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Management and Financing of Road Transport Infrastructure in Africa

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Africa Region
World Bank

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**MANAGEMENT AND FINANCING OF
ROAD TRANSPORT INFRASTRUCTURE
IN AFRICA**

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**Sub-Saharan Africa Transport Policy Program (SSATP)
Africa Region
The World Bank**

The Sub-Saharan Africa Transport Policy Program (SSATP) is a joint initiative of the World Bank and the United Nations Economic for Africa (UNECA) to facilitate policy development and related capacity building in the transport sector of sub-Saharan Africa.

This discussion paper launches a new series of documents produced under the Road Management and Financing (RMF) theme of the SSATP. The RMF objective is to promote reforms to sustain road maintenance financing and improve efficiency of road management and institutions. In this respect, RMF aims at building capacity of road sector professionals through dissemination of knowledge and best practices.

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PREFACE

The need to capture efficiency gains of modern business practice in road network management has been recognized in most countries. Nowhere is this more relevant than in Sub-Saharan Africa where constrained human and financial capacities demand optimization of resource utilization in the effort to address road deterioration.

Substantial progress has been achieved through improved policies and more appropriate management structures for roads since the early 1990s. The early focus has been on road maintenance financing and addressing the deficits in this area. Experience suggests however that raising resources is not enough. More attention has to be paid to the overall effectiveness of road management. Efforts in this regard need to focus on three areas – mostly on creating efficient, autonomous agency structures to manage road programs, but also on strengthening government oversight capability, and on exploiting new technologies to reduce costs.

A version of this paper was delivered at the 8th Conference on Asphalt Pavements for Southern Africa (CAPSA) in September 2004 in Sun City, South Africa. This amended version is intended for the benefit of a wider audience.

The SSATP is keen to ensure that greater efforts are devoted to the generation of new knowledge and its effective dissemination to countries, partner organizations and donors. These discussion Papers are to provide an additional channel alongside Working Papers, Technical Notes, the website, videos and CD-ROMs. They will focus on exposing and analyzing case studies of promising or innovative practices – both at country and subregional level – and are intended to stimulate discussion and reflection on lessons learned and their applicability. Consequently, comments, responses or reactions to this paper are encouraged and can be forwarded to me at nings@worldbank.org or to the RMF thematic leader Jean-Noel Guillosoou at jguillosoou@worldbank.org. It is expected that there will be additional offerings from RMF and the other thematic areas of the SSATP. We anticipate authors being drawn from a variety of sources, including but certainly not limited to program management, consultants and country coordinators.



Nigel Ings

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INTRODUCTION

Well maintained road networks that provide the level of service needed by road users are a critically important element of development strategies in Africa today. The good news is that African governments are increasingly convinced of the value of road infrastructure investment in promoting economic growth and that a large number of these governments are taking steps to raise expenditure on the sector. These efforts have helped promote renewed interest in the road sector by official financing partners, such as the World Bank and the European Union, and have also stimulated increased interest of the private sector. The omens are thus good for the business community in Africa. Opportunities are likely to expand, especially in those areas of consulting and contracting that will support improved responsiveness to road user demands and enhanced efficiency and effectiveness of service provision.

This paper considers the major issues confronting the financing and management of road transport infrastructure in Africa today. From the starting point of accelerating road deterioration and inadequate attention to maintenance in the late 1980s, the paper shows how the new thinking on managing roads in a business-like fashion came to be applied in Africa. It traces the impact that the changes have had to date – both on institutional arrangements and on the performance of the road networks – with focus on assistance provided by the Road Management Initiative, a donor-funded, World Bank managed program supporting the formulation and implementation of appropriate policies in the road sector. The nature of the reforms and the impact they have had is described, with the initial emphasis on the deficits in the provision of financing of road maintenance. The paper goes on to point out the additional measures that are needed to complement financing innovations if there is to be a lasting improvement in the road sector. These concern principally establishing efficient, autonomous road agencies to manage road networks. Also important is strengthening government's role to provide effective guidance on transport policy and regulation as well as exploiting the emerging technological opportunities for improving the performance and reducing the costs of pavement structures. The paper sets out some of the strategies that could be used to obtain progress in these areas, with due consideration given as to how to best deal with the constraints to change that have been observed in the experience in Africa to date.

