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Commercializing Africa's Roads

Transforming the Role of the Public Sector

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FOREWORD

During the past 20 years, nearly a quarter of the capital invested in Sub-Saharan Africa's roads has been eroded through insufficient maintenance. To restore economically justified roads and prevent further deterioration new requires annual expenditures of about $1.5 billion. The main problems affecting road maintenance are institutional and financial, although there are also a number of technical, organizational, and human resource problems which contribute to poor road maintenance policies. The experience gained under Africa's Road Maintenance Initiative (RMI), suggests that the policy reforms required to overcome these problems need to focus on reforms in four-main areas: (i) creating ownership and commitment; (ii) identifying a stable source of finance; (iii) clarifying who is responsible for what; and (iv) commercializing management of roads. The first reform focuses on ways of involving stake-holders in decisions about management of roads. Sierra Leone and Tanzania have done so by appointing them to Roads Boards. The second reform aims to establish an adequate and stable flow of funds. Several African countries are attempting to achieve this by introducing an explicit road tariff (license fees, plus a fuel levy) and depositing the proceeds into a special account, or Road Fund, to avoid commingling them with the government's general tax revenues. The third reform focuses on establishing a consistent organizational structure to manage main, urban, district, and community roads. The final reform attempts to establish a more commercially-oriented roads organization. This usually involves introduction of better systems and procedures and taking a more objective approach to setting priorities. It also leads to pressures for greater autonomy to encourage market discipline and strengthen managerial accountability.

The RMI is a component of the Sub-Saharan Africa Transport Policy Program (SSATP) which is a collaborative framework set up to improve the response to key aspects of transport policies and build up related capacities in Africa. SSATP papers are addressed to policy-makers and to managers and planners engaged in the task of improving the delivery of transport services. They are also intended to facilitate consensus building among external support agencies.

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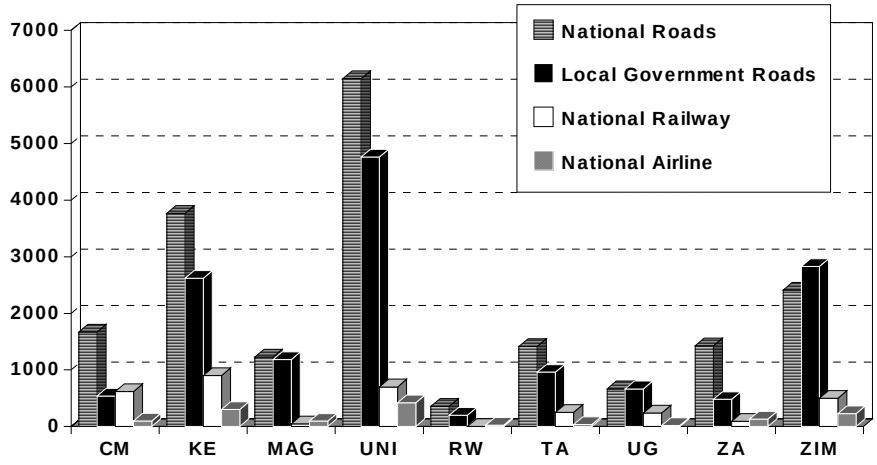
INTRODUCTION

There are over one and a half million km of roads in Sub-Saharan Africa (SSA), including 554,000 km of main roads. Almost without exception, these roads are managed by bureaucratic government roads departments. The roads carry 80 to 90 percent of the region's passenger and freight traffic, absorb 5 to 10 percent of central government recurrent budgets and 10 to 20 percent of their development budgets. Furthermore, a significant proportion of the central government's disbursed and outstanding debt is attributable to road loans and the sector also absorbs a great deal of grant finance, mainly for procurement of construction and maintenance equipment. In terms of assets, employment and turnover (particularly with maintenance fully funded) roads are truly *big business*. They are generally far larger than railways, or national airlines (see Figure 1).

Figure 1. Replacement Costs of Transport Infrastructure in Selected African Countries ($, millon)



Values are current replacement costs.
Source: Heggie, 1994

In spite of their importance, roads in SSA are poorly managed and badly maintained. The replacement cost of main roads in SSA is nearly $80 billion and it requires annual expenditures on routine and periodic maintenance of over $800 million to keep these roads in a stable long-term condition (Heggie, 1994, Appendix 1)[1]. African countries have spent nothing like this amount during the past 20 years and, as a result, about $14 billion of the capital invested in roads has been eroded through lack of maintenance.[2] SSA has been living off its assets. To restore economically-justified main roads and prevent further deterioration will now require annual

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1 Replacement costs are the costs of replacing all existing roads at current prices. This calculation uses the following replacement costs: paved roads, $250,000 per km; gravel roads, $50,000 per km. Estimated costs of routine and periodic maintenance are $3,000 per km for paved roads and $1,000 per km for gravel roads.

2 The figure of $14 billion represents the costs of reconstructing or rehabilitating that part of the region's main road network classified as being in *poor* condition (i.e., in need of rehabilitation). The costs of rehabilitation are $230,000 per km for paved roads and $36,000 for gravel roads.

expenditures over the next ten years of nearly $1.5 billion (Thriscutt and Mason, 1989, Tables 4A and 4B). This amounts to nearly one percent of regional GDP. Annual spending on rehabilitation and maintenance is currently running at $1.0 billion. However, increasing pressure on international aid flows to SSA means that the financial burden on local budgets will increase and erosion of capital will continue.

