advise government on policy matters.

The Road Fund is managed by a Board consisting of fifteen members—the chairperson and four members are federal government representatives, six are regional and municipality representatives and four are from the private sector. The Board members are selected by appointment for a fixed term of two years. They hold regular quarterly meetings and are governed by the Board’s directive on procedures and code of conduct. The current chairman is the Minister of Works and Urban Development. The private sector is represented by a freight transport owners’ representative, liquid cargo transport owners’ representative, and passenger transport owners’ representative.

The office of the Road Fund Administration (Secretariat) opened in June 1998, and is responsible for day-to-day management of activities with an approved maximum staff of 27 (including support staff). The administrative and operating budget for the Secretariat is allocated from the Ministry of Finance and is less than one percent of the road fund collection during the current fiscal year. The Secretariat, headed by a General Manager, reports to the Board and is divided into three departments—administrative and finance; plan, program and budget; and audit and technical inspection.

Performance

Evaluation of the performance of RFA should be viewed within a sea of change of reform policies introduced in the roads sector in the last three years. The analysis suggests that it has been easier to set up dedicated financing arrangements than to introduce extensive institutional and managerial reforms. Faced with a new institutional structure and delivery mechanisms, the RFA is continually in the process of defining its role and building capacity to carry out the mandated functions. The task is made difficult by the specific circumstances faced by the country and absence of a guiding framework to assist the RFA in the performance of its functions.

A brief statement on past practices in the operation of the roads sector is relevant to fully appreciate the magnitude of changes introduced and develop an evaluation context. For over five decades, ERA has been responsible for planning, programming, regulating and budgeting.
for the entire road network in the country, in addition to being directly responsible for the federal road network (though under different names but housed in the same building). The governance system in the country is supported by a strong bureaucracy. ERA, under a highly centralized management, has played the pivotal role of shaping the roads sector in the past. Effectively, ERA has been responsible for functions typically performed by the Ministry of Transport for roads in most other countries. Funding relied on treasury allocations, and works were carried out using force account, without any accountability or incentive systems. Concentration of different functions in the same body—planning, programming, financing, execution and evaluation—created overlapping responsibilities. Effective service delivery was compromised less by insufficient resources but more by inability to use available resources more efficiently.6

Under the road sector reforms initiated, procurement and financing functions have been separated from service provision, which has provided an institutional mechanism to introduce accountability in the delivery system. However, in practice, roles and responsibilities of ERA, specifically related to planning and programming, conflict with those of RFA. As per the Gazette Notification, ERA is responsible for initiating policies and laws related to the roads sector, classifying and designating the national road network and preparing short- and long-term plans and programs and implementation, including coordination of SSATP. The functions of the road fund have, so far, been limited to providing financing for road maintenance works. Responsibility for development of integrated and coordinated designing of the programs along with evaluation of quality of works rests with ERA. The most apparent outcome of this arrangement has been a neglect of feeder road network and weakening capacity of the Regional Road Departments.

The RF Secretariat is inadequately staffed (with only nine of the twenty-seven approved positions filled) and the audit and technical inspection department is not yet in place. The Board is represented by only six of the ten Regions. The dominance of the public sector in the Board may result in inadequate user representation. However, in the past two years, the Board has functioned in the broad national interest. The activities of the Board are disseminated widely and openly, which acts as a safeguard against making biased and self-serving decisions. Though technical and financial audits are not yet in place, the Board has introduced performance-based disbursements, which has brought about some efficiency in resource use.

Process
A. Adequacy of road financing

Up to 1996, road construction and maintenance was financed from government budget, grants, and loans. The budget was prepared by ERA on the basis of the preceding year’s budgetary allocation and bore little relation to road conditions.

As part of the RSDP, the Road Fund was established in March 1997, with the objective of financing the road maintenance work of road agencies and providing a source of funds for road safety measures and programs. The Act identified the following sources of revenue for the RF: (i) government budget; (ii) fuel levy, (iii) vehicle license renewal fee, (iv) overloading
The revenue from the fuel levy was deposited to the road fund account beginning September 1996, although the Road Fund office formally opened in June 1998. The purpose was to ensure that a certain minimum balance was maintained in the RF account before it started disbursements to the road agencies. Up until December 1999, cumulative RF collection amounted to Birr 563 million (US$70 million). The principal sources of revenue to the RF account are the fuel levy, which is an incremental charge, and sales tax and municipality tax, which form part of the government contribution to road maintenance. In view of the considerable maintenance backlog and desire on part of the government to raise the fuel levy enough to address all maintenance needs on social considerations, a decision was made to include sales tax as part of the road fund. In fact, the dominant contribution to the road fund comes from the sales tax and municipality tax (almost 75 percent of total collections). The pump price of fuel is fixed by the Ministry of Trade and Industry, and prices are revised every three months. However, fuel levy has remained constant at Birr 0.095 per liter (USc 1.2) for petrol and 0.080 (USc1.0) for diesel over the past two years, although fuel price and other taxes have been rising over this period. Sales tax and municipality tax contribution to the road fund have increased from Birr 0.1686 per liter for petrol (Birr 0.13 per liter for diesel) in May, 1999 to Birr 0.2691 per liter for petrol (Birr 0.1862 for diesel) in February 2000. Therefore, effectively, even though the fuel levy has remained the same over the past two years, contributions to the RF have been increasing (partly in lieu of an increase in the fuel levy). Total contributions to the RF on account of fuel levy and taxes are Birr 0.3641 per liter for petrol (USc 4.4) and Birr 0.2662 for diesel (USc 3.2) in February 2000. Road Fund collections have increased from Birr150 million (US$19 million) in FY98 to Birr 200 million (US$25 million) in FY00 and a similar amount in FY00.

The RF revenues are enough to address the maintenance needs of the entire country’s road network, though the intensity and frequency of maintenance by the road agencies is often less than the planned “needs.” However, the key constraint to improved maintenance is not the inadequacy of funds but rather the lack of capacity on the part of road agencies, especially in the regional and urban areas. During FY99, of the total collections of Birr 200 million (US$25 million), only Birr 118 million was actually disbursed. The lack of capacity is most pronounced for regional road departments—only about 20 percent of the annual allocations were actually disbursed during the year (for ERA this proportion is about 66 percent and for municipalities about 50 percent).

**B. Stability of road financing**

Revenue from fuel levy, sales tax, and municipality tax is deposited directly by the Ethiopian Petroleum Enterprise (EPE) into the Road Fund account. It takes about three to four months for the money to be transferred from the EPE, which is the time required for documentation and clearance within petroleum companies and enterprise. But the money is transferred regularly on a monthly basis and sale amounts reported. As the Road Fund is part of the reform initiative recommended by the government’s Road Sector Development Program, there appears to be a strong commitment on the part of the government to ensure stability in the flow of funds. The stability permits preparation of annual works program and efficient allocation of resources.
Up until recently, disbursements were made each month to the road agencies regularly on a cash flow basis, independent of the work performed. Since early 2000, regular payments are made to the road agencies from the Road Fund based on their presentation of certified and verified payment certificates.

C. Performance monitoring

As part of the process to reform ERA, operational functions have been decentralized by empowering the districts to implement and manage their maintenance activities. In the past, monthly resource allocations to ERA were made from the government central budget on a cash flow basis, which was quite independent of the works carried out. There were no instruments in place to monitor the performance of works in relation to expenditures made. However, in early 2000, as part of reforming the road sector, a performance agreement system was implemented between the Road Fund Administration and ERA. Special procedures have been introduced to monitor ERA performance based on preparation of payment certificates, which are certified, verified and approved by designated officers of ERA before submission to the Road Fund Administration for payment (the performance based system would be extended to regional and urban agencies on a gradual basis after learning from the ERA experience). Each of the maintenance districts perform as contractors, preparing progress reports at the month’s end on the quality and quantity of work, which form the basis of preparing payment certificates. The payment certificates are based on agreed unit rates for each activity.

One of the functions of the RFA, specified in the Act, relates to the technical and financial audit of each of the road agencies for the works financed by the Road Fund. The RFA is in the process of preparing terms of reference, in consultation with EU and IDA, for engaging independent services for technical and financial audit. A separate RF account is maintained in each of the federal, regional, and municipal road agencies, which would facilitate auditing once the services of independent auditors are available.

Objective achievements

A. Quality of road network

The road network in Ethiopia consists of about 16,000 km of trunk and major roads (4,000 asphalt and 12,000 gravel), 12,000 km of regional roads, and 3,000 km of urban roads. In the absence of an up-dated, detailed road inventory and road maintenance management system, an evaluation of the changes in the quality of the road network can only be indicative of the direction of change, without attaching much importance to absolute numbers. Available estimates suggest that the share of “good” federal road network has increased from 15 percent in 1996 to 20 percent in 1998, reaching 25 percent in 1999, with a corresponding decline in the share of “poor” roads. No estimates are available for regional roads, though studies conducted as part of the RSDP suggest that the quality of the feeder road network is much worse, with almost 60 percent to 70 percent in “poor” condition.
The funds available to the Road Fund allow the entire road network in the country to be routinely maintained, though not with the same frequency and intensity as planned by the road agencies. This is a considerable improvement from the past when most of the road network suffered from a neglect of routine maintenance. Road operations have typically been centrally planned activities, undertaken by government departments and funded by treasury allocations, with a focus on capital expenditure with little consideration of future maintenance needs.

The table below shows expenditure on road maintenance over the past few years for the federal road network, maintained by ERA. The maintenance expenditure has more than doubled over the past five years, though its share of the total road expenditure has also declined, mainly because of the implementation of RSDP. Between FY98 and FY99, expenditures on the federal road network rehabilitation increased from Birr 153 million (US$19 million) to Birr 579 million (US$71 million) because of the commencement of Road Sector Development Program (RSDP), which encompasses considerable investments on construction and rehabilitation. Given the substantial backlog from the past, a large part of the network is “non-maintainable” and requires rehabilitation to return to a “normal” state, prior to application of routine maintenance. However, there is a need to coordinate any new investment in roads with the capacity for routine maintenance to maintain the economic life of the network and guard against possible deterioration in the quality of the network.

