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**Policy Implementation Review of the
Agricultural Transport Assistance Program (ATAP)**

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PREFACE AND ACKNOWLEDGEMENTS

The following report was prepared under a delivery order issued by the Agency for International Development/Tanzania to the Decentralization: Finance and Management (DFM) Project. It is the result of a four-person research effort conducted over the course of four weeks in Tanzania.

During that time the research team conducted interviews and reviewed documentation both in Dar es Salaam and in government regional offices in Iringa and Moshi. We would like to extend thanks and acknowledgements to all those at USAID/Tanzania and within the Government of Tanzania, especially the Ministry of Works, for their patience, cooperation, support, and hospitality.

The DFM Project is managed by Associates in Rural Development, Inc., in collaboration with the Metropolitan Studies Program of the Maxwell School of Syracuse University, and the Workshop in Political Theory and Policy Analysis of Indiana University.

The DFM Project's primary focus is the analysis of institutions that perform key funding, management, and maintenance functions in order to suggest ways in which these institutions can improve performance and establish policies which encourage sustainability. The project provides research and technical assistance to AID field missions and central bureaus to help analyze institutional structures that support local autonomy and sustainable management of resources.

ACRONYMS

ATAP	Agricultural Transport Assistance Program
BOT	Bank of Tanzania
CCU	Contracts Control Unit
CTP	Central Tender Board
DFM	Decentralization: Finance and Management
DRA	Director of Roads and Aerodromes
DSM	Dar es Salaam
EEC	European Economic Community
GOT	Government of Tanzania
IBRD	International Bank for Reconstruction Development
ILO	International Labour Organization
IRP	Integrated Roads Project
MCW	Ministry of Communications and Works
MOF	Ministry of Finance
MOT	Ministry of Transport
MOW	Ministry of Works
MP	Member of Parliament
MTC	Ministry of Transport and Communication
NBC	National Board of Commerce
NCC	National Construction Council
NIC	National Insurance Company
NTC	National Tender Committee
PEHCOL	Plant and Equipment Hire Company, Ltd.
PMO	Prime Minister's Office
PS	Principal Secretary
RDD	Regional Development Director
REO	Regional Engineer's Office
RTB	Regional Tender Board
TIPER	Tanzania Italian Petroleum Refinery
TPDC	Tanzania Petroleum Development Corporation

EXECUTIVE SUMMARY

The Decentralization: Finance and Management (DFM) Project was contracted to conduct a Policy Implementation Review of USAID/Tanzania's Agricultural Transport Assistance Program (ATAP). The in-country work for the review was conducted during July 1993 by a four-person team. This draft report is the product of that review.

Since ATAP supports three basic policy reform areas -- institutional reforms, contracting reforms, and financing reforms -- this Policy Implementation Review addresses these same areas. As stated in the original Statement of Work, "The objective of the review is to specify all the policy reform parameters the ATAP program is supporting and promoting and to assess problems being encountered in the implementation process of these reforms and recommend remedial measures to ensure the establishment and operation of sustainable rural road maintenance in Tanzania."

As suggested in this objective, there are problems associated with the reform process currently underway in the Tanzanian roads sector, and much of the report focuses on problems and their possible solutions. At the same time, we wish to stress that our review also leads us to conclude that much progress has been made. Roads *are* being reconstructed and maintained; private contractors *are* playing crucial roles in this process; and the Roads Fund, established to help ensure that adequate revenues would be available for road maintenance, is deriving revenues which are, in fact, spent within the roads sector.

The reforms within the roads sector are not, of course, the *only* reforms underway in the country. Indeed, nearly all segments of the Tanzanian economy are experiencing major structural reforms. It should not, therefore, be surprising to find that as these reforms are implemented, other unforeseen problems arise as new institutional arrangements are established.