Cutting back on maintenance is self-defeating. A dollar reduction in road maintenance expenditures typically *increases* vehicle operating costs by 2 to 3 dollars.[3] Far from saving money, cutting back on maintenance increases the costs of road transport and raises the net cost to the economy as a whole. For SSA as a whole, it is estimated that the *extra* costs of insufficient maintenance amount to about $1.2 billion per year, which is roughly 0.85 percent of regional GDP. About 75 percent of these extra costs are in the form of scarce foreign exchange. In Tanzania, the annual cost to the economy of poor road maintenance is estimated to be between $100 and $150 million. That is a high price to pay for poor road maintenance policies.

THE ROAD MAINTENANCE INITIATIVE

The World Bank attaches a great deal of importance to sound road maintenance policies and, to help put road maintenance on a sustainable long-term basis, the UN Economic Commission for Africa (ECA) and the World Bank launched the Road Maintenance Initiative (RMI) under the Sub-Saharan Africa Transport Policy Program. The program is administered by the World Bank's Africa Technical Department and is financed by the governments of Denmark, Finland, France, Germany, Norway, Sweden, Switzerland, and the EEC. Finland, France, and Norway provide three senior staff to work on the program. Phase I of the RMI focused on raising awareness of the need for sound maintenance policies and on identifying why current policies were ineffective and unsustainable. Phase II then moved on to country initiatives in nine target countries: Cameroon, Kenya, Madagascar, Nigeria, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe. The country initiatives focused initially only on main roads and concentrated on three topics: (a) improving planning, programming and financing; (b) improving operational efficiency; and (c) strengthening institutional and human resource development (Wolden, 1989).

The initial stages of the program concentrated on diagnosis. Why were African countries pursuing ineffective road maintenance policies? Why had governments in SSA allowed themselves to fall into the trap of postponing maintenance until they had lost $14 billion of the capital invested in roads? The answers which emerged were mainly *institutional and financial*, although there were also a number of *technical, organizational, and human resource* issues which were found to be contributing to poor road maintenance policies.

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[3] A paved road in good condition carrying average traffic flows requires resealing or light overlays costing about $23,600 per km every 7 years to keep it in good condition. This has an NPV, discounted at 12 percent over 25 years, of $17,688 per km. Without maintenance the road will deteriorate from good to poor condition and this will increase vehicle operating costs by about $5,000 per km which has an NPV when discounted over 25 years of $39,200 per km (Thriscutt and Mason, 1989, p.29-30). The benefit/cost ratio of fully-funded road maintenance is thus 2.2.

Institutional and Financial Problems

The causes of the institutional and financial problems were traced to the way roads were managed and to the hostile enabling environment which undermined incentives and staff motivation. Roads are not managed in the pro-active manner common to most commercial organizations. The road agency simply *delivers* road services based on spending allocations which bear little relationship to either the volume or importance of the traffic using the roads. Since the road agency invariably operates as a government department, managerial responsibilities are unclear, staff terms and conditions of employment are poor, the agency is nearly always administered by the chief civil engineer (instead of by a Board of Management and Chief Executive), enjoys little managerial autonomy, keeps accounts on a cash basis (to ensure it does not over-spend its budget allocation), has no independent source of revenue and is not subject to an independent external audit.

This has several undesirable consequences. First, there are no clear lines of responsibility for managing different parts of the road network or intervening to control congestion, improve road safety and reduce the adverse environmental impacts associated with road traffic. It is commonplace, particularly in rural areas, to come across road agencies without clearly defined responsibilities. Few of the roads built during the past 20 years have been gazetted and formally assigned to a legally-constituted highway authority and, as a result, many roads go unclaimed and unmaintained. The converse is also true. Some gazetted roads have reverted to bush and the designated highway authority can no longer *find* them.

Second, government terms and conditions of employment are woefully out of line with the private sector in most of SSA. After independence, most countries expanded the civil service at a time when their economies were shrinking. Inflation, combined with depreciation of the currency, compounded these problems and led to a serious decline in civil service salaries. In Tanzania and Zambia, the median salary for a graduate engineer is a mere $50 to $80 per month, compared to the going market wage of $350 to $600 (Southern Africa Transport & Communications Commission, 1993). Prior to establishing a semi-autonomous Roads Authority, the Sierra Leone roads department paid $40 per month. The Board, which is charged with setting terms and conditions of employment "compatible with the best standards of practice in other semi-autonomous or parastatal organizations", immediately decided to raise the average salary to $300 to be competitive ($200 cash, plus $100 tax-exempt benefits). Roads departments paying qualified staff a fraction of the going market wage, either end up with high vacancy rates (Kenya, Uganda, and Zambia), employing expatriate road managers paid through donor-financed technical assistance programs (as in Botswana, Rwanda, Tanzania and Zambia) and/or with part-time staff forced to supplement their salaries by day-lighting, manipulating allowances, and fiddling. You cannot manage a large road network with demoralized, part-time staff.

Third, there is no simple mechanism for holding the road agency accountable for its performance, other than in the context of the government audit process which is more concerned with consistent application of procedures than with efficient use of resources. Road users have few ways of influencing the road agency's performance. Indeed, most road agencies produce few indicators to measure performance. Their financial accounting systems likewise lack transparency, expenditures are poorly controlled, and funds are often diverted and spent on other programs.