### Table 5: Road Condition (Federal Roads)

<table>
<thead>
<tr>
<th>Road Condition</th>
<th>1996</th>
<th>1998</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>15%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Fair</td>
<td>36%</td>
<td>42%</td>
<td>49%</td>
</tr>
<tr>
<td>Poor</td>
<td>49%</td>
<td>38%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Source: Data submitted by the ERA, Planning Department, May 2000

### Table 6: Federal Road Maintenance Expenditure (in Birr million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Routine maintenance</th>
<th>% of total road expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993/94</td>
<td>56.8</td>
<td>42.0</td>
</tr>
<tr>
<td>1995/96</td>
<td>97.6</td>
<td>36.0</td>
</tr>
<tr>
<td>1996/97</td>
<td>110.9</td>
<td>33.0</td>
</tr>
<tr>
<td>1997/98</td>
<td>117.9</td>
<td>30.0</td>
</tr>
<tr>
<td>1998/99</td>
<td>125.7</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Source: Office of the RFA, Third Quarter RF Financial Status Report, April 2000

In the absence of information on the rural/feeder road network system, it is not possible to comment on the impact of recent maintenance reforms. However, given that less than 20 percent of the allocated budget could be disbursed by the regional authorities, the quality of rural road network is not expected to have improved. Inadequate capacity is a key constraint to poor maintenance of the rural roads network. Setting up a dedicated road fund has been easier
than strengthening the capacity of regional road agencies and increasing the involvement of the private contracting industry. ERA, as part of its mandate, has started a program of support to the regional rural road authorities with assistance from its donor partners—GTZ has completed a regional rural road organization study and has identified the capacity needs of the largest regional road authorities.

B. Operational efficiency

The RFA is seeking to improve its effectiveness in a number of areas in FY01, mainly focusing on: (i) establishing efficient commercial/business operations; (ii) maintaining effective public information systems and transparency through independent technical and financial audits, dissemination through workshops and seminars; (iii) developing performance contract agreements between the RFA and the road agencies. Establishment of performance contract arrangements has resulted in improved accountability of road agencies and efficiency in resource use. No longer is the payment made on a cash flow basis but rather on submission of payment certificates, approved by a supervisor. The payment certificates are based on agreed unit rates for each activity. However, there remains considerable scope for further efficiency gains. The unit rates are based on an average of past works performed by the ERA, which contain all the inefficiencies of a force account organization. With a gradual move towards contracting maintenance works, further efficiencies are expected to be realized.

Another area where availability of a stable flow of funds has helped maintenance activity relates to emergency works. Prior to establishment of the RF, emergency works often remained unfunded. In contrast, during FY00, Birr 54 million (US$7 million) was approved as a supplementary budget to attend to emergency maintenance works.

C. Resource allocation

The estimates of routine maintenance expenditure for different classes of roads (federal, regional and urban) are based on estimated average annual routine maintenance costs for different road types (Birr 15,000 per km for gravel roads, Birr 20,000 per km for asphalt, and Birr 5,000 for feeder/rural roads). The estimated average maintenance cost is multiplied by the length of the road network to arrive at total maintenance requirements for each road agency. Based on the road length, these computations result in allocation of about 70 percent of the resources for federal roads, 20 percent for regional roads, and 10 percent for urban roads (urban road allocations are further divided into 50 percent for Addis municipality and the remaining amount for other municipalities). While this allocation procedure reflects the assessed maintenance needs of different road types, it results in considerable under-allocation to rural roads because the feeder road network has almost doubled since this procedure was first established.

The real constraint to maintenance is not inadequate resources but the lack of capacity of road agencies to execute works. During FY99, about 65 percent of the budgeted resources for federal roads were disbursed, and the corresponding proportion for urban roads was 55 percent. The capacity constraint has had an adverse effect on rural roads, where less than 20 percent of the allocated budget was disbursed—of the nine regions, six did not disburse any resources during FY99.
Table 7: Road fund allocation and disbursement summary FY99
(million Birr)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Allocation</th>
<th>Disbursement</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERA</td>
<td>151.0 (70%)</td>
<td>98.4 (84%)</td>
<td>0.65</td>
</tr>
<tr>
<td>Regional Rural Roads</td>
<td>41.0 (20%)</td>
<td>7.9 (7%)</td>
<td>0.19</td>
</tr>
<tr>
<td>Municipalities</td>
<td>20.0 (10%)</td>
<td>11.1 (9%)</td>
<td>0.55</td>
</tr>
<tr>
<td>Total (Birr million)</td>
<td>212.0</td>
<td>117.4</td>
<td>0.55</td>
</tr>
<tr>
<td>(US$ million)</td>
<td>(25.8)</td>
<td>(14.3)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Office of the RFA, Short Notes on RF Activities in Ethiopia, February, 2000

D. Capacity of local construction industry

At present, the domestic private construction industry is just emerging from the non-conducive policy environment of the past and has not yet developed enough to take up road maintenance activities, which continue to be performed by force account. This is one of the key reasons for inadequate maintenance of the feeder road network.

One of the recommendations of the RSDP is to reform ERA so that it operates along commercial lines, with a much greater role in contract management and planning rather than executing works by force account. ERA is beginning to involve the private sector on a pilot basis by selecting one asphalt and one gravel road for maintenance by contracting. RFA, in collaboration with ERA and other regional and urban road agencies, must develop a strategy to encourage contracting for all classes of roads, including identifying current constraints. This may involve setting up plant leasing companies and preparing appropriate procurement packages to encourage the private sector to participate. RFA should not fund plants and equipment for ERA, which would further create an unequal competitive environment for the private sector.

GHANA

Institutional/management structure

The Ghana Road Fund was established in 1985 with the goal of creating a secure source of funding for road maintenance. Until January 1997, the fund was managed by the Ministry of Finance as part of government revenue. As a result of difficulties arising from the management of the fund (primarily related to weak capacity, absence of user participation, and lack of public support for user charges), the government, under the Highway Sector Investment Program, restructured the fund so that it could operate «according to sound accounting principles,» involving road users in fund management, providing a comprehensive legal framework by an appropriate Act of Parliament and providing a professional Secretariat.

In August 1997, Parliament established the Road Fund Act 1997 to regulate the conduct of the RF. Under this law, the primary objective of the fund is “to finance routine, periodic maintenance and rehabilitation of public roads in the country.” Under the Act, a management board for the
fund, known as the Road Fund Management Board, was established to manage and administer the fund. A permanent RF Secretariat was put in place, effective from January 1997, as part of the RF Board organization. The thirteen-member Board established under the law has five members from the public sector and eight members from the private sector. The first full year of operation of the Ghana Road Fund was effectively 1998. All prescribed structures and staffing were in place. The fund took full control of all aspects of its operations including funds collection and disbursements to the three road agencies as approved by the RF Board.

Process

A. Adequacy of Road Financing

Until January 1997, the Road Fund was managed directly by the MoF as part of government revenue. Revenue received into the fund covered less than 35 percent of the total funding needs for road maintenance, and management was faced with the following problems: (i) lack of effective financial and technical auditing for fund disbursements; (ii) the fund did not have a suitable financial management system; and (iii) releases to the road agencies were irregular.

In 1997, the RF was restructured with an increase in revenues paid into the RF account through road user charges and by ensuring that preservation of the existing road assets was the first charge on the fund. The fund derived its revenue from: (i) fuel levy on petrol, kerosene, and diesel; (ii) road, bridge and ferry tolls; and (iii) vehicle inspection fees. The fuel levy is a fixed charge per liter on petrol, diesel, kerosene and fuel oil, payable by the oil distribution companies. The rates of fuel levy are fixed by the government (and approved by the Parliament) and communicated to the oil distribution companies by the Ministry of Fuel and Power. The Government of Ghana agreed to an initial increment in fuel levy from USc 1.6 to USc 4.0 in 1996, followed by a 1.0 cent annual increase till a level of USc 9.5 per liter is attained by 2002, at which level it is expected that the fund would cover 100 percent of the planned road maintenance expenditure. As planned, the fuel levy was increased in 1997 by the cedi equivalent of USc 1.0 to cedis 100.00 (USc 5.0 ) per liter and further by one more US cent in 1998 to increase the fuel levy to cedis 150.0 (USc 6.0 ). Road and bridge tolls were doubled in April 1997 and further increased in July 1998 by an average of 25 percent. A vehicle registration fee was introduced with effect from September 1998, as provided by the Road Fund Law, and made part of the Road Fund revenue. The road user fee was introduced in January 1999, to be collected separately from the vehicle examination fee. Revenues from the fuel levy constitute 90 percent of the total RF revenue in both 1998 and 1999.

The total accruals to the Road Fund have increased from US$14.6 million in 1995 to US$86.0 million in 1999 and are projected to increase to US$117 million in 2000—signifying almost an eight-fold increase over a five-year period.

B. Stability of Road Financing

The fuel levy, which accounts for about 94 percent of the fund’s total revenue is collected by the Customs, Excise and Preventive Services and paid into the main RF bank account at the Bank of Ghana (BoG). Against the estimated budget of cedi 179.0 billion (US$ 60 million), the
actual revenue for 1999 showed a favorable variance of cedi 9.3 billion. Proceeds from the fuel levy are credited monthly on a regular basis, which has helped reduce uncertainties in the budgetary process of the road agencies, allowing them to speed up contracting of works.

C. Performance monitoring

The RF Board is responsible for disbursement of funds to the road agencies as provided for by the Road Fund law. A disbursement system was agreed with the road agencies in January 1988 for both routine and periodic maintenance. This system provides for the release of funds to the agencies to pay for certificates approved for periodic maintenance during the month. In case of routine maintenance, a month’s equivalent of the agencies’ annual allocation is paid to agencies’ head offices for redistribution to the regional or district offices. In both cases, the agencies have to report back to the RF Board on performance before the next releases. This is in sharp contrast to pre-RF era, when resources were advanced to the road agencies from the Ministry of Finance on a cash flow basis, without any linkages to the actual work performed.

To ensure effectiveness of the fund, the following monitoring activities are being carried out beginning 1998:

- Internal monitoring involves visits by the Road Fund Secretariat Engineer to maintenance project sites and various revenue collection points to: (i) check the use of funds and the quality of works; (ii) inspect projects financed by the fund; (iii) ensure that staff of the collecting agencies were conforming to procedures. In addition, monthly project accounts were submitted to the Board, which reviewed each month’s operations and commented on key issues.
- External monitoring consisted of both external financial and technical audits on the financial and technical performance of the fund in 1998.

The procedure for disbursing funds was agreed with the agencies at the beginning of the year as follows:

Routine maintenance

- Agencies submit their budgets before the beginning of the year for approval by the RF Board.
- RF Board releases funds monthly to the agencies’ head office, which allocates the funds to their regional offices for payment for routine maintenance works.
- Agencies submit to the Secretariat of the RF a Payment Report, which gives details of the utilization of funds released to them. The statement must be received by the Secretariat before the next monthly allocation is released.

Periodic maintenance

- The agencies’ budget for periodic maintenance is submitted to the Board for approval before the beginning of the year. The budget shows details of all periodic maintenance by activity and by region.
• Certificates for completed works are sent to the agencies for approval by the awarding authorities—Metropolitan, Municipal and Regional Tender Boards.
• Agencies submit a schedule of approved certificates received for payment to the RF Secretariat after the end of each month, in the prescribed form and content.
• RF releases the total amount to each agency for payment to contractors according to the schedule.
• After payment, agencies submit a Payment Report to the Secretariat.