Our analysis of institutional, contracting, and financing reforms relies on a conceptual view of the roads sector which views the sector as an industry. The industry consists of a variety of actors. As with any industry, its success depends on how well these actors interact since each can affect the sustainability of road investments. In addition to the obvious public sector actors within the Ministry of Works (MOW) (at both the central and regional levels), other public sector entities with influence on transportation include the Ministry of Transportation and Communications (responsible for transport policy), the Prime Minister's Office (which allocates 20 percent of the Roads Fund to local councils throughout the nation), subnational committees and councils such as Regional Development Committees and district councils (which directly or indirectly influence road investment decisions in the regions or districts). The private sector also participates in the roads industry. The bulk of road service users (both direct users of roads and consumers of inputs and outputs that are transported over the roads) are private citizens, and, as is emphasized in the report, much of the current production of road construction and maintenance is being carried out by private contractors.

Finally, there are ancillary organizations that also have an impact on the success of this industry; they include the banks which provide credit and bonding for contractors, insurance companies which insure contractors, the National Construction Council (NCC) which registers and trains contractors, and the national legal system which acts to resolve disputes. Finally, investments in road construction and maintenance are funded in part by a long list of international donors together with the users of roads who help to finance road maintenance through the Roads Fund and by general taxpayers who support the recurrent operations of the several public sector actors noted above.

As with any public sector activity, it is useful to distinguish between *provision* and *production* of road services. *Provision* refers to decisions concerning what kinds of roads to provide, where they should be located, how they should be financed, how their construction and maintenance should be produced, and arranging for and monitoring the production of these public investments. *Production*, on the other hand, is limited to the transformation of inputs into road construction, maintenance and repair outputs. In Tanzania, the bulk of all production activities are carried out by the private sector through the use of contractors, while provision decisions, including financing activities, are the province of the public sector. This conceptualization of activities associated with roads is useful in tying together the three principal parts of this study -- the institutional arrangements for public sector provision decisions, the contracting of production activities, and the financing of road maintenance through the Roads Fund -- and showing how these activities, particularly the institutional and contracting arrangements, interrelate.

The institutional analysis conducted here does not replicate the organization-chart oriented analyses of how the MOW and ancillary organizations might reorganize themselves. Instead, the analysis considers the progress that has been made in institutional reforms over the past several years, the issues that remain, and implications for sustainable institutional reform.

Recent reforms at the central level of the MOW have included establishing the Rural Roads Division and strengthening both management and technical capabilities in the regions with the expectation that managerial responsibility could be deconcentrated from the center to the regional level. In fact, road maintenance activities are being prioritized using systematic methods at the regional level, utilizing local information that generally is not available centrally. Although progress has been made, tensions between the regions and the center concerning decision-making authority still exist with the center retaining some responsibilities that may be more appropriately assumed at the regional level. Furthermore, our discussions at the regional level suggest that inter-regional communication is not being facilitated by the central office despite innovative problem solving in at least some areas which could be of use in other regions. Finally, manpower allocation between the regions and headquarters, particularly in the face of likely future staffing cutbacks, remains an important issue that must be faced by the MOW. Contract management is consuming more and more personnel time in the regional engineers' offices, suggesting that some redeployment and training are required.

The districts, while responsible for overseeing and maintaining the largest proportion of the total length of the road network in Tanzania, have very few resources (either monetary or technical) available to improve or maintain these roads. (Of course, many of these roads carry very little traffic and, therefore, costly improvements or even maintenance cannot be justified economically.) Twenty percent of the Roads Fund has been made available to district councils; however, as noted below, the bulk of that money has been allocated to projects in urban areas. Many of the improvements to district roads have been initiated locally. Such local resource mobilization (often in the form of in-kind resources rather than monetary resources) is quite appropriate since all or nearly all of the benefits from the roads are enjoyed by the local residents. Nonetheless, district councils often hope to get district roads "upgraded" to become a part of the central government's portion of the road network under the (quite possibly erroneous) assumption that resources would then be provided to improve and/or maintain the road (without any direct local contribution).

Localized information concerning road conditions and road usage is crucial to efficient decision making within the roads industry; since this information is more likely to be available at the regional (and district) level, it follows logically that there should be some decentralized provision of roads. Current discussions of the future of the roads industry in Tanzania have raised the possibility that an autonomous roads authority be created to manage the construction and maintenance of the national roads system. While the greater managerial flexibility of such an authority may yield efficiencies not available to the MOW, whether the authority would remain committed to regionalized decision making using localized information is an important issue related to the long term sustainability of roads in the country.