Fourth, financing arrangements are unsatisfactory. Road maintenance expenditures in virtually all SSA countries are well below the levels needed to keep the road network in a stable long-term condition. In the RMI's nine target countries, they vary from a low of 15 percent of estimated requirements in Uganda to a high of 50 percent in Madagascar (Heggie, 1994). Furthermore, the flow of funds is erratic. Budget allocations are cut at short notice in response to difficult fiscal conditions, funds are rarely released on time and actual expenditures are often well below agreed budget allocations. As a result, roads throughout the region continue to deteriorate, rural roads regularly become impassable during the rainy season and the large backlog of road rehabilitation continues to increase. Between a quarter and a half of the road networks in the nine target countries are classified as being in *poor* condition (i.e., a paved road in poor condition has extensive defects and requires immediate reconstruction or rehabilitation, while a gravel road in poor condition requires reconstruction and major drainage works).

The main reason why road maintenance is under-funded in SSA, is that road users pay very little for use of the road network. They pay the usual import duties, excise taxes and sales taxes, but so does everybody else. Road user charges in the RMI's nine target countries — in the form of vehicle license fees, fuel levies and international transit fees — cover less than 5 percent of road expenditures in Cameroon (the lowest) and about 50 percent in Rwanda (the highest). Most road expenditures are financed through general tax revenues allocated as part of the annual budgetary process. The budget allocation process is furthermore flawed and politicized. Large spending ministries, particularly those spending large sums on maintenance, nearly always lose out in the budget debate. Maintenance can always be postponed in the hope there will be better fiscal conditions around the corner. They rarely are and road maintenance allocations nearly always end up getting cut or deferred.

Technical, Organizational, and Human Resource Problems

Nearly all these problems are attributable to lack of a business-like approach to managing roads. Most road expenditures are poorly planned and badly managed. Few road agencies establish consistent spending priorities, based on a detailed analysis of individual spending programs, within a consolidated budget framework. Few compare recurrent and development expenditures, new construction with maintenance, routine maintenance with resealing, or resealing with overlays. A mere 10 percent compile basic road inventory data, or have functioning maintenance and pavement management systems to determine network-wide maintenance priorities (World Bank, 1991)[4]. Even fewer supplement such physical planning tools with performance budgeting systems.

Too much maintenance is still done by force account. There are many reasons for wanting to contract more work to the private sector. Although cost comparisons are generally inconclusive, in-house work exposed to private sector competition nearly always results in dramatic increases in efficiency. However, contract maintenance will only work, when there is a healthy local construction industry, a stable flow of funds to pay contractors, the road agency is not subject to political interference and there are honest, qualified staff to supervise the contracts. Pre-conditions for successful contract maintenance, thus include stable financing and a more specialized and autonomous road agency with fewer, better qualified and better paid staff.

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[4] This is based on a sample of 11 countries. Of these, only one kept valid and complete inventory data, one had a functioning maintenance management system and one had a functioning pavement management system.

Government-owned plant and equipment pools also pose problems. Most governments own heavy construction and maintenance equipment worth millions of dollars, much of it procured under World Bank loans or furnished on a grant basis by well-meaning bilateral donors. Even a relatively small road agency often owns over $25-$50 million worth of plant and equipment. Availability and utilization rates for this equipment are low with net utilization rates often as low as 20 to 30 percent, compared with 80 to 90 percent in the private sector (Leonard, 1991). The main problems are that much of the equipment is out-of-order and that equipment in working order lacks fuel and/or trained equipment operators. Why? There are several reasons: lack of standardization, shortage of foreign exchange to purchase spare parts, and poor terms and conditions of employment (hence no equipment operators). More important, management systems are not transparent (i.e., there are no cost accounts) and there is a lack of managerial accountability. No one knows, or cares, that equipment is under-utilized.

There is lack of interest in labor-based work methods. Part of the problem is related to cumbersome government procurement procedures which discourage letting of small contracts, particularly to one-man contractors who cannot be expected to follow standard bidding procedures. Donor policies, with their emphasis on International Competitive Bidding (ICB) and preference for financing foreign exchange expenditures, add to the bias against labor-based work methods. However, there are other reasons: labor-based work methods offer less scope for gratification payments (equipment and workshops offer ample scope for supplementing incomes), and management is under no direct pressure to find the cheapest and most effective way of getting the work done.

Finally, most road agencies suffer from an acute shortage of skills, or have an abundance of staff with the wrong skills. Human resource development is an urgent priority. However, without adequate terms and conditions of employment, the standard prescriptions of training and technical assistance simply don't work. Staff show little interest in training geared to their task in the road agency when they spend half their time daylighting for another employer. Technical assistance cannot transfer skills when staff are demoralized, or day-lighting.

WHAT CAN BE DONE TO IMPROVE ROAD MAINTENANCE?

The symptoms of poor road maintenance are obvious and so are the underlying causes. The question is, what can be done to improve road maintenance? That is where the RMI has learned invaluable lessons from its nine target countries. The RMI dialogue was initially a one-way affair with staff doing most of the talking and target countries mainly listening. After about a year, the dialogue became a two-way affair with stake-holders in each of the target countries playing an increasing role in setting the agenda. In some countries the program has now entered a third phase, with stake-holders taking the lead and RMI staff merely acting as resource persons and facilitators supporting a national dialogue with its own indigenous roots. The following section summarizes the RMI's *approach* to policy reform, followed by another section summarizing the *agenda* which has emerged from this approach.

The Policy Reform Process

The key to sustainable policy reform is ownership. Local stake-holders must agree on the need for reform, the reforms must be feasible, widely supported and should have more winners than

losers. There are six key elements which determined the success of the RMI's policy reform program:

Trust and Understanding. The policy dialogue has been significantly influenced by the long-standing relationship between RMI staff and key stake-holders, the clear separation between the RMI's objectives and those of donor operations, and the quality of RMI staff and resource persons. It took about three missions, spread over a year, before RMI staff were fully accepted as trusted friends working wholly in the interests of the target countries (often disagreeing with the Bank's own Task Managers). The ability to march to a different tune, unconstrained by the needs of the Bank's processing cycle, also encouraged more openness and candor. Finally, through use of seconded staff, the RMI managed to field high-level staff accustomed to dealing with stake-holders at the highest level and they have been selectively supplemented by Chief Executives from successful road agencies.