SEEING ROADS AS A BUSINESS

Assessing the Economic Importance of Roads

The public road network has been identified as the largest public infrastructure asset (Heggie and Vickers, 1998). Estimation of road asset values and costing out the implications of deferred maintenance to the economy and the road user have given a strong impetus to maintenance prioritization. For Sub-Saharan Africa countries this may be a particularly important consideration as they generally carry higher road asset values per GDP than the average. Thus the costs to road users of a degraded network are very high and constrain national economic development potential. For example, using Heggie and Vickers asset value estimates and year 2000 GDP data from the World Bank, it is found that Ghana's ratio of asset value to GDP is 33% and for South Africa it is 16% compared to the following examples from other regions: Chile 5%; Thailand 8%, and Jordan 10%.

The predominance of road transport as the means of passenger and freight movements –averaging 80% and 60% respectively on a world scale and generally higher even than this in Sub-Saharan Africa – further underlines the economic importance of roads. Rates of growth in the road network have accelerated, particularly in the transition and developing countries, as these have sought to respond to demand – expansion has been particularly fast in Asia and Latin America, but somewhat lagging in Sub-Saharan Africa. The investment implications are significant. Fay and Yepes (2003) estimate that needed yearly infrastructure expenditure in developing countries is around US\$233 billion with a similar amount required for maintenance, approximating to about 5.5% of GDP in total. Roads are projected – on average – to require about 19% of all infrastructure investment needs, or up to 1% of GDP to which allowance for current maintenance has to be added. For Sub-Sahara Africa the numbers will be generally higher in view of past underinvestment and the accumulation of arrears on maintenance. For example, recent World Bank reports cite annual road sector expenditure as a percentage of GDP amounting to 2.2-2.5% in Malawi (World Bank, 2001) and to 1.9% in Zambia (World Bank, 1997) – and in neither case was this regarded to sufficient to meet all needs.

Raising the Finance that is Needed

Greater attention has been paid in recent years to diversifying the sources of financing for the required sums for investment and maintenance. In this regard, recourse to private financing options is seen to be important. Experience has however suggested that there are limits to the extent that public financing can be replaced. The fact of the matter is that in most regions of the world, there is only a fraction of the road network that

can be fully funded by toll revenues raised either directly or indirectly. For Latin America, Fay and Yepes estimated that at best private funding could cover 30% of infrastructure investment needs. In Sub-Saharan Africa the situation is generally less favorable and, with the notable exception of South Africa, the prospects to substantially raise private financing are few and far between.

This having been said, there is still the challenge to meet of providing increased funding to the sector when the traditional sources of funding – especially those from direct budget allocations – are under increasing pressure from competing end uses. Ways have had to be found in nearly all regions to improve resource inflows, through various forms of off-budget financing, and to improve the effectiveness in the management of these funds. A number of countries – such as Sweden, UK, Finland and New Zealand – started to lead the way towards commercializing road management, managing roads as the big business that they indeed are. As pointed out by Heggie (2003), not all of these experiences may be directly transferable to developing countries. However, it is in the areas of revamping road sector institutional arrangements and of creating new sources of sector funding that tap directly into user demands for increased expenditure that the new approach to management has really started to take off in the last decade or so, particularly in Sub-Saharan Africa.

AFRICA'S ROADS PREDICAMENT

Deteriorating Road Conditions

Road deterioration started to receive serious attention in the 1980s. As stated by Harrall and Faiz (1988), “failure to maintain roads is tantamount to an act of disinvestment, for it implies the sacrifice of past investments in roads.” Their study identified that the losses in the value of infrastructure in the 1970s/1980s of the order of \$45 billion could have been averted by preventive maintenance expenditure of only \$12 billion. Crucially they also drew attention to the inadequacies of the traditional road agency structure and functions to cope with the scale of the maintenance problem; and the need to tailor future external support, including World Bank lending, to circumstances, but generally favoring those countries with appropriate road maintenance organizations and adequate levels of maintenance funding.