This procedure was applied throughout 1998, during which a total of cedi 180.0 billion (US$60 million) were disbursed to the road agencies, of which almost 95 percent was executed by the private sector. The ministry and road agencies regularly engage consultants for studies, preparation of engineering designs, and works supervision. Local contractors, through national competitive bidding, mainly execute routine and periodic maintenance. Major works are awarded through international competitive bidding.

Objective achievements
A. QUALITY OF THE ROAD NETWORK

As a result of the regular release of funds by the RF Board to the agencies, there has been considerable improvement in the performance of road contractors and the quality of the country’s road network. Overall maintenance activities were accelerated during the year, which positively affected the overall condition of Ghana’s road network. Overall, during 1998, almost 98 percent of routine maintenance and 75 percent of periodic maintenance targets were achieved. The share of «good» roads increased from 21 percent in 1997 to 30 percent in 1999, while the share of «poor» roads declined from 58 percent to 43 percent during that period. Maintenance has been put on an organized and sustainable level, for an accelerated take-off. Country-wide road condition surveys in 1995, 1997, 1998 and, 1999 reveal that the decline in road condition was halted and finally turned around in 1998.

Table 8: 1999 Road condition mix

<table>
<thead>
<tr>
<th>Agency</th>
<th>Length (km)</th>
<th>% by condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>GHA</td>
<td>13,433</td>
<td>32.7</td>
</tr>
<tr>
<td>DUR</td>
<td>2,909</td>
<td>35.0</td>
</tr>
<tr>
<td>DFR (*)</td>
<td>12,500</td>
<td>52.0</td>
</tr>
</tbody>
</table>

*Note: In addition, 11,500 km of non-maintainable DFR roads are assumed to be in “poor” condition.*
During 1998, the roads sub-sector received an approved budget of US$20 million for the annual routine maintenance program, of which US$11 million was for the Ghana Highway Authority (GHA), US$5 million was for the Department of Feeder Roads (DFR), and US$4 million was for the Department of Urban Roads (DUR). The routine maintenance program included extensive grass cutting on the roadsides, grading and spot improvements, and pothole patching. The plan was to cover 22,988 km of the road network, but the approved budget allocation was for 21,088 km, which is 92 percent of the program.

### Table 9: Ghana: Physical performance of road agencies, 1998

<table>
<thead>
<tr>
<th>Agency</th>
<th>Planned (km)</th>
<th>Actual (km)</th>
<th>percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td>8,716</td>
<td>8,629</td>
<td>99.0</td>
</tr>
<tr>
<td>Periodic</td>
<td>878</td>
<td>555</td>
<td>63.2</td>
</tr>
<tr>
<td>DFR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td>9,720</td>
<td>9,500</td>
<td>98.0</td>
</tr>
<tr>
<td>Periodic</td>
<td>2,997</td>
<td>2,264</td>
<td>75.5</td>
</tr>
<tr>
<td>DUR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td>1,745</td>
<td>1,728</td>
<td>99.0</td>
</tr>
<tr>
<td>Periodic</td>
<td>145</td>
<td>121</td>
<td>83.0</td>
</tr>
<tr>
<td>Overall</td>
<td>20,181</td>
<td>19,857</td>
<td>98.4</td>
</tr>
<tr>
<td>Routine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodic</td>
<td>4,020</td>
<td>2,940</td>
<td>73.0</td>
</tr>
</tbody>
</table>

**Source:** Road Sub-Sector Strategy and Investment Program, Ministry Of Roads and Transport, Republic of Ghana (1999 Review Report)

B. Operational efficiency

The RF has made a significant impact on the overall maintenance of the national network. The accruals are in accordance with the projections made, and releases from the fund to the road agencies for routine and periodic maintenance operations have been regular, thereby enhancing planning and programming of activities. The performance of contractors has also been enhanced because of the assurance of prompt payment after works completion. Ghana RF has been able to achieve operational efficiency primarily by establishing clear monitoring guidelines and disbursement procedures for routine and periodic maintenance works.

Proper planning and programming of road works with well defined disbursement and accounting arrangements have helped to address two problems faced by the sector: (i) delays in budget approval and release of budget allocation, which impacts planning and implementation of maintenance works; and (ii) lack of synchronization between fund availability and the dry season (September to May), when most maintenance works are done. The payment uncertainty and budget break came in the middle of work season (in January), making it difficult to commit funds for a season long contract, while 95 percent of the
maintenance jobs were done by private contractors for whom regular payments were critical for survival and efficiency. In summary, experience to date suggests that the Ghana RF has been successful in stabilizing road financing and improving efficiency with the following characteristics:

- RF has produced commitment of funds, which has helped reduce uncertainties in the budgetary process of GHA/DRF and has enabled them to plan contracting arrangements.
- RF has addressed the problem of the lack of synchronization between the budget year (January to December) and the construction season (September to May).
- The greater reliability of funding has enabled effective competitive bidding.
- Unit costs for maintenance have come down due to competitive bidding.

C. Resource Allocation

The RFs are disbursed to Ghana Highway Authority (GHA) for trunk roads, Department of Feeder Roads (DFR) for feeder roads, Department of Urban Roads (DUR) for urban roads, and National Road Safety Committee for road safety activities. The disbursements for 1998 were 52 percent to GHA, 20 percent to DFR, and 27 percent to DUR. The remaining 1 percent was disbursed to the Ministry of Roads and Transport for emergency road works and the RF Secretariat’s operating expenditure. The procedure for disbursing funds was agreed upon with the agencies at the beginning of the year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Accruals (US$ M)</th>
<th>Disbursement (US$ M)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MRT</td>
<td>GHA</td>
</tr>
<tr>
<td>1995</td>
<td>14.6</td>
<td>6.7</td>
</tr>
<tr>
<td>1996</td>
<td>36.2</td>
<td>14.8</td>
</tr>
<tr>
<td>1997</td>
<td>50.5</td>
<td>23.4</td>
</tr>
<tr>
<td>1998</td>
<td>79.8</td>
<td>39.0</td>
</tr>
<tr>
<td>1999 (*) (planned)</td>
<td>86.0</td>
<td>18.9</td>
</tr>
<tr>
<td>2000 (est)</td>
<td>116.7</td>
<td></td>
</tr>
</tbody>
</table>

Note: Disbursements for 1999 are from January to June.

Preparation of the 2000 budget for routine and periodic maintenance of the trunk roads managed by GHA was based on: (i) collecting data on the road network; (ii) inputting the surface distress and appurtenances data into the Pavement Management Management System (PMMS); (iii) inputting roughness measurement data from the Materials Division; and (iv) running the PMMS to estimate condition scores, priority rankings, and recommend maintenance options. About 2,800 km of trunk road network will be improved over the next six years.

Of the 24,000 km of feeder road network, about 45 percent, which is classified as “maintainable,” had been improved by the end of 1998, while the remaining 55 percent is described as “non-maintainable”. A program has been drawn up to increase the length of the
maintainable network to about 18,000 km (75 percent) by the year 2003. A pilot program has been initiated to examine institutional, managerial, and financial issues to be addressed to implement the decentralization program for the Department of Feeder Roads. Under the pilot program, six District Assemblies were provided with staff and logistics to enable them to plan, manage and execute road maintenance works in Districts. Following the pilot study, DFR decentralized to 10 districts in 1998. The decentralization efforts continued in 1999, with partial decentralization to twelve additional districts.

Since setting up of the RF, the Department of Urban Roads has improved the capacity and condition of most of the arterial roads in the three main cities. Most of the collector streets in the suburbs are in poor condition and account for about 80 percent of the urban road network. Resource allocations are being planned with the objective to develop access to depressed areas, improve traffic flow in the Accra CBD, and implement traffic management and improvement works.

D. Capacity of local construction industry

The RF has helped to insulate road maintenance contracting and payments from financing uncertainties. The key impact of RF has been an improvement in work programming and a move towards contracting and the resurgence of the domestic contracting industry, which has brought about efficiency in the use of resources.

KENYA

Institutional/management structure

The Road Sector Institutional Study was completed in May 1998, followed by a workshop attended by most of the Permanent Secretaries from the road sector ministries. The meeting emphasized three pillars of the government’s efforts to facilitate long-term sustainability of the road sector. One of the pillars related to setting up an appropriate institutional structure, and a Kenya Roads Board Bill was drafted during the meeting. The Kenya Roads Board was defined in the Kenya Roads Board Act 1999 and enacted by the Parliament in January, 2000.

The Board was established in July 2000 and consists of: (i) a chairman and an executive director; (ii) five Permanent Secretaries of the relevant ministries; and (iii) seven members nominated from: the Institution of Engineers of Kenya, the National Chambers of Commerce and Industry, the Institute of Certified Public Accountants of Kenya, the Automobile Association of Kenya, the Institute of Surveyors of Kenya, the Kenya National Farmers Union, the Kenya Association of Tour Operators, and the Kenya Transport Association. The chairman was appointed from the private sector.

As part of the Act, the Kenya Roads Fund was established, vested in the Board, where all proceeds from the Road Maintenance Levy and other sources would be deposited. The expenditure incurred by the Board in the performance of its functions is paid out of the Fund (recurrent expenditures not to exceed 3 percent of the total collection in a particular year). The Board must indicate to the road agencies, at least a year in advance, the money available in the
coming year, the priorities of the Board in fund allocation and the criteria to be applied in making allocations. Every road agency is expected to submit to the Board an annual road program, at least six months before the commencement of every financial year. The Board shall review, individually, the annual roads program which, after approval of the Roads Minister and the Minister of Finance, shall form the basis of funds allocation and auditing of works by the Board. At least three months prior to commencement of each financial year, the Board is expected to prepare estimates of the revenue and expenditures of the Board for that year. Within four months from the end of each financial year, the Board is expected to submit to the Auditor-General the accounts of the Board. The Board is expected to keep the public informed of its activities and operations through regular publications.

Enacting the Kenya Roads Board Bill is a major step in the reform process. The Roads Board is designed with resource generation and allocation, planning, programming, and evaluation responsibilities with user representation. However, success of the Roads Board depends on the presence of all four building blocks. It is too early to evaluate the performance of the Board. The challenge is to ensure that the Board and its Secretariat have the capacity to carry out the functions assigned to them, including preparation of a financial and accounting procedures manual, framework for the annual planning, programming and budgetary cycles, without any overlap of responsibilities with other road agencies. It may become difficult for the Board to exercise its functions satisfactorily in the face of administrative agencies, which are suffering all ills of the civil service and face both financial and organizational problems—ineffective maintenance funding, excess staff, inadequate maintenance equipment, low salary, and inadequate road inventory information. Setting up of District Roads Committees to manage execution of local roads, without adequate capacity and know-how, is likely to create a conflict with existing arrangements and it is not clear how road priorities will be agreed upon within in the new arrangement.