Absorptive Capacity. Most stake-holders, whether government departments or local business associations, have a limited number of qualified people who can think through major policy reforms. The large, comprehensive study — usually carried out by foreign consultants — simply over-taxes their technical capacity. That is why so many studies end up on the shelf. It is better to divide the problems into its component parts and then to use individual consultants to tackle the problem over a two to three-year time-horizon. The wrenching change of direction implied by the large, comprehensive policy study is thereby transformed into a series of smaller, sequential changes which can be more easily absorbed by key stake-holders.

Internalizing the Process. Solutions must be home-grown. They need to be African solutions developed and agreed in an African context. Donors and outside consultants cannot solve the underlying problems responsible for poor road maintenance. They can share experience, provide support and act as facilitators, but cannot substitute for committed local participants. The RMI thus uses local consultants, working to Terms of Reference drawn up jointly by RMI staff and local stake-holders. This ensures that consultants focus on the right issues, go beyond superficial symptoms and focus on underlying causes, benefit from experience in other countries and produce recommendations consistent with the socio-political context in each country.

Building Consensus. Fundamental reform must involve all people with a vested interest in sound road maintenance policies. The underlying systemic problems cannot be solved by the individual road agencies (the usual focal point for the World Bank's road sector policy dialogue), the Ministry of Works and Transport, or even the Ministry of Finance. The dialogue must also involve road users (e.g., the road haulage associations and other motoring organizations), chambers of commerce, farming organizations and the consulting industry. Private sector involvement is fundamental. They are the people who use the roads and also pay for them. Without their support, solutions will not be sustainable. Government officials were initially reluctant to involve the private sector. However, after a few meetings — during which private sector representatives were pro-active, constructive and full of ideas — the relationship thawed and most target countries now *encourage* private sector involvement.

Compromise. Fundamental reforms are painful, inevitably involve some give and take and will only succeed if all parties agree to compromise. Government has to be willing to consider fundamental changes in the way it manages the road network, while concerned government ministries have to accept that, unless the Roads Department functions efficiently as a well-managed and accountable organization, no one will increase their funding. The process

must identify common ground, reach a consensus and build up momentum to keep the process going until the reforms are in place.

***Gradualism*.** Incremental change is easier to absorb than root and branch transformation of existing institutions. The secret is to work within existing institutions and the framework of existing legislation until major changes are unavoidable. Far-reaching concepts like introduction of a road tariff, establishment of a Road Fund, appointment of a management Board and introduction of commercial management systems can usually be done under existing legislation. This minimizes bureaucratic resistance, allows time for testing and adaptation, and provides a sounder basis for preparation of the final legislation to consolidate reforms which are already *de facto* in place.

One of the most successful devices for introducing new ideas and building consensus, has been the guided study tour. The standard format has been for 8 to 10 selected individuals, including both civil servants and representatives of the road transport industry, to visit other countries to study how they deal with management and financing of roads. Although some visits have been made to Malaysia and Korea, those to other African countries — mainly Ghana and Sierra Leone — have had most impact. The study team is usually accompanied by a local consultant who makes notes on subjects studied and the study team's conclusions. On return, the study team's report is usually discussed at a workshop to share experience with other stake-holders and agree on what to do next.

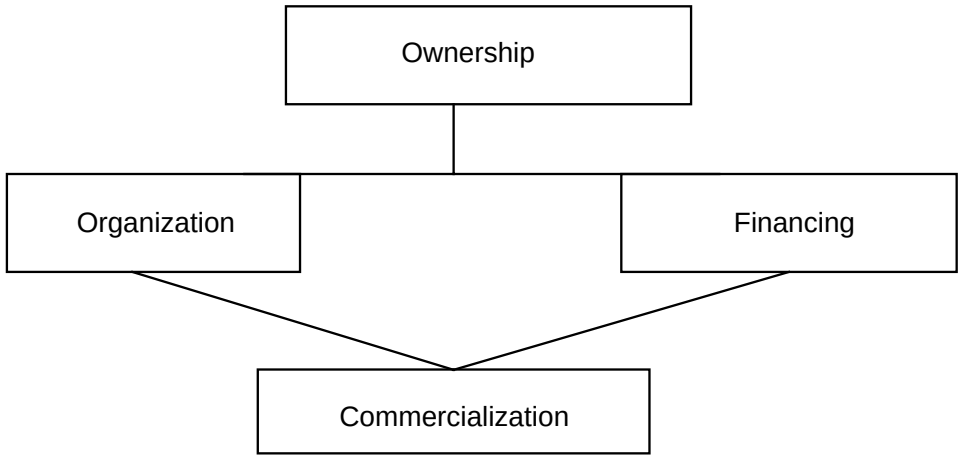
The Agenda for Reform

During the initial stages of the policy dialogue, RMI staff urged stake-holders to identify the reasons for poor road maintenance policies, suggested possible ways of tackling them, shared experience from other parts of Africa and the rest of the world, and employed consultants to prepare background papers on different aspects of the road maintenance problem. This quickly led to two important insights. First, many of the systemic problems associated with poor road maintenance policies — weak programming and budgeting, too much work done by force account and inefficient plant pools — were symptoms of a more deep-seated problem. The real causes were weak institutional arrangements for managing roads, together with the impact this has on staff incentives, staff motivation and managerial accountability. Until there is an appropriate incentive system, it is almost impossible to overcome the technical, organizational and human resource problems which hamper sound road maintenance policies.