At this time, it could fairly be stated that the position of Sub-Saharan Africa was as unfavorable as in any region. Heggie (2004) estimates that less than half of the required expenditure to prevent further deterioration was being made available – and that the required increases were of the order of 0.85% of GDP on average. The average quality of the road network paved and unpaved was extremely low – not less than 25% and 33% respectively in poor condition with the consequent implications for higher vehicle

operating costs and lengthier travel times. Despite allocation of a still significant proportion of scarce public resources – 5 to 10% of recurrent budget and 10 to 20% of development budget – the capacity to absorb and efficiently utilize these funds was very low. The combination of these factors was contributing to a substantial degree of frustration on the part of road users and other beneficiaries as well as disenchantment among the financiers.

NEW APPROACHES TO RESOLVE THE PROBLEMS

This was the time to try to address the problem before it became unmanageably large and before the negative economic consequences for the regional economy became overwhelming. Fortunately, the African countries working through the United Nations Economic Commission for Africa (UNECA) together with the World Bank and a number of donor nations were at work on putting in place a framework to generally address improvements to transport in Sub-Saharan Africa. The Sub-Saharan Africa Transport Policy Program (SSATP) was launched in 1987 with one of its first priorities to address road maintenance policies and help put road maintenance on a sustainable long term basis. In the process of rendering the SSATP operational, a number of components or initiatives were started, of which the Road Maintenance Initiative (RMI). The RMI commenced with a diagnostic phase led by a small team based in the World Bank and then branched out into a second phase of country level initiatives in nine target countries. This work permitted to identify a wide array of problems contributing to poor road maintenance policies and practices – and subsequently to the development of an agenda for reform, the roll out of the implementation of which started from the early 1990s. This process included the identification and active courting of other potential “member” countries. The driving philosophy behind this agenda was managing roads more like a business, and in particular charging for road use on a fee-for-service basis. The framework for bringing about the necessary changes was through the implementation of the so-called four building blocks:

<i>Ownership</i>	Involve road users in the management of roads
<i>Financing</i>	Secure a stable flow of funds for adequate road maintenance
<i>Responsibility</i>	Ensure all parties know their responsibilities and are given corresponding authority
<i>Management</i>	Introduce sound business practices and managerial accountability

CONTRIBUTION OF THE ROAD MANAGEMENT INITIATIVE

Building the Partnership

RMI continues to this day as a partnership bringing together the countries committed to road sector reforms with – through the SSATP – the group of the external donors and organizations who endorse these reforms. The name changed to Road Management Initiative in 1997 (the acronym thus being unchanged) to better reflect the broadening of the focus of the work of the partnership, as explained below. Key interlocutors for the RMI are the country coordinators who serve as the focal point of the policy reform efforts. Whereas some of the coordinators in the initial stages were full time, all are now working part-time as they are senior officials in the transport sector with full time responsibilities – which can be both an advantage and a drawback. The number of member countries has increased from the initial nine – of which two dropped out – to 13 by the end of the 2000s and now to 19 per Table 1 below.

Table 1 – Member Countries of the Road Management Initiative

Angola	Gabon	Malawi	Togo
Burundi	Ghana	Mozambique	Uganda
Cameroun	Guinea	Niger	Zambia
Chad	Kenya	Senegal	Zimbabwe
Ethiopia	Madagascar	Tanzania	

Source: SSATP

The RMI has pursued a broadly based program from the start, as is evidenced by the record of publications since 1991 encompassing among others issues environment, contractor development, plant pool reform and road safety. However the key area of attention has been addressing the road maintenance funding deficit – and specifically the development of a particular institutional mechanism, the road fund, to address this concern in a manner commensurate with the aforementioned building blocks, i.e. creating an agency with a board on which users are represented, generating new user related sources of funding to address the deficit, managing the fund in a business-like fashion.

PROMOTING THE SECOND GENERATION ROAD FUND

Now the notion of a road fund was not a novel idea. As set out quite extensively in Heggie and Vickers, there were, and still are, a range of such funds in the developed world – notably in the USA and Japan – and in quite a large number of transition and

developing countries. The performance of such funds had however been mixed and generally quite poor in Sub-Sahara Africa. Some of the common problems cited were: poor financial management; absence of independent audits; extensive use of funds for unauthorized expenditures; diversion of funds; weak oversight. As a result most of these earlier, sometimes known as “first generation” road funds had actually been closed down – very often at the express urging of the World Bank and the IMF.