A review of the appropriate agency for the implementation of road works is currently underway, including setting up a Highway Authority to take responsibility for the core network. In addition, a twinning arrangement between the Roads Department and Main Roads Western Australia is being established to transfer knowledge, technology, and experience to the Roads Department. However, implementation of institutional restructuring has been very slow, and neither the twinning arrangement nor the inventory of road network has yet started. Delays in implementation of the Strategic Plan have been detrimental to the efficient delivery of road maintenance services.

Process

A. Adequacy of road financing

In the early 1980s, road tolls were introduced on the main paved network to supplement regular budgetary funding. Income from the tolls accrued to the general budget. While the toll revenue provided additional resources, the net increase in funding was limited as the normal budgetary allocations, in real terms, declined. Available estimates indicate that in 1993, total spending on roads by the Ministry of Public Works and Housing was K Sh. 1.7 billion, as compared to the requirement for maintaining a rehabilitated and rationalized road network of K Sh. 4.7 billion.
(S$55 million) of road maintenance needs have been made on the assumption that the road network is maintainable. However, neglect over many years has resulted in much of the network deteriorating to the point where rehabilitation is necessary before maintenance is possible. Full rehabilitation of the system, to conventional standards, has been costed at approximately at K Sh. 36 billion (US$650 million).

In order to raise the revenue required for funding the maintenance of the road network, a Road Maintenance Levy Fund (RMLF) was enacted in 1993 and introduced in June 1994. The fund derived its revenue from a levy on the sale of diesel and gasoline as well as charges levied on foreign registered transit vehicles. The levy fund replaced the system of road tolls.

No action was taken on the addition of other road user charges to the RF in 1998, which has seriously constrained the implementation of the maintenance program. GoK has maintained its commitment to the funding schedule for road maintenance. However, inflation has eroded the value of nominal sums and full maintenance funding is not available. The statement submitted for 1998 audit reflects expenses in excess of receipts by about 15 percent, without adequate explanation of how the deficit was financed.

As part of the Road Sector Institutional Study, completed in May 1998, and the subsequent discussions, one of the pillars of the government’s efforts to facilitate long-term sustainability of the road sector involves providing sustainable funding for road maintenance. The government pledged in the Strategic Plan for the road sector to gradually increase the level of funding for road maintenance so that, by the year 2000, sufficient amounts would be available to maintain the maintainable network. The government has adopted the Roads2000 (R2000) road maintenance strategy, with the objective of providing maintenance of the classified road network to an economic level of serviceability using local resources and labor-based methods wherever these are cost effective. As part of the RF Act enacted by the Parliament in January 2000, the Kenya Roads Board Fund is established, vested in the Board, where all proceeds from the Road Maintenance Levy Fund and other sources would be deposited. The new arrangements have only been in place for a short time, and it is too early to examine their performance.

B. Stability of road financing

The Road Maintenance Levy Fund forms part of the recurrent budget, and payments are made directly to MOPWH by Customs on a weekly basis. The arrangements reveal inconsistency between the Road Maintenance Levy Fund Act of 1993 and the Kenya Revenue Authority Act of 1995. The former Act requires that all monies collected from the levy and transit tolls be paid into the Road Fund account, out of which amounts would be paid as approved for repair and maintenance of public roads, while the latter requires that such monies be paid over to the Authority for onward transmission to the Consolidated Fund. During the early part of 1998, major slippages were experienced in the provision of funding through the RF, mainly because of delays in release of fuel levy proceeds, which was further compounded by erratic flows.
Objective achievements

A. Quality of the road network

Inadequate road maintenance has been a significant problem for most of the last thirty years. The expansion of the network has intensified the problem of inadequate maintenance funding. Currently, Kenya has a classified road network, under the responsibility of the Ministry of Public Works and Housing, of just over 63,000 km. The primary problem in the Kenya road sector is not the quantity but the quality of the network. Over the period 1989 to 1993, the quality of roads in good condition has deteriorated from 32 percent to 12 percent; roads in fair condition have marginally increased—from 39 percent to 42 percent; and roads in poor condition have increased from 28 percent to 46 percent (World Bank SAR for the Nairobi-Mombasa Road Rehabilitation Project, November 1995). The funds for periodic maintenance of the unpaved network are extremely limited (in the period 1987-1992, less than 3,000 km were regravelled compared to a requirement of about 20,000 km). On some roads, premature deterioration has resulted from inadequate design and/or construction standards.

With the establishment of the Kenya Roads Board and development of a planning framework, work programming schedule, and monitoring arrangements, the real impact on the quality of road network remains to be seen.

B. Operational efficiency

Traditionally, periodic maintenance works were executed by contract (70 percent) and force account (30 percent); and routine maintenance was carried out by force account units of the departments, using equipment-intensive methods. Inadequate funding over the past decade has caused substantial deterioration in the performance of force account maintenance establishment, with the gangs not having the necessary equipment, materials, tools, and transport to be effective. Delays in payment to contractors have resulted in a partial suspension of works and a potential for contractual claims.

Has the establishment of a road fund improved operational efficiency of road maintenance works in Kenya? The evidence to date suggests that, although substantial additional funding has been generated from road-users through the road maintenance fuel levy, road users appear to have received poor value for money, which casts doubt on the sustainability of such dedicated funding mechanisms. The funds have been allocated to roads with little economic priority and, in some cases, without compliance with the construction contracts. A Road Works Inspectorate (RWI) was established in 1996 with the help of a Bank-financed project, reporting to the Permanent Secretary (a change from initial reporting arrangements to the Chief Engineer [Roads], because of a conflict of interest). The RWI has recommended changes to the Ministry of Roads and Public Works (MORPW) in contract preparation and award arrangements to ensure suitability of the designs and contract documents, with transparent competitive tendering and award.

A sample check on roads repaired or maintained using monies from the fund casts doubt on the proper utilization of expenditures in accordance with the Road Maintenance Levy Fund Act. The reported shortcomings include:
• in spite of spending more than 95 percent of the contracted amount, audit verification exercise revealed that works on some road sections, including surface dressing of shoulders, cleaning of culverts and side drains, were not carried out;
• poor workmanship on certain road sections;
• poor contract management and poor financial planning resulting in mismatch between cost incurred and works executed;
• variation contracts have been made without ensuring that: (i) the works were actually carried out; (ii) adequate funding was available for variation orders revealing weak financial planning; and (iii) works were subject to a process of competitive bidding; and
• non-transparent evaluation process.

C. Resource allocation

Financial statements for the Road Fund for 1998-99 reveal that disbursements are far short of budget allocations for the year. The disbursements are lowest for the rural roads—at almost 2 percent of the budget allocation; municipalities at about 40 percent; and federal at about 50 percent. Collection from the fuel levy is about 60 percent of the target for the year. The regional rural road network requires adequate maintenance to ensure that most of it does not become impassable over the years. This requires active local communities participation in construction and maintenance of community roads.

An examination of expenditure priorities and the FY00 work plan of the Ministry of Roads and Public Works (MORPW) reveals inefficiency in resource allocations. The Strategic Plan based on economic evaluation (NPV and ERR) contains specific priorities for expenditure in the classified sector based on primary requirements of the network. Evidence suggests, however, that MORPW has not allocated available funds according to these priorities, instead funding a large number of works on the less important network, while allocating very little to the core network. Substantial contractual commitments have been made on the non-core road network while facing increasing demands on the core priority network. Available funding is spread over a large number of projects, making it difficult for the road users to perceive an improvement in road condition. Table 11 reveals that MORPW has over-committed available funds and made commitments for over three years of work. To make matters worse, additional commitments are being made to address high priority road works.

<table>
<thead>
<tr>
<th>Road Activity</th>
<th>Commitment (Ksh billion)</th>
<th>Payments made (Ksh billion)</th>
<th>Outstanding (Ksh billion)</th>
<th>FY00 Workplan (Ksh billion)</th>
<th>Years to complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation</td>
<td>4.364</td>
<td>1.785</td>
<td>2.579</td>
<td>1.346</td>
<td>1.9</td>
</tr>
<tr>
<td>Periodic Maintenance</td>
<td>6.393</td>
<td>3.388</td>
<td>3.005</td>
<td>0.964</td>
<td>3.1</td>
</tr>
<tr>
<td>Regravelling</td>
<td>8.628</td>
<td>2.756</td>
<td>5.846</td>
<td>1.047</td>
<td>5.6</td>
</tr>
<tr>
<td>Total</td>
<td>19.385</td>
<td>7.929</td>
<td>11.430</td>
<td>3.357</td>
<td>3.4</td>
</tr>
<tr>
<td>(US$ million)</td>
<td>(242)</td>
<td>(99)</td>
<td>(143)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 11: FY00 work plan (Ksh billion)
D. **Capacity of Local Construction Company**

A number of efforts are underway to improve performance of the Road Fund and strengthen the capacity of local contractors. To improve the management and level of service of the classified road network, MOPWH will introduce routine maintenance contracting to promote cost-effective road maintenance and increase the role of the private sector. As part the Road Sector Institutional Study, completed in May, 1998, one of the pillars of government’s efforts to facilitate long-term sustainability of the road sector involves commercialization of the road sector through: (i) contracting out routine maintenance activities; (ii) commercialization of the Municipal and Transport Department; (iii) the Materials Department is in the process of being transformed into a semi-autonomous Kenya Institute of Road Research; and (iv) the Kenya Institute of Highways and Buildings Technology (KIHBT) is in the process of transforming itself into an autonomous Agency.

### ZAMBIA

**Institutional/ management structure**

The National Roads Board (NRB) was established in 1994 by regulation under a Ministerial Order to administer and manage the Road Fund for maintenance and rehabilitation of roads. NRB is composed of eleven members, of whom seven are from the private sector and road users’ groups, representing the Chartered Institute of Transport, Chambers of Commerce and Industries, Engineering Institution, Automobile Association, Transporters’ Associations, National Farmers’ Union, and University. Permanent Secretaries or their nominees represent the public sector from Ministries of Communications and Transport, Works and Supply, Local Government and Housing, and Finance and Economic Development. The representatives of government ministries have no vote and the Board chooses its own chairman and vice-chairman, currently represented by the Chartered Institute of Transport and Zambia Chambers of Commerce and Industries, respectively. The Board of Directors of NRB is appointed by the Minister of Communications and Transport. The Board reports to a Committee of Ministers comprising the Minister of Transport and Communications (chairperson), Minister of Works and Supply, Minister of Local Government and Housing, and Minister of Energy and Water Development.

The NRB is supported by a Secretariat, consisting of eight staff in the functional areas of administration, procurement, engineering, and finance. The Secretariat is assisted by the Management Support Services team, consisting of two full-time and two part-time consultants. The Secretariat is headed by the executive secretary, who is a fellow of the Chartered Institute of Transport, with over 30 years of experience. The salary structure of the Secretariat staff is competitive with the private sector.