The current road network consists of trunk roads, rural roads, and district roads, with responsibility for upgrading and maintaining trunk and rural roads assigned to the MOW and district councils given authority over rural roads.¹ There can, however, be other alternative arrangements for responsibility of roads, particularly road segments which primarily serve well defined and reasonably homogeneous groups, e.g., farming communities or cooperatives which have strong incentives to provide themselves with low cost transport and are sufficiently organized to insure that all members of the group contribute toward road upkeep. Such arrangements should be encouraged in an environment where it is highly unlikely that sufficient resources will be available any time in the near future to support a road network consisting of over 80,000 km of roads.

Contracting with private firms for road construction and maintenance as well as for consultant engineering services has been an integral part of the Integrated Roads Project (IRP), especially USAID's ATAP component of the IRP. Indeed, if measured in terms of numbers of contracts negotiated and signed over the past few years, this route to encouraging development of the private sector has been an important success in the overall reforms of the

¹We encountered several persons both in and outside the MOW who indicated that the responsibility for at least some particular road segments within the network is still, not fully defined.

economy of Tanzania. Certain problems, however, have accompanied the success, particularly those associated with long delays in the contracting process and problems associated with the ancillary organizations that were noted above to be integral parts of the roads industry.

Delays in decision making related to tendering and payment decrease the efficiency of the contracting system. The delays increase costs, which, in turn, decreases the amount of road work that can be supported with a limited budget; they also increase risks to contractors and, hence, can hinder the privatization process. There are a variety of probable causes for these delays:

- As tender packages are prepared and approved within the MOW, changes are often made in their wording or some of the numerical computations. Regardless of how minor these changes are, the entire package must go through the entire approval process once these changes are made.
- The National Tender Committee (NTC), Central Tender Board (CTB), or Regional Tender Boards (RTB) must ultimately approve tender documents and must also approve the short list of contractors chosen by the MOW; given that the members of these oversight bodies have numerous other important jobs to fulfill, this approval process contributes to delays.
- Once bids are submitted to the MOW, a working committee staffed by junior engineers and a decision-making committee comprising the senior engineering staff each evaluate the bids, with the latter group selecting the "lowest responsive bidder".
- Once the preliminary selection has been made by the MOW, the NTC, CTB or RTB review the decision.
- Pre-contract negotiations between the MOW and the selected bidder then occur before the contract is signed; when there is a long time lag between initial project design and finalization of the contract, the negotiation may entail changes in contracted quantities.

Consulting engineers play an important role in a successful contracting arrangement. It is therefore imperative that well qualified consulting engineers be chosen. If they produce inadequate designs or designs become obsolete due to delays, the designs should not be tendered. Weak designs can ultimately add to delays in completing contracts and can also drive up the costs of producing roads. The analysis found that the existing contracts between the Government and consulting engineers contain few incentives for the consultant to perform well.

There are other important private or quasi-private components of the road industry which affect the contracting environment. For example, although bid bonds, performance bonds, and advance loan bonds are purchased by contractors, neither the National Insurance Company (NIC) nor the National Bank of Commerce (NBC) as issuers of these bonds actually expect to pay, even in the event of a contractor default. If, in fact, no payment will be made, the current bond requirement simply raises the cost of roads without increasing their quality. The NCC, professional engineering societies, labor unions, and chambers of commerce also all play important roles in the roads industry, particularly the relationship between the MOW and contractors.

In spite of the delays in contracting from 1990 to 1992, contractors are performing. Field visits to Regional Engineer Offices in the Kilimanjaro and Iringa Regions, during which the team traveled over more than 700 km of trunk roads and 150 km of rural regional and district roads, clearly indicated that contractors are performing, albeit at varying degrees of proficiency. Interviews with contractors also revealed that the contractors are investing their own capital and building firms that are capable of being short-listed to compete for work.