The road fund model championed by RMI was intended to address these historical weaknesses as well as to put into practice the four building blocks. Emerging from this process was the so-called “second generation” road fund, the first of which was created (in Zambia) in 1993, and of which there are now more than 20 in place in Sub Sahara Africa. The key characteristics of these funds as generally understood are in Table 2 below.

Table 2 – Characteristics of the “Second Generation” Road Fund

- Sound legal basis – separate road fund administration, clear rules and regulations
- Strong oversight – broad based private/public board
- Agency which is a purchaser not a provider of road maintenance services
- Sound financial management systems, lean efficient administrative structure
- Regular technical and financial audits
- Revenues are incremental to the budget and come from charges related to road use

Sources: Heggie, 2003 and SSATP

Much attention was given to convincing key development partners that the revised approach to road funds was not only viable, but highly desirable in terms of addressing the underlying weaknesses in road maintenance funding and the allocation of resources raised for this end. A particular focus was on persuading the IMF that such approaches could be reconciled with the concern shared also by ministries of finance in African countries on maintaining a common, disciplined budget. IMF views on the acceptability of road funds under certain conditions are set out in Potter (1997). In particular the IMF insisted on – the focus on dedicated road maintenance funding, rather than on avoiding strict budget discipline; the separation of the purchaser function of the road fund agency from the road maintenance service provider; the presence of a management board with private sector participation, but free from producer pressure; the adoption of a robust financial management system to assure equal or better standards to those prevailing in central government. Potter also underlined the desirability of a high level of cost recovery through road user charges, without necessarily excluding some level of continued government budgetary support.

In most of the countries where such funds have been created, the reaction has been largely positive. This is almost universally so among road users and the private sector where the benefits have been demonstrable – and to a large degree, but not unanimous, among key government ministries. A good example of the perception of the benefits of the reform and the impacts that it has had is contained in the presentation of the Chairman of the Zambia National Roads Board to the PIARC World Congress in Durban (Chipewo, 2003). This presentation describes the types of contributions road users can make to improve road management performance and shows how perceptions of the maintenance problem and what can be done to address it have changed for the better over time.

MEASURING THE IMPACT OF ROAD FINANCING REFORMS

With the passage of time and the steady increase in the number of countries creating the “second generation” funds, RMI has paid increasing attention to reviewing the impact and seeking to validate some of the underlying assumptions and expectations for this reform. Kumar (2000) carried out a detailed assessment of the experience of five countries – Benin, Ethiopia, Ghana, Kenya and Zambia looking primarily in three areas – institutional and management structure; process of setting up and implementing the road funds; and objective achievements. His analysis supported the view that incremental funding was being raised for road maintenance and that the road funds were generally doing a good job in managing the resources. An important finding was however, that dedicated financing is a necessary but not sufficient condition for stable and sustainable road maintenance. Another concern was the unevenness of the impact of the reforms on road quality and road user costs when absorptive capacity did not increase to match the additional funding. Brushett and Kumar (2001) added that the sustainability of the financial gains of road funds were likely to remain uncertain unless more robust arrangements were put in place for the adjustment of road user charges in relation to needs and cost inflation. They also indicated that for full funding road maintenance of Africa’s road networks to be viable more attention had to be given to defining priorities; emphasizing the importance of unit cost reduction; incentivizing road agencies to perform; exploiting new technologies and reviewing standards.

The most recent comprehensive assessment of the state of implementation of these funds has been carried out by Gwilliam and Kumar (2003). The main findings are set out in Table 3 below. This work has brought the benefits of such reforms into focus especially in terms of funding availability and execution capacity. However, in most countries revenues are less than the level of requirements. Experiences cited range from 30% to 80% of maintenance needs being met, still well below what is needed for true sustainability, but nevertheless a marked progress compared to the figures of 15-20% common in the early 1990s. Improvements in operational efficiency and resource allo-

cation are positive but still limited, although they appear to have been strong enough to reverse the trend towards a decline in external (donor) support to the sector.