The National Roads Board (NRB) was established with the specific objective of administering the RF.\(^\text{12}\) Key functions of NRB include: (i) ensuring public roads are maintained and
rehabilitated as required at all times; (ii) raising the required funds for adequate maintenance and rehabilitation of public roads; and (iii) advising the Committee of Ministers on, inter alia, the preparation and efficient implementation of annual roads program. The NRB has clear terms of reference, with the functions of recommending the road tariff, allocating funds to executing agencies, providing advice on setting standards, classifying roads and advising on the creation of highway authorities to act as executing agencies for the work funded by the RF. They are expected to review the proposed road expenditure plan, decide how much is affordable, and recommend the level of road tariff to the Ministry of Finance. Since its establishment, additional responsibilities have been added for coordination and management of various donor-financed programs, including management of the ten-year Road Sector Investment Program (ROADSIP).

Performance

The Board has made significant progress since its inception in October 1994, including: (i) launching of the national project on road maintenance with private sector involvement; (ii) dedicating the RF to maintaining the road network in the country (the available evidence provides mixed results as discussed later); (iii) launching a ten-year Road Sector Investment Program (ROADSIP) to rehabilitate and maintain the road network on a sustainable basis; and (iv) building local contractor and consultancy capacity. The NRB (the Board and its Secretariat) appears to have taken a firm «ownership» role on behalf of the users and has done a good job in regard to its stated functions. With others, they have fought hard to raise the Road Fund income and see that funds are used effectively for the intended purpose. They have also organized and managed the preparation of the ROADSIP and have taken on the job of managing its implementation. NRB, despite its rather weak legal base, has proven its credibility by improving road conditions and has partly compensated for the weak capacity of road agencies.

The NRB and the Road Fund have a weak legal framework, being established under a Ministerial Order rather than an Act. There exists inadequate action on the part of the government with respect to providing adequate definition, clarification, separation, assignment of responsibilities with matching authority, and control over rates and collection of proceeds to the NRB. The effectiveness of the Road Fund management critically depends on efficiency of the road agencies. To date, not much progress has been made on thinking through the opportunity for rationalization of sector institutions as provided in the government’s Letter of Sector Policy. The main roads are managed by the Roads Department, which is suffering all the ills of the civil service, and little has been done to implement a decentralized management.

The management functions of the NRB, including coordination of ROADSIP, has created inconsistency between its advisory and executive roles as reflected in the Statutory Instrument. The advisory function is at variance with the contents of the Statutory Instrument of 1994 published in the Government Gazette, which clearly gives policy-making and operational decision powers to NRB. Until then, those powers had been reserved to the Roads Department as per the Roads and Road Traffic Act, making NRB a de facto Highway Authority. As a result, the responsibilities of existing agencies like the Roads Department and the Department of Infrastructure and Support Services (DISS), with a similar mandate, conflict with those of NRB.
This has a negative impact on cooperation between the two agencies. Absence of a coordination mechanism compromises systematic consultation at the implementation level. This has affected coordinated planning for rural roads with that for the main and district roads. In addition, NRB lacks the manpower to carry out its stated mission and exercise the powers vested in it. Performance of certain functions by the NRB, especially related to procurement and technical issues, has created friction with other road agencies.

Legislative arrangements have to be revisited to ensure that activities of the NRB are set on a firm and sustainable footing. The Roads and Road Traffic Act needs to be revised in order to: (i) clarify roles and functions of the public and private sectors within the roads and roads transport sector; (ii) define the roles and functions of the different agencies and institutions; (iii) put the NRB and the RF on a firm legal basis consistent with the stated government policy. This implies a major change in the role of the Ministry of Works and Supplies and a decentralization of functions with an increased role at the district level.

**Process**

**A. Adequacy of Road Financing**

In the past, road operations were centrally planned activities, undertaken by government roads departments using force account, especially for road maintenance works. Funding relied on treasury allocations and donor contributions. Planning focused on capital expenditure with little consideration of future maintenance needs. Only a fraction of the amounts budgeted for maintenance was actually being released, so that effectively the budget did not finance road maintenance. Recognizing the need to maintain a stable financing source for road maintenance, RF was established in 1993, with the fuel levy as the main funding source.

During the first year of the RF establishment in 1993, a fuel levy of K10 per liter was introduced. Since then, the fuel levy has been increased to K30 in 1995, K40 in 1996 and fixed at 15 percent of the wholesale price of fuel beginning 1997. In July 1999, the fuel levy was K84.3 (US$ 3.5). Between 1996 and 1999, a cumulative total of K78.6 billion (US$34 million) was received from the fuel levy. It may, however, be more appropriate to set the fuel levy as a fixed amount (to be adjusted periodically in real terms) taking into account the road maintenance needs and the capacity to carry out the works program. The danger of setting the fuel levy as a percentage of the wholesale price is that the collections may have no relation to maintenance needs and RF revenues may fluctuate with changes in the macroeconomic environment.

The establishment of the Road Fund has contributed to an increase in resources for road maintenance from an annual average of less than K10 billion (US$ 5 million) for the period 1988-94 to K23 billion (US$ 9million) in 1998. However, even with this increase in resources, only about 30 percent of the road maintenance needs can be met out of the proceeds of the RF. Estimates of the amounts of the fuel levy required to meet the “steady state” maintenance needs of the core road network, if it were to be the only source of funding, average about USc 10.0 per liter. The requirements would be greater if some sort of holding maintenance on those roads in the core network not presently in good to fair condition are to be carried out. When compared to the current (2000) fuel levy of USc 3.0 cents per liter, the requirements fall far short of the available resources. Zambia’s fuel levy would have to increase by a factor of at
least three in real terms to meet road network maintenance requirements. In addition to the fuel levy, the Board has solicited additional funds during FY01 to bridge the deficit in the fund requirements, including road user charges such as international transit tolls, weigh bridge fines, motor vehicle license fees. However, legislative reform leading to broadening of the RF resource base (vehicle licenser fees, transit fees, weight bridge fees/fines, etc.) has not yet lead to results.

B. STABILITY OF ROAD FINANCING

Table 12. Receipts and payment statements of the Road Fund, 1999, 1998
(Kwacha million, in current prices)

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Receipts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Levy</td>
<td>15,200</td>
<td>23,000</td>
</tr>
<tr>
<td>Others</td>
<td>1,769</td>
<td>5,241</td>
</tr>
<tr>
<td>Total</td>
<td>16,969</td>
<td>28,241</td>
</tr>
<tr>
<td><strong>Payments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provincial Roads</td>
<td>2,328</td>
<td>8,597</td>
</tr>
<tr>
<td>Councils</td>
<td>8,273</td>
<td>18,262</td>
</tr>
<tr>
<td>NRB Secretariat</td>
<td>719</td>
<td>1,338</td>
</tr>
<tr>
<td>Others</td>
<td>564</td>
<td>3,983</td>
</tr>
<tr>
<td>Total</td>
<td>11,884</td>
<td>32,180</td>
</tr>
<tr>
<td>Surplus (Deficit)</td>
<td>5,085</td>
<td>(3,938)</td>
</tr>
</tbody>
</table>

Note: 1900 kwacha = US$1 in July, 1998
2500 kwacha = US$1 in July, 1999
Source: Road Fund Financial Statement (1999), National Roads Board, Lusaka

One of the key concerns in the past was not only that insufficient amounts were budgeted to address road maintenance needs, but also only a fraction of the amounts budgeted for maintenance were actually being released. The RF was established to ensure that a dedicated and steady flow of funds is available to address the road maintenance needs.

Past experience with the RF suggests that, while maintenance funding has improved, the flow of funds continue to be impacted by budget allocations. The existing procedure for crediting revenues from fuel levy proceeds into the Road Fund account creates delays and irregularities. The fuel levy flow proceeds from the Zambia National Oil Company (ZNOC) to the Zambia Revenue Authority, which in turn credits a “budgeted” amount to Road Fund through the Ministry of Transport and Communications. The budgeted amount is much less than the proceeds from the fuel levy, creating arrears due to the Road Fund and undermining the fundamental principle of the fuel levy as a user fee. Available information on performance during 1998 suggests that the elapsed time is more than 60 days, as compared to a target of 14 days. In 1999, of the K35 billion (US$13 million) receivable on account of fuel levy as a contribution to the RF, K20 billion (US$ 7.5 million) was received from MOFED. The arrears
continue to build, increasing from K9 billion at the end of 1998 to K15 billion (US$5.5 million) in 1999.

Within the existing legislative arrangements, the NRB is not able to redress erratic and delayed remittance of the fuel levy proceeds from the Ministry of Finance. However, the Board has proposed to the Ministry of Finance to directly remit the fuel levy to NRB from the oil company beginning 2001. A proper legislative framework would avoid raids by the Treasury on the Road Fund, and revenue leakage from its collection point to the Road Fund Account.

C. PERFORMANCE MONITORING

One of the pillars of the second generation RFs is the establishment of transparent procedures for monitoring financial and technical performance to ensure that agencies are run according to sound business practices. The ability of NRB to manage the Road Fund is compromised by an absence of a framework for annual planning, programming, and budgeting. There is no financial and accounting procedures manual. Program management remains constrained by delays in the reinforcing capacity of the NRB. Despite their efforts in securing periodic increases in the fuel levy, the Board has not been fully successful in obtaining the level of road tariff adequate to fully fund road maintenance.

Available evidence suggests that serious efforts are being made by NRB to fulfill its mandated role in a comprehensive fashion, addressing all aspects of planning, programming, and monitoring functions. For the first time, an Annual Works Program is prepared for FY01, taking into account the maintenance needs of the country’s road network as put forward by different road agencies at the central, urban, and district level. This is in contrast to previous years when the bulk of the RF revenues was spent on rehabilitation of the urban road network. Efforts are being made to diversify the revenues of the RF by raising resources from sources other than the fuel levy. The Board is committed to upholding the interests of road users and represents a significant shift from past practice of centrally planned activities, undertaken by government roads departments using force account and relying on treasury allocations and donor contributions. The RF accounts are prepared on a quarterly basis and audited by an independent external auditor. The Project Implementation Manual makes it clear that all ROADSIP contracts require NRB approval before agencies enter into formal arrangements with contractors.

Planning and programming depend on outdated information from a Highway Management System (HMS) installed in 1995-96. The database was updated by a visual survey in 1997, and no annual traffic counts have been carried out in the past few years. Attempts are being made to establish the HMS and information technology to improve management of the classified road network. Funds are being used from the fuel levy budget to supply computers to all managers and set up Local Area Network (LAN) and a Wide Area Network (WAN).