Second, it showed that attempts to improve road maintenance policies cannot focus on maintenance alone, nor can they focus only on maintenance of main roads. Poor road maintenance policies are a sub-set of the wider issues of management and financing of roads as a whole. Indeed, if anything, the problems are most acute at the regional and district levels, where institutional weaknesses are greater and finances in shorter supply. These insights automatically caused the two-way dialogue on road maintenance to evolve into a wider debate about the institutional arrangements for managing and financing all types of roads.

The dialogue has now reached the point where firm conclusions can be drawn about the agenda for reform. What has emerged is an agenda for reform comprising four basic building blocks: *ownership*, *financing*, *organization* and *commercialization* of roads (see Figure 2). In this connection, commercialization means introduction of sound business practices. Without all four building blocks, the outcome of the agenda will not be sustainable. Each building block is described briefly below.

Figure 2. Management and Financing of Roads: The four Basic Building Blocks



1. Involve stakes-holder in management of roads to establish ownership and commitment.

AND THEN

2. Establish adequate financing coupled with secure arrangements for channeling the funds to each road agency.

3. Establish a clear organizational structure clarifying who is responsible for what.

4. Establish a more commercially - oriented road agency.

Ownership. Major policy reforms in the road sector cannot usually succeed without the support and commitment of key stake-holders, including those in the private sector. The first building block thus involves winning the support of the ministries of planning and finance and, of utmost importance, the support of the private sector. The latter are the main users of the road network and they also pay for it. The first building block therefore focuses on ways of involving key stake-holders in management of roads. This is generally an essential precondition for getting road users to agree to introduction of an explicit road tariff. They are usually unwilling to pay for roads unless they can influence the level of the road tariff and the setting of spending priorities.

The basic road legislation in most anglophone countries already provides for establishment of Roads Boards. The Board can include representatives of stake-holders and the Minister defines their terms of reference. Other countries have to pass legislation before they can establish such

Boards. The simplest way of involving stake-holders is thus to re-activate these Boards or, in countries which do not provide for them under existing legislation, to appoint them on an *ad hoc* advisory basis or pass new enabling legislation. The key ingredients for a successful Board are its composition, the manner in which members are nominated, their terms of reference, the availability of a full-time secretariat, frequency and regularity of meetings, and the contractual relationship between the Board, head of the road agency and the parent ministry. Ideally, at least a third of the Board members should represent the private sector. Although the Board may initially be appointed in an advisory capacity, it should eventually evolve into an executive Board directly responsible for managing the road network. Figure 3 summarizes the duties laid down for the Boards in Sierra Leone and Tanzania.

Financing. The second building block is a secure flow of funds. Without that, none of the above reforms will be sustainable. It is clear that nearly all government's in SSA are seriously short of revenues. Budget allocations for road maintenance rarely exceed 25 percent of requirements and it is simply not feasible for governments to increase this allocation. Additional revenues are clearly required. However, if road taxation is increased, there is no guarantee that the additional revenues will be allocated to roads. Traditional forms of earmarking are furthermore not a viable solution.[5] They are rarely sustainable and have adverse impacts on management of the government's overall budget. An added concern is that earmarking does nothing to strengthen market discipline. A more radical solution is required.

The solution which has eventually emerged from the RMI's policy dialogue represents an important step in the direction of commercializing roads (*tarification des routes*).[6] It has two important elements. First, introduction of an explicit road tariff and second, depositing the proceeds into a *special account*, or Road Fund, to prevent them being commingled with the government's general tax revenues. The tariff primarily consists of a fuel levy added to all pre-existing fuel taxes (the user charge) and vehicle license fees (fees paid to gain access to the road network). Where feasible, steps should be taken to ensure the fuel levy is only paid by road users (as in CAR and Mozambique). Road congestion is not yet an issue in Africa, other than in cities like Lagos and Nairobi, but could be dealt with by introducing an additional congestion charge in the form of a cordon price, or area license (as in Singapore). Vehicle license fees are expected to vary from about $75 for a car to $2,000 for a heavy truck, while the fuel surcharge will eventually need to be about $0.10 to $0.15 per liter. In Tanzania, it has been estimated that a fuel levy of $0.10 per liter, together with an average heavy vehicle license fee of $120 per vehicle, would generate sufficient revenues to cover all routine and periodic maintenance, and 10 percent

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5 Under such arrangements, government sets aside part of its general tax revenues, deposits the money into a Road Fund and uses the proceeds to finance selected road expenditures. Earmarked taxes often include fuel taxes (including those on kerosene and the fuel used for power generation), vehicle inspection fees (as in Ghana), or car benefit taxes (as proposed in Tanzania). These payments are not related to road usage. Earmarking cannot therefore be used to manage demand, or to impose a hard budget constraint on the road agency. It also reduces general government revenues.

6 With the help of the Road Maintenance Initiative, the nine target countries in Africa have made considerable progress on road financing. Other countries (including Jamaica, Mexico and Yemen) are also adopting the same model. It is the acute fiscal crisis in developing countries which has forced these countries to explore alternative road financing mechanisms.

Figure 3. Duties Laid Down for Road Boards in Sierra Leone and Tanzania

Board of Sierra Leone Authority (SLRA):

The Authority shall be a body corporate having perpetual succession and a common seal and may sue and be sued in its corporate name and hold and dispose of real or other property in any manner whatsoever for the purpose of this Act.