Table 3 – Assessment of Impact of Financing Reforms

Overall “...Evidence on new road funds in Africa... finds that they have not undermined fiscal flexibility. Moreover, they have improved administration of road funding (in terms of execution capability) and its outputs (in terms of road conditions)”

Maintenance Funding “ ...underfunding has been reduced but it remains a serious problem...”

Resource Use Efficiency “...despite limitations (inadequate capacity of maintenance providers), maintenance costs have been reduced.”

Resource Allocation Efficiency “contractors have become better able to absorb allocated funds...” but “... in practice resource allocation continues to be driven by standard formulae rather than planned reviews of programs put forward ...”

Road Quality Impact “...long term declines in road quality have been arrested and in some countries significantly reversed.”

Source: Gwilliam and Kumar, 2003

TRACKING PERFORMANCE OF ROAD FUNDS

RMI has been involved in developing a simple “matrix” updated on an annual basis to track the progress on road management reforms, with a current focus strongly but not uniquely on “second generation” road funds. The matrix currently covers 28 Sub-Saharan African countries in the process of implementing road financing and management reforms, including but not limited to the 19 RMI member countries. All but four of these countries have road funds in place. The question is – are they true “second generation” road funds? The answer is – largely, yes but with some important provisos. Most have a management board in place, but only just over half have a private sector majority members. Perhaps not more than five or six road funds depend solely on road user charges – mostly raised through a fuel levy. A problem suffered by a number of funds, perhaps just under half, is that road user charges are not directly channeled – this leads to delays and uncertainties in the programming of work. A surprising large number of funds – 14 in total – indicate that routine maintenance needs are not fully met, although, it would appear, the level of resources being raised by most road funds ought to suffice, if that is such, expenditures are properly prioritized. In only two or

three cases are two thirds or better of total maintenance funding requirements met. A consolation however is that on aggregate performance does seem to have improved since 1999/2000 when the original case study reviews were carried out by Kumar.

Table 4 – Some Indicators of Performance for “Second Generation” Road Funds

- 24 road funds are in place – of which 9 established since 2000
- 23 road funds have management boards – of which 13 with private sector majority
- 13 road funds rely (90% or more) on road user charges as revenues
- In nearly all cases, fuel levy is the principal means of raising road user charges
- Fuel levy in US cents/liter falls normally in the range 4 to 9 (10 to 13 normally seen as sufficient by RMI)
- Only about one third of road funds may now be meeting routine maintenance expenditure needs on a regular basis

Source: SSATP

FINANCE IS NOT ENOUGH

The Limits to Revenue Generation

Experience suggests that it is still proving difficult to raise sufficient revenues to meet all the currently assessed demand for maintenance. Countries adopting the road financing reform have found it easier to create a road fund with an initial (incremental) road user charge than to adjust that charge and diversify sources of revenue – even where road user demand remains strong. Governments in all cases remain the final arbiters on the level of road user charges and have shown reluctance to carry off frequent upward adjustments for a number of reasons. As noted by Potter (1997), there may be limits to the capacity of countries to, say, raise fuel levy as taxes, and duties on fuel are already very high and an important contributor to general revenue.

Thus, the analysis of the performance of road funds leads naturally to the consideration of what more has to be done to address the other aspects of road management. Not that road funds have outlived their usefulness – indeed consolidating the impressive gains made to date and addressing issues is crucial – but that the underlying constraints to improved absorptive capacity and enhanced institutional efficiency remain, relatively speaking, unresolved. To what extent might improvements in the organization of road management services (the provider of services) garner efficiencies and cost reductions that could be passed on to road users?

THE IMPORTANCE OF INCREASING CAPACITY AND EFFICIENCY

Talvitie, 1996 identified a number of factors that would be particularly relevant to road administrations in terms of enhancing organizational effectiveness. Table 5 below summarizes the key dimensions as well as an estimate the likely order of magnitude of cost savings. Subsequent experience suggests that these figures are on the conservative side – for example contracting out maintenance works on a performance-specified basis in Latin America (Zietlow, 1998) and in Australia (Frost, 2001) have found reductions of up to 40% may be feasible.