An Engineering Inspectorate was set up in NRB in 1998 for quality management of ROADSIP contracts through creation of a sound, well understood procedural framework supported by efficient management systems. The Inspectorate is expected to: (i) develop standard NRB contract documents for locally funded contracts; (ii) develop a NRB manual of procedures to guide agency staff in the preparation of contracts and subsequent contract management; (iii)
provide training to agency staff in the use of the above tools; (iv) provide training to contractors in tender preparation and site management techniques; (v) establish a MIS within the NRB to track physical and financial progress of contracts with links to a road network database; and (vi) guide and assist agencies and other organizations in the management of their works program. However, the Inspectorate lacks specialized staff (only two persons), and has not been able to carry out its functions effectively. As a result, the NRB has little basis to comment on the quality of works performed by the road agencies. It may be useful to examine the possibility of contracting out inspection functions to an independent specialized body, under the guidance of the NRB.

Objective achievements

The performance of the RF is evaluated in terms of four parameters: (i) improvements in the quality of the road network; (ii) operational efficiency through strengthening the balance between resource mobilization, planning, implementation, and monitoring; (iii) efficiency in the allocation of resources by ensuring funding for economically high return but politically low profile activities; and (iv) development of local construction industry.

A. Quality of the Road Network

The launch of the national program of road maintenance in 1995 through the RF has resulted in an increase in the share of paved roads in good condition from 20 percent in 1995 to 35 percent in 1999, and a decline in the share of poor condition roads from 51 percent to 29 percent over this period (Table 13). In absence of a detailed network inventory and an updated Highway Management System, the available statistics are only indicative of the comparative changes in the condition of the road network.

Though there have been some improvements in the maintenance of roads in Zambia, the achievements have fallen short of expectations:

<table>
<thead>
<tr>
<th>Year</th>
<th>% of road network in good condition</th>
<th>% of road network in fair condition</th>
<th>% of road network in poor condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>40%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>1995</td>
<td>20%</td>
<td>29%</td>
<td>51%</td>
</tr>
<tr>
<td>1998</td>
<td>31%</td>
<td>36%</td>
<td>33%</td>
</tr>
<tr>
<td>1999</td>
<td>35%</td>
<td>36%</td>
<td>29%</td>
</tr>
</tbody>
</table>


- Compared to targets of 45 percent of trunk, main, and district and 15 percent feeder roads in good condition, achievement to date is 37 percent and 5 percent respectively.
- Evaluation of ROADSIP in 1998 reveals that, as compared to a target for routine maintenance of 6,370 km, only 1,079 km were maintained (less than 20 percent).
Periodic maintenance also fell short of expectation, 914 as compared to a target of 1,691 km.

The impact of reforms in the roads sector, in terms of improved quality of the road network, is substantial, and there appears to be a sound strategic framework in place to reverse the deteriorating trend and address the neglect of past decades. What is required is a continued assistance, both to strengthen the technical capacity and address the long backlog to ensure sustainability of the reforms initiated.

B. Operational efficiency

The NRB has instituted procedures for contract management, monitoring contract proposals, and disbursement. The adopted policy is: (a) to carry out normal or “steady state” maintenance on all roads that are in good or fair condition; and (b) for those roads in the core network not considered to be in good or fair condition, “holding” maintenance will be applied to keep these roads in motorable condition. Through participation of local contractors in tendering for road works, average cost per kilometer has been reduced by more than 20 percent over the last three years.

In addition, a community initiated cost sharing road improvement scheme has been introduced to involve local communities in the management of road networks for their own development. One of the important developments during 1999 was the launching of road maintenance projects through community cost-sharing initiatives. The first of these was launched in Chingola to rehabilitate roads in the city at a cost of K1.6 billion, with the community contributing 48 percent and the RF contributing the remaining 52 percent. This road maintenance initiative is being pursued by other communities with a view to launching similar projects in the country.

However, despite the progress already made, full implementation of the comprehensive range of reforms will take a long time. Decades of neglect coupled with weak capacity of the local construction industry has created a difficult operating environment for the road sector. Sample inspection of contracts during 1998 revealed a number of shortcomings: (i) local private sector capacity is constrained by a lack of skills and insufficient resources; (ii) it has been difficult to achieve quality and value for money, mainly because of constrained local engineering capacity, which is typical of the road sector in Zambia; and (iii) a strong management framework is needed for setting up contracts, procuring works, and contracting administration. Limitations in the local private sector capacity, together with a lack of skills and resources available to agencies for management of contracts, are compromising quality objectives. Several periodic maintenance and rehabilitation contracts have experienced delays, and cost overruns caused by technical constraints have not been fully recognized before awarding contracts.

Decisions on maintenance and development expenditures, as well as on key strategic issues on prioritizing investments in low volume roads, have not been based on sound decision criteria. The absence of a fully functional maintenance management system makes it difficult to ensure that the maintenance budget is correctly allocated and is often well below what would be economically rational. Over the past three years, road expenditure as a proportion of total public expenditure has increased from 5 percent in 1997 to 10 percent in 1999, while the share
Chingola leads in taking ownership

Chingola is a small mining town in the Copperbelt Province of Zambia. Road users in Chingola have come up with an initiative to promote development in the municipality through road rehabilitation and maintenance. Faced with years of neglect and the inability of the Council to maintain roads due to resource constraints, the Chamber of Commerce, business firms, and road user organizations in Chingola formed a committee to address the problem of poor road conditions. In 1999, the Committee on Road Maintenance Initiative, with the help of the community, was able to raise 48 percent of the total estimated cost in the form of plant, equipment, labor, materials, and supervision. They prepared an action plan and committed K758 million of the total K1582 million required to implement their program. The support for the balance 52 percent of the funding was requested from the NRB. The Board fully supported this initiative of community participation and cost sharing in road maintenance. An important aspect of the initiative was that the committee provided a bank guarantee of K30 billion if NRB was not satisfied with the works quality. The Director of Roads, through the Provincial Roads Engineer, supervised the work, and NRB made an independent inspection for quality assurance. The selection of roads was based on maintenance priorities in accordance with traffic counts and economic justification. The road works were carried out at less than half the cost of similar works elsewhere in the country.

Source: Zambian Transport and Communications, October-December, 1999

of road maintenance expenditure (to total roads expenditure) has declined from 16 percent to 8 percent (Table 14).

C. Resource allocation

Table 14. Expenditure on roads

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1998</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road expenditure as proportion of total public expenditure</td>
<td>5.1%</td>
<td>6.8%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Road maintenance as proportion of total road expenditure</td>
<td>16%</td>
<td>11%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Consistent and appropriate project selection criteria are fundamental to sound decision-making on maintenance priorities. While allocation mechanisms are well identified in the policy framework, and maintenance priorities are determined on multi-criteria ranking, actual disbursements during the year do not always follow the strategic approach. Allocation of resources for road maintenance for different road classes continue to be dictated by «standard» formula rather than a planned review of programs put forward by various road agencies, in accordance with an agreed upon evaluation approach. Under the policy guidelines of the National Road Board, 40 percent of the RF is allocated for maintenance of M, T, and D roads; 40 percent for feeder roads; and the remaining 20 percent for urban roads. However, driven by
political considerations to improve the road network in urban areas, particularly the capital
city of Lusaka—coupled with lack of capacity in district councils—actual disbursements have
favored urban roads at the expense of feeder roads. Table 15 shows the disbursements over the
past three years by road type. Three conclusions emerge: (i) urban roads account for more
than 50 percent share of total disbursements during the year while the share of feeder roads
has declined from 20 percent in 1997 to 12 percent in 1999; (ii) actual disbursements have fallen
far short of planned expenditures, most markedly in 1999 when less than 30 percent of the
planned expenditures was realized; and (iii) expenditure on urban roads maintenance and
rehabilitation have been particularly high in 1998 (US$6 million—twice the planned budget)
and 1999 (US$3 million). Between 1998 and 1999, almost US$8 million from the RF were spent
on rehabilitation of Lusaka roads (fully funded from the RF) at the behest of the Government.

Failure to realize the planned expectation for the year is partly a result of ambitious programs
prepared by NRB, coupled with a lack of capacity of the local construction industry. Institutional
and financial reforms necessary to put the roads sector on a sustainable basis are well advanced
but still not on a firm footing. Prospects for the year 2000 appear more promising:

Table 15. Resource allocation by road classification

<table>
<thead>
<tr>
<th></th>
<th>1997 planned/actual</th>
<th>1998 planned/actual</th>
<th>1999 planned/actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>M, T, D Roads</td>
<td>40%/27%</td>
<td>40%/30%</td>
<td>40%/33%</td>
</tr>
<tr>
<td>Feeder Roads</td>
<td>40%/20%</td>
<td>40%/15%</td>
<td>40%/12%</td>
</tr>
<tr>
<td>Urban Roads</td>
<td>20%/53%</td>
<td>20%/54%</td>
<td>20%/55%</td>
</tr>
<tr>
<td>Total expenditure</td>
<td>7.4/4.9</td>
<td>14.4/10.9</td>
<td>18.1/5.2</td>
</tr>
</tbody>
</table>

- The first comprehensive Annual Work Program for 2000 has been produced, based on a
  more appropriate methodology for resource allocation driven by a “bottom-up” approach to
  assess needs of District Councils and urban areas. The Annual Work Program is the first
  comprehensive road sector program ensuring application of consistent and appropriate criteria
  for the prioritization of works and improved management of the program. The routine and
  periodic maintenance program has been drawn up by the Roads Department and the District
  Councils in discussions with the NRB, based on priority needs of the communities. NRB has
  consolidated different work programs for financing during the year;
- NRB is committed to introducing new instruments to ensure prioritization of road
  maintenance based on relative needs of different areas. The approach would help establish a
  basis for determining the allocation of resources among competing district councils and across
different classes of roads.
- The possibility of past arrears being cleared through supplementary budget allocation is
  under consideration by the Finance Ministry.
During 1998 and 1999, K18 billion was spent on Phase I rehabilitation of Lusaka roads using proceeds from the RF. While this has improved roads in the capital city, the program resulted in the RF being diverted to fund Lusaka road works at the expense of maintaining other roads in the country. The NRB has played a key role in switching the Lusaka Phase II road works program to direct government funding and dedicating RF to its stated objective of maintaining the road network.

The government has committed to rationalizing the flow of funds by setting up clear and expeditious procedures for crediting revenues due from the fuel levy proceeds into the Road Fund account by 2001. This would reduce delays currently experienced in remitting fuel levy proceeds into the RF account and assure that amounts remitted are based on actual collections and not budget allocations.

D. CAPACITY OF LOCAL CONSTRUCTION INDUSTRY

In sharp contrast to past practice, force account is used sparingly to the extent of less than 10 percent of total road works program. Most of the plants and equipment with the Roads Department have been disposed off. The department has been somewhat restructured with down-sizing of employees. Most of the work is carried out by private contractors. Generally, one of the impacts of RF has been a move towards contracting and resurgence of the domestic contracting industry, which has brought about efficiency in the use of resources. The efforts to build local contractor and consultancy capacity has resulted in an increase in the number of local contractors from 4 in 1994 to 450 in 1999, and local consultancy from 6 to 20 over the same period.