The Governing body of the Authority shall consist of a Chairman, the person appointed Director General and nine other members.

The Board shall have general control of the management, property, business and funds of the Authority and of all other matters relating to the Authority.

For the purposes of discharging its functions, the Board shall delegate to the Director General the following powers:

(i) to sign any contract for or on behalf of the Authority;
(ii) to collect any monies due to the Authority such as the monies from the Road Fund and Budgetary allocations and to discharge debts owed to the Authority;
(iii) to sign, accept, negotiate, endorse and receive any negotiable instrument on behalf of the Authority;
(iv) to acquire or authorize the acquisition of any movable or immovable property and to transfer and or allocate any funds of the Authority for that purpose;
(v) to authorize the disposal of securities of any kind belonging to the Authority;
(vi) to open and operate current, deposit or credit accounts on behalf of the Authority at any bank or financial institution, and
(vii) to negotiate and obtain loans on behalf of the Authority and to determine the nature and conditions of such loans.

Tanzania Central Roads Board (CRB)

The Board shall be a body corporate and shall (a) have perpetual succession and a common seal; (b) in its corporate name, be capable for suing and being sued; (c) be capable of purchasing and otherwise acquiring or alienating any movable or immovable property; (d) have power from time to time to exercise and perform such other power and functions as are conferred by the Minister.

The function of the Board shall generally be to advise the Minister)of Works, Communications & transport) on matter pertaining to management and financing of roads, operations of the road Fund and on any other matters which the Minister may from time to time refer to the Board.

Specifically and without prejudice to the generality of the foregoing, the Board shall:

(i) advise the ministry on suitable management systems for roads;
(ii) advise the ministry on issues of staff motivations;
(iii) examine operation of the Road Fund and advise on suitable arrangements for disbursement of adequate funds to end users;
(iv) examine existing laws governing the operation and management of the road network and advise on necessary amendments.

The Board shall in the performance of its functions have regard to:

(i) any general policies of the government notified to it by the Minister; or
(ii) any general or specific direction given by the Minister.

The Board shall in the performance of its functions establish and maintain a system of coordination, cooperation and consultation with other bodies within or outside the United Republic which have similar or related functions.

of current rehabilitation requirements (the balance of the rehabilitation is currently being financed by donors). This appears to be a realistic target, since the fuel levy in Tanzania is already over $0.06 per liter and is about $0.09 in CAR and $0.11 in Rwanda. The Road Fund normally finances the entire costs of maintaining main roads and part of the costs of maintaining urban and rural roads (the balance being financed through local taxes). In this form, the tariff acts as a hard budget constraint: increased spending means higher tariffs; lower tariffs mean lower maintenance standards.

The advantages of the road tariff are that it introduces a clear market signal to influence demand. Just as railway passengers buy a ticket before boarding the train, road users now pay the road tariff each time they purchase fuel. Demand for roads will at last be subject to the test of the market place. An explicit road tariff also clearly separates road user charges from the indirect taxes which road users also have to pay. The fuel surcharge is usually assessed by the customs and then paid into the Road Fund, although it is better — as in Ghana and CAR. — to have it collected by the oil companies and deposited directly into the Road Fund. License fees and international transit fees are usually collected by the Ministry of Transport and the Ministry of Finance respectively. This is not satisfactory and results in high levels of evasion, avoidance, and leakage. It would be better if license fees and international transit fees were collected by the respective highway authorities, possibly using sub-contractors. The Road Fund is usually managed by a Board or Committee which reports to the ministry responsible for roads and disburses funds to individual highway authorities based on an agreed formula. The Road Fund Board often includes private sector representatives and is subjected to an external audit. Ideally, the Fund should be established by act of parliament, or presidential decree. The characteristics of some current Road Funds in SSA are summarized in Table 1.

The tariff should be set by the Board within a framework agreed with the Ministry of Finance (in Tanzania, the Board advises the Minister on the desired tariff level, while in Zambia it recommends the tariff level). The framework should include guidelines for tariff increases and targets for operating expenses. The tariff is thus not a tax and nor are the proceeds extra budgetary funds. The fuel levy is a user charge — set independently of sales and excise taxes, and clearly recognized by users as a user charge — and the additional funds are not generally available for other purposes. In both Tanzania and Zambia, the private sector has openly stated it would only willingly pay the surcharge if the proceeds were spent on roads. The fuel surcharge should not make fuel unduly expensive. Africa still has some of the lowest fuel prices in the world (see Figure 4)[7]. In 7 out of the 24 countries included in Figure 4, the price of diesel is less than $0.35 per liter. Only 7 of the 24 countries have diesel prices over $0.80 per liter and only then because many of these countries already have substantial fuel levies (e.g., Chad and CAR). A fuel levy of $0.10 to $0.15 would thus still leave fuel prices in most African countries at acceptable levels. In only few countries might introduction of a fuel levy need to be accompanied by revision of the underlying fuel tax structure to ensure the final pump price was not unreasonably high.