Table 5 – Sources of efficiency gains from road sector reform

Decentralized Programming	10-15%
Improved Data Collection	2-3%
Contracting Out	5-15%
Planning Improvements	
Shorten Design Cycle	5-30%

Source: Talvitie 1996

The potential for exploiting such opportunities has been realized to some extent since the early days of RMI. It has however proved more difficult to introduce and sustain reforms than has been the case with financing – as reform has necessarily involved significant restructuring of existing institutions and changing entrenched practices and procedures. SSATP’s recent internal review of the progress achieved in this direction has recognized the existence of “two waves” which are summarized in Table 6 below (Brushett, 2004). The waves represent on the one hand the early attempts of reform - many of which predate RMI - which have been pursued into the mid 1990s and on the other hand more recent approaches which have pushed harder the message of commercialization and its potential benefits. The sense of this review is that the agenda to be pursued under the first wave is generally accepted and that in some areas – such as contracting out and downsizing plant and equipment pools – the recommendations are being followed in nearly all countries. What has created the environment under which the second wave has been launched is that the reforms under the first wave have not wrought very much yet in terms of efficiency improvement and cost reduction.

EXPERIENCE WITH ROAD MANAGEMENT RESTRUCTURING

A number of countries – Zambia is one good example – had first sought to restructure and improve incentives within the existing public sector frameworks, often in conjunction with an overarching public sector reform process. The limitations of such ap-

proaches have already been outlined, inter alia by Heggie, 1994, focusing on the impact of pay differentials between the public sector and competing employers for skilled staff in the private sector. Such differentials remain important in most cases. Restructuring has however – taking the case of Zambia – had some impact on improved staff retention and generally increased the level of qualified staff. However, the capability to increase work output and to reduce costs through higher staff productivity and more effective planning and delivery remains limited. Under this type of restructuring for example, road management systems have not become well established and monitoring and evaluation has not really improved. Consequently, an increasing number of countries – including Zambia – have seen it necessary to go further in the direction of institutional reform, to ensure that the provision of road services as well as the purchase adopts a business-oriented approach.

Table 6 – Road Management Restructuring in Africa – The Two Waves

First Wave ...

- Contracting out works
- Downsizing plant and equipment pools
- Restructuring roads departments
- Retraining and retrenching
- Improving staff incentives
- Strengthening road management systems
- Separating responsibilities, identifying the core client functions

Second Wave ...

- Create new institutional structures
- Contracting out network management
- Bring in representative boards
- Add new services
- Deconcentrate service provision
- Strengthen public relations
- ... Sharpening accountability and emphasizing client orientation

Source: SSATP

PROGRESS ON COMMERCIAL ROAD AGENCIES

The length and depth of experience in Africa with commercially managed road agencies is much less than is the case with road funds. Aside from Namibia and South Africa (not currently SSATP member countries), there are 12 Sub Saharan Africa countries per Table 7 below at various stages of creation of such agencies. There has not yet been any systematic performance review of these cases to accurately quantify the improvements that have been wrought – this is therefore an item that will be high on the agenda for SSATP in the future. Certain tentative conclusions can be reached however, of which the following are the most important.

- Business orientation is difficult to achieve even with a conducive legal structure – getting the right top management and Board of Directors in place is crucial, as is effective and regular interface with stakeholders, including road users.
- Operational targets must reflect actual and expected financial resource levels – and management must have a sharper focus than hitherto on efficiency improvement. In fact inadequate funding continues to be a major brake on institutional progress.
- Sharp institutional focus on a limited number of practical steps to improve efficiency, such as improving turnaround on procurement of works and contracting suppliers, can pay immediate dividends.
- Performance agreements – for the agency as well as for its senior management – can provide a framework for improved oversight and for measured improvements in effectiveness and efficiency.
- Institutional improvements need to take advantage of windows of opportunity when these occur – regular implementation reviews should however be undertaken to ensure that the change is on track in relation to original design.
- Ministerial oversight arrangements tend to be a neglected area of institutional reform – a weak policy and regulatory framework may undermine gains elsewhere.