The Board is committed to placing greater emphasis on creating employment through development of local contractor capacity by introducing long-term contracts for routine maintenance of the road network throughout the country.
the country and supported by about 80 maintenance sections. The maintenance sections are responsible for the actual execution of the overall maintenance program. Districts provide logistical and technical support to the maintenance sections.

8 The three road executing agencies in Ghana are Ghana Highway Authority (with the responsibility for national core road network); Department of Feeder Roads (responsible for feeder roads) and Department of Urban Roads (responsible for urban roads).

9 The other two pillars related to commercialization of the road sector and providing sustainable funding, which are discussed in later parts of this note.

10 Under the Roads Board Act, the designated road agencies are: (i) the Road Department of the Ministry of Roads and Public Works for the classified roads; (ii) roads in national parks are under the Kenya Wildlife Service (KWS); and (iii) other roads are under the District Roads Committees. Under the Act, the responsibility for local roads has been transferred from the Ministry of Local Government to the District Roads Committees, comprising of district Mayor, Member of Parliament from the district, District Commissioner and District Roads Engineer. The «independence» of District Roads Committee under the new arrangement is questionable. The specific responsibilities and the staff to carry out the necessary functions of the Roads Committees is not clear, and there exists a potential conflict in separating other municipal functions from road functions.

11 The objectives of RWI are to (i) examine procurement practices; (ii) conduct technical audits on selected road work activities; (iii) examine adherence to agreed upon maintenance work programs and quality of work; and (iv) identify actions to improve efficiency and cost-effectiveness of road work activities.

12 NRB is not a road authority and functions as a procurer of services rather than the provider of services. It is a financing agency vested with responsibility for managing the RF. The programming, tendering, evaluating, negotiating, awarding, supervision and management of contracts is the responsibility of road agencies, in consultation with the NRB. Roads Department under the Ministry of Works and Supply is the road authority for Trunk, Main and District roads (T, M and D). The District Councils under the Ministry of Local Government and Housing (MLGH) are road authorities for urban and feeder roads in the respective districts. National Parks and Wildlife Authority under the Ministry of Tourism is the road authority for tourist roads. The Zambia Social Investment Fund is undertaking pilot projects on the undesignated community roads. There are other governmental and non-governmental organizations funded by donors and communities undertaking road projects. In all, there are nine ministries and agencies responsible for the road sector and over 70 District Councils.

13 The share of fuel levy as a percentage of the wholesale price in the later half of 1999 and the first quarter of 2000 is less than 10 percent. Driven by declining economic performance, devaluation of the Kwacha, burning of the oil refinery and global increase in fuel prices, the retail price of petrol increased from K1140 per liter in March 1999 to K2232 in March 2000. In an attempt to contain an increase in petrol price, the fuel levy was frozen in absolute value at March 1999 level, which has resulted in a decline in the share of the fuel levy to the wholesale price, from 15 percent in March to 9 percent in December 1999, and about 8 percent in March 2000. However, in real terms, fuel levy remains at about US$0.30 cents/liter over this period.

14 Neglecting maintenance of the tertiary network has resulted in local government elections not being held in 30 districts—roads are essential for good governance.
3. Conclusions and Recommendations

This paper is an attempt to take stock of how well the Road Funds have performed, how well do they measure against the “building blocks” of road sector reform as identified in the RMI, and what has been the impact of the Road Funds on road maintenance as compared to the “first generation” Road Fund era. Key conclusions emerging from an empirical evaluation of the Road Funds in four Anglophone countries and one Francophone country in Africa are presented below.

The review has been conducted in three sections. First, the institutional and management structure of the Road Funds in each of the countries is evaluated. Second, the process of setting up Road Funds is evaluated, including adequacy, stability, and performance monitoring of the flow of funds. Third, the objective achievements are evaluated, as measured by the quality of the road network, operational efficiency, allocative efficiency, and development of local construction industry.

Evaluation of early performance of the Roads Fund Boards suggests that, while it has been easy to set up institutional arrangements, implementation of concomitant policy and legislative framework throughout the sector has been more difficult. The difficulties result from the mind-set and governance in the countries, which go beyond the mandate of reforms in a particular sector. It also takes time to build the institutional capacity necessary to bring about sustainable reforms. Implementation of institutional reforms in Zambia remain somewhat weak, despite a strong user representation and dynamic leadership of the Roads Board. This is largely because of inadequate action on the part of government in regard to the definition, clarification, and assignment of authority with matching responsibility, as well as the legal foundation for the Board’s control over rates and collection of proceeds. The Ghana Road Fund, in contrast, has a firm basis, with detailed internal and external monitoring procedures to ensure efficient use of money accompanied by monthly progress reports and external financial and technical audits. The Road Fund in Ethiopia has the strong support of the government—as laid out in the Road Sector Development Program (RSDP)—a strong bureaucracy, and evidence of the political will to support reforms in the roads sector. However, even after two years of coming into existence, the Ethiopia RF Secretariat is yet to be fully established, with less than 30 percent of the designated professional positions filled.

Adequacy of road financing. The dominant source of funding for the Road Fund in all cases except Benin is the fuel levy, although Ghana has introduced additional user charges, road and bridge tolls, vehicle registration fees, and international transit fees over the past year. Zambia has proposed additional user charges in the next year’s budget. The fuel levy is introduced on top of already existing fuel taxation and represents a step in the direction of commer-
cialization and appropriate cost recovery from road users. Table 16 provides a comparison of fuel levy across different countries. The resources, however, are raised as part of “on budget,” which raises the issue of sustainability in the long run. One weakness of the RMI concept is that it is still not practical to charge directly for road use in the way users are charged for electricity or water supply but must rely on “proxy” pricing through a levy on automotive fuel.

Table 16: Comparative fuel levy

<table>
<thead>
<tr>
<th></th>
<th>Rate (US cents/liter)</th>
<th>fuel levy as % of total Road Fund Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia</td>
<td>3</td>
<td>95%</td>
</tr>
<tr>
<td>Kenya</td>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>Ethiopia*</td>
<td>3.2-4.4</td>
<td>100%</td>
</tr>
<tr>
<td>Ghana</td>
<td>8</td>
<td>90%</td>
</tr>
<tr>
<td>Benin</td>
<td>2.5</td>
<td>23%</td>
</tr>
</tbody>
</table>

* fuel levy rate for Ethiopia include sales tax and municipality tax

There is some merit in relating fuel levy to assessed maintenance “needs”—as practiced in Ghana and Ethiopia—rather than a fixed percentage of fuel price—as followed in Zambia and Benin. The danger of setting the fuel levy as a percentage of the fuel price is that the collections may have no relation to maintenance needs, and RF revenues may fluctuate with changes in the macroeconomic environment. On the other hand, in Kenya, inflation has eroded the value of nominal sums, and full maintenance funding is not available. While the introduction of fuel levy is a big step forward, it still remains a proxy (indirect) charge for road usage. In addition, the fuel levy does not necessarily discriminate between users and non-users of roads. Arrangements to diversify road user charges, with the possibility of introducing direct charges for road use will need to be explored. Zambia National Roads Board has solicited additional funds from international transit tolls, weigh-bridge fines, motor vehicle license fees, etc., though legislative reform leading to broadening of the RF resource base has not been effective so far.

Stability of road financing. The evidence on the stability of the RF base offers mixed results. The Road Fund Boards have not always been successful in protecting the flow of funds and stabilizing resources for road maintenance. In Zambia and Benin, proceeds from the fuel levy are channeled into the RF from the Petroleum Commission through the Ministry of Finance, creating delays. In Zambia, RFs continue to be impacted by “budget” allocations, with long elapsed time and large arrears. However, the Zambia Roads Board is working to reduce delays and streamline procedures beginning FY01. In Ghana and Ethiopia, revenue from the fuel levy is credited directly by the Petroleum Enterprise into the RF account, regularly on a monthly basis, creating a stable basis for the RF. It may be too simplistic to assume that RFs will always be inviolate. It is essential to design RFs to maximize the probability that they will not be abused, rather than simply legislating a RF into existence. Raiding of the RF may still be possible because of legal or bureaucratic holes in the system. MoFs usually find a way for using funds for national emergencies (which may even be justified) as well as for non-emergencies.
The structural safeguards necessary to provide protection to the Road Funds require a strong political will. Full commercialization of the road sector would provide a strong barrier to such intervention. In addition, adequate user representation and transparent dissemination of the Board’s activities are required to establish a check-and-balance system to improve accountability in the day-to-day activities. It is important for the RFs to be supported by well established enforcement tools to recover money owed to the RFs.

Performance monitoring. One of the requirements of the second generation RFs is to set up arrangements for independent monitoring of performance of the flow of funds and the quantity, quality, and cost of road works. The available evidence offers mixed results. In Zambia, the ability of the NRB to manage the RF is compromised by the absence of a framework for annual planning, programming, and budgeting cycle, although efforts are being made to develop Annual Works Program for FY01 based on identified needs of the road agencies. The Zambia RF accounts are prepared on a quarterly basis and audited by an independent external auditor. The Project Implementation Manual makes it clear that all ROADSIP contracts require NRB approval before agencies enter into formal arrangements with the contractors. Though preparation of audited accounts is a big step forward in improving accountability in the use of funds, the accounts are prepared without any explanation in the use of funds, and leave a number of unanswered questions. In Ethiopia, special procedures have been introduced to monitor ERA performance based on preparation and approval of payment certificates and monthly progress reports. The weaker regional and urban authorities have a long way to go before any performance based systems can be established. Currently, they are required to report on funds utilization. Ghana Roads Board has established proper planning and programming of road works with well defined disbursement and accounting procedures, which have facilitated timely contracting arrangements. Arrangements to carry out technical audits are still lacking in most Road Boards (the only exception is Ghana Roads Board).

Objective Achievements

In this analysis, performance of the RFs is evaluated in terms of four parameters: (i) quality of the road network; (ii) operational efficiency; (iii) allocative efficiency; and (iv) development of local construction industry.