***Organization*.** The third building block is a consistent organizational structure for managing different parts of the road network. In other words, this building block establishes who is responsible for what. This requires an accurate road inventory, designation of appropriate highway authorities, formal assignment of responsibility to each authority and clarification of the

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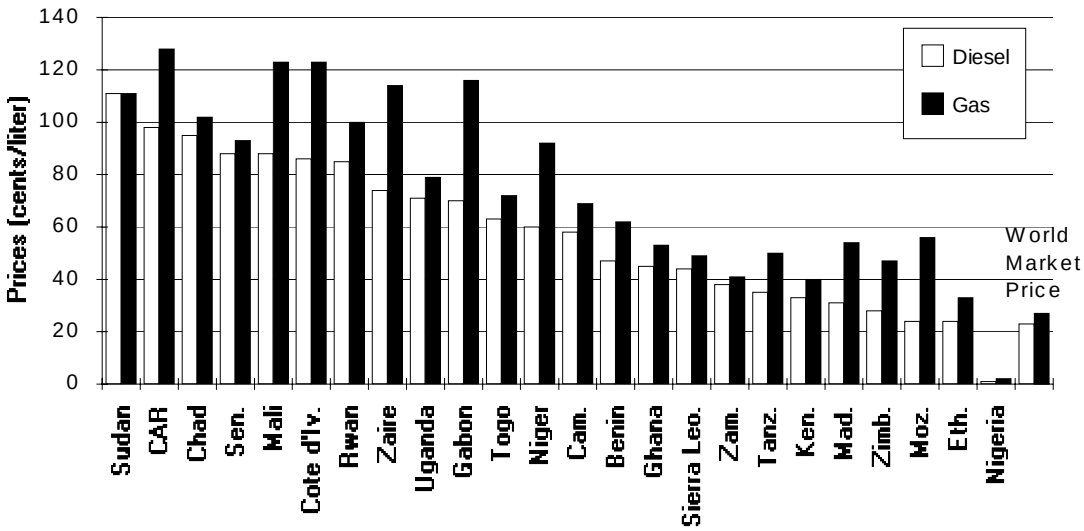
[7] The survey of fuel prices was carried out in late 1993 by GTZ and covered a total of 32 countries.

Table 1. Review of Road Funds in Selected Countries in Sub Saharan Africa: Legal and Administrative Arrangements

Country	*Legal basis*	*Status*	*Management*	*Control of funds*	*Good example*
BENIN	Decrees 1984 & 1992	Direction from the Ministry of Works	10 Civil Servants 2 private sector	Accounting Audit by Ministry of Public Works and Finance	*The Board includes private sector representatives
CAR	Ordinance 1981	Autonomous Public Institution	11 Civil Servants also non-voting members	Commercial accounting Independent auditing	*Fuel levy directly deposited into the RF *Efficient management
MOZAMBIQUE	Decrees 1989 and 1990, Amended in 1993	Financial Account	7 Civil Servants examining possibility of private sector members on the Board	No accounting, Audit by Auditor General from the Ministry of Finance	*Control of disbursements of funds
RWANDA	1989 Act and 1990 Decree	Financial Account	7 Civil Servants 1 Road Haulier	No accounting, No independent audit	*The Board includes a road user representative
SIERRA LEONE	SLRA Act, 1992	Financial Account	3 Civil servants 3 private sector 3 chosen by Minister of Works	Proper accounting Independent auditing	*The Board includes private sector representatives
TANZANIA	Parliamentary Resolutions, 1991/1992	Financial Account	Central Roads Board oversees MOW Fund independent chair 8 Civil Servants 4 private sector	Audit by Auditor General	*Representative Board *Efficient collection and deposit of the fuel levy *Clear rules for allocating funds to different types of road
GHANA	Cabinet decision and Executive Decree, 1987	Financial Account	Board suspended by the military govt. Board to be reactivated	Funds are controlled by individual road agencies	*Fuel levy directly deposited into the Road Fund
CHAD	Law, 1993 and Decree 1994	Financial Account	Technical committee	Commercial accounting Independent audit Private controllers	*Involvement of the private sector

relationship between the authority and the concerned government department. Assigned responsibilities should include operation, maintenance, improvement and development of the road network; traffic management; road accidents caused by the authority's own negligence; and the adverse environmental impacts associated with road traffic.

Figure 4. Fuel Prices in Selected African Countries



Note: Prices as of Oct. 1, 1993 (exchange rates Sept. 27, 1993)
World Market Price
Source: G. Metschies, GTZ

In terms of structure, there are several models available. The simplest is the single highway authority. The authority can often delegate responsibility for selected roads to local government agencies, or other competent bodies. The highway authority can therefore contract management of local roads to a municipality, or district council. If performance is unsatisfactory, it can either re-assume responsibility, or enter into a contract with another competent body. This model is used in Sierra Leone, with the highway authority reporting to the Ministry of Works. The opposite extreme is when each level of government is designated as its own highway authority. This happens in Zambia. The central Roads Department, which reports to the Ministry of Works, is highway authority for all main roads, while over 50 urban and rural district councils, which report to the Ministry of Local Government, are highway authorities for all other roads within district council areas.

The weakness of the latter model, is that most rural district councils lack the financial and technical capacity to manage their road networks. A number of countries therefore use hybrid models. There are several variations. The simplest is where three separate highway authorities manage main roads, urban district roads and rural district roads. This is done in Ghana where the respective highway authorities are the Ghana Highway Authority, Department of Urban Roads and Department of Feeder Roads, all of which report to the Ministry of Roads & Highways. A more elaborate arrangement for dealing with rural district roads, is by establishing regional highway authorities. The rural districts are usually grouped on a provincial, or state basis, with each district represented on the regional highway authority. The regional highway authorities usually continue to report to the Ministry of Local Government.