Table 7 – Creation of Independent Road Agencies in Africa

Established	Newcomers	In Progress
Angola	Côte d’Ivoire	Mali
Ethiopia	Malawi	Uganda
Ghana	Mozambique	Zambia
Sierra Leone	Senegal	
	Tanzania	

Source: SSATP

ADDRESSING THE CONSTRAINTS TO FURTHER PROGRESS

Enhancing the Role that Governments still have to Play

Ensuring governments play an effective role in transport policy formulation and in regulation and oversight of the newly created road sector institutions is coming to be seen as a neglected area of road sector reform. The importance of this role is frequently reaffirmed – but much of the earlier efforts to create road funds and now to establish agencies appears designed to externalize key functions from central government and thus to avoid the perceived constraints of low pay and inadapted procedures and practices. However significant key functions normally remain to be carried out by these government structures – determining road standards, carrying out road classification, setting long range planning goals. If these functions cannot be carried out effectively, the performance of the new institutions is bound to suffer, for example, road funds will not get the revenue increases they need and road agencies will not be in a position to deliver realistic network improvement programs.

What can and should be done? The tasks that government has to undertake can be further broken down and more responsibilities can be outsourced to agencies – this what for example Malawi and Uganda is looking at for transport sector regulatory functions, which would inter alia cover the road sector. There is still however the outstanding issue as to how such agencies would be funded. The remaining functions of government may then be lesser in scope but still critical in terms of content – a small motivated and experienced team to advise the Minister, for example. Experience in all parts of the world suggests that even with significant reforms in this direction, pay and condition differentials will continue to exist, and they will not be in favor of the public sector. Other means of motivation and rewarding staff need to come into play, in order that transport ministries are not to be seen, or seen by themselves, as the residual left behind by the tide of change.

IMPROVING THE EXPLOITATION OF TECHNOLOGICAL IMPROVEMENTS

Pinelo et al., 2003 suggest that research and development in road technologies has often been neglected as a contributory factor to improved road sector performance. Their work – focusing on the particular cases of Uganda and Mozambique – hints at the potential that exists to harness new technologies which may be adapted to the needs of low volume roads in Sub Sahara Africa – technologies that could substantially reduce unit capital cost as well as the average annual maintenance burden. Pinard et al., 2003 support this case and emphasize the need for administrations to move towards a more holistic and sustainable approach and away from a purely technical view on choices of

technology for roads. Mainstreaming the innovations that have been carried out to date may take some while to take hold. Nevertheless, it would be expected that commercially oriented agencies would be geared up to exploit the opportunities presented to: review standards and past practices that are often inadapted to current needs; aggressively pursue cost reduction possibilities through the utilization of the new thinking; ensure such benefits that accrue are passed on to road users who will gain from lower costs and reduced travel times. It must be emphasized that such opportunities now apply as much to the paved main road networks of African countries as to the unpaved secondary and tertiary networks where much of the original research was focused.

QUO VADIS?

Despite the sometimes uneven results on the ground, stakeholder support for the reform process remains strong. Evidence to this effect comes from a survey among 142 stakeholders in 7 RMI member countries (Pinard and Kaombwe, 2001). That survey indicated however that the improvements may remain fragile unless firmly backed by a sustainable financing scheme. There was also a plea for more technical support and the availability of appropriate advocacy tools in the member countries – the means by which decision makers can be convinced that the full vision of commercialization must be realized. Nyangaga, 2001 from his Kenya country experience sets out the obstacles to effective implementation of road sector reform which underlies the need for governments to be informed and committed partners. He identifies in particular the reluctance of government to give up powers and responsibilities, as traditionally exercised, to the new institutions. Thus, it is that the SSATP has seen the need to become increasingly engaged in the development of tools and methodologies that are truly supportive of commercial management in the road sector, well adapted of course to Sub Saharan Africa's requirements.

Expectations have been raised among road users and other beneficiaries about the impact that road sector reform in Africa is going to have. The direction has been broadly right although the speed and efficiency with which change has come leaves something to be desired. Even as matters stand, the road sector has probably performed as well, if not better, than any other sector in recent years in Africa - and this is starting to show in the level of expenditures in relation to GDP. The areas that are now going to need greater attention from decision makers and the external partners are reasonably clear. The priority is now to design and then implement imaginative strategies and monitorable programs to achieve the results on the ground.

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