Quality of the road network. Absence of detailed time-series data on road conditions makes it difficult to empirically establish road improvements, although a comparative evaluation based on available data indicates an increase in the length of “good” quality roads in all the countries examined. In Zambia, the impact of reforms in the roads sector in terms of improved quality of road network is substantial, and there appears to be a sound strategic framework in place to reverse the deteriorating trend and address the neglect of past decades. In Ethiopia, the proportion of main roads in “good” condition has increased from 15 percent in 1996 to 25 percent in 1999. In Ghana, the proportion of “good” roads has increased from 21 percent in 1997 to 30 percent in 1999. However, the benefits of improved maintenance have been confined to the main and urban roads. Condition of the rural/feeder road network is not well documented, and their condition does not appear to have substantially improved. Even when funding is available, lack of capacity at the regional level is a key constraint to poor maintenance of the rural road network.
Operational Efficiency. In terms of operational efficiency, improved contract management and disbursement arrangements have resulted in a reduction in road maintenance cost per kilometer by 10 percent to 20 percent in Zambia, Ethiopia, and Ghana. In Zambia, a community initiated cost-sharing road improvement scheme has also been introduced. Well-managed contracts financed from the Road Fund have enabled timely payments to contractors, which is resulting in lower contract rates for road maintenance. The share of maintenance works contracted out has increased to almost 90 percent in Zambia and Ghana, although in Ethiopia road maintenance is still carried out using force account. ERA is seeking to improve its effectiveness by establishing commercial operations in maintenance districts and jointly implementing performance contract agreements with the RFA. Gradually, ERA also expects to introduce contracting for maintenance works. In any case, road maintenance expenditure in Ethiopia has more than doubled over the past five years.

While these are encouraging trends and represent a significant departure from the past, road administrations continue to suffer from past ills of the civil service, and technical assistance and knowledge sharing are required over some time before effective arrangements can be put in place. The absence of a fully functional maintenance management system makes it difficult to ensure that the maintenance budget is correctly allocated, and it is often well below what would be economically rational. In addition, not all the money collected in the RF is being disbursed. In Ethiopia, less than 40 percent of the Road Fund has been disbursed over the past two years (mainly because of the lack of capacity, especially in regional and urban agencies). In Benin, incapacity to disburse the available RF has resulted in surplus over the past three years, which can be quite dangerous when other government departments are strapped for resources. Experience with other RFs has shown that large unspent cash balances usually leads to “raids” on the RF.

Resource allocation. In terms of allocative efficiency, the second generation RFs are much better set up, with their commercial orientation and strong constituency, as compared to the classic first generation Road Funds. However, resource allocations for road maintenance continue to be dictated by “standard formula” rather than a planned review of programs put forward by various road agencies. This is most apparent in Zambia, Kenya, Ethiopia, and Benin. The disbursements are biased towards urban and main roads to the detriment of the rural/feeder road network. In Kenya, substantial contractual commitments have been made on the non-core road network, while facing increasing demands on the core priority network. In addition, even the planned expenditures are not fully disbursed, especially for the rural road network, primarily because of a lack of capacity at the regional level. In Ethiopia, for example, only about 20 percent of the planned allocations for the rural road network were disbursed during FY99 because of the lack of absorptive capacity.

Inadequate attention to the non-core network is seen by Gwilliam and Shalizi (1999) as a non-optimal use of resources by “user representative” Road Boards. Insufficient attention to unpaved feeder roads may result either from a lack of adequate representation from local interest groups or the perceived non-economic nature of such roads. Roads perform social as well as economic functions and may even be desirable for ecological reasons.
Gwilliam and Shalizi have identified several ways to redress the inadequate attention being given to unpaved roads:

- introducing the equivalent of “public service obligations” (PSO) of transit operators to enable a commercially oriented RF to be compensated for meeting an explicit public obligation through a contracted payment from the state;
- expanding the Road Board to include representatives of non-commercial, environmental and local interests in the management of the RF;
- creating multiple agencies, each contracting on a more restricted set of roads for which representative management might be more easily achieved.

These approaches are not mutually exclusive but raise a broader issue related to governance of RFs. Given that even the existing arrangements are characterized by institutional weakness, and the revenue collection and disbursement arrangements are fraught with problems, any further changes in fund management may present serious challenges in the short term. In addition, the allocation of resources is often sub-optimal because funds are insufficient to cover all dimensions of the road network, and the first call on resources is from road sections of national importance that enjoy political support. Inadequate capacity on the part of Road Fund Boards to monitor use of resources and lack of technical capacity on the part of executing agencies often compounds the problem.

Examination of resource distribution across different road agencies reveal a bias against the rural/feeder road network (Table 18). Disbursements per kilometer of federal and regional road network are the lowest in Zambia. This is explained by a focus on rehabilitating roads in Lusaka city during the early years of RF existence. Prospects for the future appear more promising with the Zambia NRB returning the focus to road maintenance. The disbursements per kilometer are the highest for Ghana, with almost 60 percent of the RF resources disbursed for periodic maintenance. In Ethiopia, in contrast, proceeds from the RF have so far been used exclusively for routine maintenance, though with an increase in RF revenues, future resources in Ethiopia will be used for period maintenance and rehabilitation of roads.

<table>
<thead>
<tr>
<th></th>
<th>Main/Federal</th>
<th>Regional/Feeder</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia</td>
<td>40%</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>70%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Ghana</td>
<td>52%</td>
<td>20%</td>
<td>27%</td>
</tr>
</tbody>
</table>
However, the critical issue is not the adequacy of the road fund but the absorptive capacity of the road executing agencies. Years of neglect have limited the capacity of road agencies to carry out maintenance works, a deficiency most apparent in regional and rural roads agencies. Not all the money collected is being disbursed. In Ethiopia, less than 40 percent of the road fund has been disbursed over the past two years, and the remaining amount is invested in treasury bills.

Capacity of local construction industry. The RF has helped to insulate road maintenance contracting and payment issues from financial uncertainties. The RF has helped improve work programming and contracting, bringing a resurgence of the domestic contracting industry, which has brought greater efficiency in resource use. In Zambia and Ghana, for example, force account is used for less than 10 percent of the maintenance works in the recent years. In Zambia, the number of local contractors have increased from four in 1994 to 450 in 1999, and local consultancy from six to 20 over this period. In Benin, the share of maintenance works carried out using force account has declined from 47 percent in 1997 to 40 percent in 1998. There is, however, considerable scope for further improving the capacity of the local construction industry in all of the countries examined. In fact, one of the key constraints to efficient use of RF resources is the lack of sufficient local capacity in road maintenance.

### Key lessons

- Across all countries, incremental user charges are being collected for road maintenance, managed by autonomous roads boards, with a clear separation between financing and executing functions as well as transparency and accountability in the use of funds. Funding for maintenance shows consistent increases, but the amounts are still short of total requirements.
- RF Boards arrangements represent progress on management, accountability, transparency, and increased awareness on the need to address long neglected road maintenance needs. This is expected to result in efficiency gains in the long run.
- Dedicated financing arrangements are a necessary but not a sufficient condition to ensure a sustainable and stable basis of road maintenance, which will translate to improved service delivery. It is also necessary to ensure that: (i) political commitment exists to safeguard the use of money; (ii) there exists a check-and-balance governance system to restrict government’s discretionary powers and arbitrary use of funds; (iii) aggregate resources are sufficient to cover

### Table 18. Comparative Evaluation of Road Fund Disbursements by Agency

<table>
<thead>
<tr>
<th>Agency</th>
<th>Main Network (km)</th>
<th>Main Disbursement (US$ M)</th>
<th>Main Disb/km</th>
<th>Feeder/Rural Network (km)</th>
<th>Feeder/Rural Disbursement (US$ M)</th>
<th>Feeder/Rural Disb/km</th>
<th>Urban Network (km)</th>
<th>Urban Disbursement (US$ M)</th>
<th>Urban Disb/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zambia (1999)</td>
<td>17000</td>
<td>1.72</td>
<td>101</td>
<td>15000</td>
<td>0.63</td>
<td>42</td>
<td>1500</td>
<td>2.9</td>
<td>1906</td>
</tr>
<tr>
<td>Ghana (1998)</td>
<td>13000</td>
<td>39.0</td>
<td>3000</td>
<td>13000</td>
<td>15.2</td>
<td>1170</td>
<td>3000</td>
<td>20.1</td>
<td>6700</td>
</tr>
<tr>
<td>Ethiopia (1999)</td>
<td>16000</td>
<td>12.3</td>
<td>768</td>
<td>12000</td>
<td>0.998</td>
<td>83</td>
<td>3000</td>
<td>1.4</td>
<td>460</td>
</tr>
<tr>
<td>Benin</td>
<td>3,500</td>
<td>6.7</td>
<td>1914</td>
<td>15,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
all of the road network; (iv) road user fees are based on the maintenance “needs” of the road network; (v) RF Boards are capable of defining and enforcing contractual agreements; (vi) RF Boards include diverse interest groups to ensure equitable distribution of resources; (vii) clear allocation of responsibilities between RF authority and government departments; and (viii) road administrations have the capacity to carry out road maintenance works efficiently and effectively.

- While maintenance of the main and urban road network has improved, quality of the feeder/rural road network continues to deteriorate. This is partly due to an inadequate planning and programming framework and partly a lack of capacity in the regional agencies. Years of neglect have limited the capacity of the road agencies to carry out maintenance works, a deficiency most apparent in rural and feeder road agencies.

- Gains in productivity efficiency have been registered only when the RFs were instrumental in fostering the outsourcing of works and services with private suppliers.

- Revenue-raising through Road Funds should match absorptive capacity rather than identified maintenance expenditure needs.

- Ability of the RF Boards to determine user fees/expenditures, even when supported by some legal basis, in practice may not always be exercised. The best that can be hoped for is that: (i) boards are capable of working out and supporting sustainable financing strategy based on road user charges; and (ii) boards are successful in convincing governments (still the ultimate owner) that it is in the national interest to raise charges accordingly.

- There is no clear evidence yet to support the notion of an optimum staff size and mix (public vs. private). These decisions will be influenced by the country’s size, length of the road network, characteristics of the work, role of the civil society and governing arrangements.

- Independent arrangements to conduct financial auditing of the RFs are required to ensure that: (i) all the money attributable to the RF is collected and paid into the RFs; and (ii) funds disbursed from the RF are spent on programs for which they are allocated.

- Technical audits should involve continuous auditing of projects-in-progress for improving performance. This would eliminate projects being technically audited after the event rather than during the event. There is a need to (i) establish a Road Works Inspectorate to monitor the quantity and quality of work and ensure transparency and accountability for the use of road maintenance funds, most of which are now derived directly from the road-users; (ii) set up appropriate reporting responsibility of the Inspectorate to ensure its effectiveness; (iii) develop an updated and rationalized inventory and condition survey of the classified road network.

- The available RF is not sufficient in most countries to fully finance maintenance of the entire road network. To ensure efficient distribution of available resources it is imperative to: (i) define a high priority core network; (ii) prioritize the road network not only on the basis of economic return but also social and environmental returns; (iii) focus on maintaining this network in good condition; (iv) set up performance agreements between the fund administration and the executing road agency; (v) develop a Highway Manual with clear documentation of quality and quantity of roads; (vi) create an enabling environment for small scale contractors to participate in road maintenance; and (vii) develop a road inventory (or a road data bank) including traffic data, actual road conditions, functional responsibilities.
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