The most complex arrangement, is where managerial responsibility remains with urban and rural district councils, who continue to report to the Ministry of Local Government, but matching grants for road works are channeled through a central Road Fund which bases the grants on requests submitted by individual district councils. Work is periodically audited and subsequent grants are only released if work has been carried out to an acceptable standard. The districts thus have the option of doing the work themselves — and running the risk of having their matching grants reduced if the work is not done well and according to specification — having it done by another (larger) highway authority, or by a regular civil works contractor. This is done in Tanzania, with the districts reporting to the Prime Minister's Office.[8]

Within the above framework, there is also scope for establishing special-purpose highway authorities, or letting contracts for management of specific sections of road. This usually applies to high-density corridors which can be operated as toll roads. They can either be operated as public corporations, or under a concession agreement with the private sector. The beauty of the concession agreement, is that toll revenues need not cover all costs. The agreement simply specifies what fee, if anything, government must pay to persuade the concessionaire to take over managerial responsibility for that particular stretch of road. Eight toll roads in South Africa are currently being operated under concession agreements.

Commercialization. The fourth building block is a more commercially-oriented road agency. A Roads Board with private sector representatives will automatically press for this. The result generally involves reforms on three main fronts: (i) improved systems and procedures; (ii) changed attitudes toward setting priorities; and (iii) pressures for more autonomy and strict accountability. The pressure to change systems and procedures usually follows as a direct result of more commercial management. Private sector managers expect clear management objectives, competitive terms and conditions of employment, commercial accounting systems, consolidated budgets, cost accounts and effective management information systems. Actions on these fronts then lead to consequential actions as commercial management systems make the workings of the highway authority more transparent. There is pressure to dispose of in-house plant pools (or use them more efficiently), to do more work by contract, control vehicle over-loading and improve road safety. These have become systemic sources of inefficiency, because current bureaucratic management has no real incentive to do anything about it.

The final issue relates to autonomy. For over 20 years the international donor community has been pressing governments to grant public enterprises more managerial autonomy. The aim was to reduce political interference, develop a more commercial managerial outlook, reduce over-staffing and strengthen accountability. The same rationale applies to highway authorities. Management will not behave commercially until the road authority becomes more autonomous and management is held strictly accountable for performance.

An added reason for seeking greater managerial autonomy has to do with civil service terms and conditions of employment. Current salaries are way out of line with the private sector and highway authorities are suffering from shortages of staff, moonlighting, day-lighting, low staff morale and pilfering. General civil service reform has been unable to address this issue and has only managed to marginally improve terms and conditions of employment for qualified professional staff. Several governments are therefore exploring the *enclave* approach to civil service reform. When user charges are feasible, commercialize public agencies and operate them

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[8] In Tanzania, the allocation formula gives preference to districts which agree up-front to use contractors.

at arms-length as autonomous public enterprises. This shrinks the civil service and makes general civil service reform more tractable. Since roads can be financed through user charges, there is a strong case for managing them as autonomous enterprises free to set their own terms and conditions of employment. The Sierra Leone Roads Authority currently enjoys such autonomy.

CONCLUSION

During the past 20 years, nearly a quarter of the capital invested in SSA's main road network has been eroded through lack of maintenance. To restore economically justified roads and prevent further deterioration will now require annual expenditures of about $1.5 billion over the next ten years. Cutting back on maintenance is self defeating, since a dollar reduction in road maintenance *increases* vehicle operating costs by 2.0 to 3.0 dollars. The main problems affecting road maintenance are institutional and financial, although there are also a number of technical, organizational and human resource problems which contribute to poor road maintenance policies. Solutions have to involve fundamental policy reforms, compatible with the absorptive capacity of the concerned agencies, must be internalized and home-grown, and based on a broad consensus. Fundamental reform involves pain and all parties must be willing to compromise.

The reforms should focus on the four-basic building blocks: creating ownership and commitment, identifying a stable source of finance, clarifying who is responsible for what and commercializing management of roads. The first building block focuses on ways of involving stake-holders in decisions about management of roads. The basic road legislation in most anglophone countries provides for establishment of Roads Boards to advise the Minister on management of roads. They work to terms of reference provided by the Minister and can include private sector representatives. Other countries have to pass new legislation before they can appoint such Boards. One of the easiest ways of involving stake-holders is thus by appointing them to such Boards or, where they cannot be appointed under existing legislation, appointing them on an *ad hoc* advisory basis or passing new enabling legislation to establish a Roads Board. Ideally, at least a third of the Board should represent the private sector. The Board should eventually evolve into an executive Board with overall responsibility for managing the road network.

The second building block is an adequate, stable flow of funds. Unless financing arrangements can be clearly separated from the government's general tax revenues, the financial problem is unlikely to be solved. The best hope lies in introduction of an explicit road tariff. Among other things, this will introduce a clear market signal to influence demand, so that demand for roads will at last be subject to the test of the market place. The road tariff can also be used to impose a hard budget constraint on the road agency. The road tariff should be set independently from the government's sales and excise taxes and the proceeds should be deposited into a special account, or Road Fund.

The third building block is a consistent organizational structure. Reforms must go well beyond management of main roads and must also deal with management of urban, district and community roads. Assigned responsibilities should include operation and maintenance, traffic management, road accidents caused by the road agency's own negligence and the adverse impacts associated with road traffic. The organizational structure must attempt to ensure all highway authorities have the technical and financial capacity to operate and maintain the road networks within their jurisdictions.

The fourth building block is a more commercially-oriented roads organization. A Roads Board with private sector representatives will usually press for this. The result will encourage introduction of better systems and procedures (e.g., maintenance management systems and commercial accounting systems), together with a more objective approach to setting priorities and evaluating in-house work versus sub-contracting. It will also lead to pressures for greater autonomy to encourage market discipline, strengthen accountability and give management freedom to set competitive terms and conditions of employment.

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[9] Since the Road Maintenance Initiative is administered by the World Bank, most references relate to work published by the World Bank.