It is generally expected that competitive bidding processes will result in the lowest possible unit, e.g., per-kilometer, costs for production. Unfortunately, it is extremely difficult to ascertain whether the contracting process, currently in its early stages in Tanzania, has achieved these efficient outcomes. Our field work observed one road costing approximately US\$12,000/km and another nearby road, constructed to a similar standard, costing approximately US\$45,000. One possible reason for this difference is that the former is being constructed under a labor-intensive approach while the latter is a more traditional, capital-intensive approach to reconstruction. However, this does not entirely explain the difference, since our investigation also reveals that even the labor-based contractors are spending large proportions of the total contract on machine inputs.

The Roads Fund is working. Resources are being mobilized through the road toll tax, and are being regularly and systematically transferred to the MOW and the Prime Minister's Office, and, in turn, are being spent in the roads sector. During fiscal year 1992/93, TSh 6.83 billion were collected from the road toll tax levied on *all* petrol (premium and regular grades) and diesel fuel distributed on mainland Tanzania. Transfers from the Ministry of Finance (MOF) to the implementing agencies have been occurring one month after the revenues are collected.

Road toll tax rates have been raised three times during the past three years. From July 1991 to June 1992, taxes were TSh 7/liter; from July to December 1992, they were TSh 10/liter; from January to June 18, 1992, they were TSh 20/liter; and since then they have been TSh 25/liter. At current Dar es Salaam pump prices, the TSh 25/liter taxes amount to effective tax rates of 11 percent for petrol and 16 percent for diesel oil. These are in addition to the sales taxes (diesel oil is exempt from sales tax) and excise taxes also imposed on petroleum products.

Road toll taxes along with sales and excise taxes are collected from the oil companies which distribute and sell the products throughout the country. The tax, collected by the Sales and Inland Revenue Department, is imposed when the product leaves the companies' bonded warehouses. The road toll tax is not, however, imposed on gasoline and diesel fuels that are transported to Zanzibar since Road Fund monies are not spent there. This creates an important potential loophole in the tax.

Monthly tax collection data from calendar year 1992 imply that taxes were paid on a total of 467.2 million liters of petrol and diesel fuel. Data from the Tanzania Petroleum Development Corporation (TPDC) suggest, however, that a total of 526.2 million liters of taxable fuels were distributed by the oil companies in 1992. There is, therefore, nearly 60 million liters of fuel which should have yielded revenues to the Roads Fund. Among the possible reasons for this 11.2 percent shortfall are: (1) oil companies have overstated to TPDC the amounts of fuel that were distributed; (2) oil companies have not paid the full taxes due on the fuel distributed; (3) clerical errors have occurred either in reporting fuel distribution totals or by recording the taxes collected in the wrong accounts; or (4) the MOF has utilized the tax for general fund purposes rather than the Roads Fund. Only an in-depth audit of the relevant accounts will allow one to know which of these (or other) reasons yielded this outcome.

If the GOT opts to add other revenue sources to the Roads Fund, two sources would seem to satisfy the objective of rationally financing road maintenance in a way that links payment to relative use and damage caused to the roads from that use. These are the motor vehicle road license tax and the transit taxes (imposed on goods in transit through the country). In FY1992/93, these two sources would have added TSh 556 and 125 million, respectively, to the Roads Fund. If the motor vehicle road license tax is added to the Roads Fund as another user charge, its rates need to be rationalized since present rates do not adequately reflect the relative damage different types of vehicles cause to road surfaces. Similarly, administration of the tax needs improvement since our estimates suggest that, on average, vehicle owners paid only approximately TSh 7,700 per vehicle during 1992/93 which corresponds to the amount that owners of small passenger cars are to pay.

MOW uses a reasonably systematic method of planning for and allocating Roads Fund money. The method allocates funds first to periodic maintenance, second to emergency repair needs, third to routine maintenance, and fourth to spot repairs (if resources are sufficient). Since past completion of periodic maintenance contracts have been delayed, there have not been extremely high demands for periodic maintenance payments. Thus, 42 and 52 percent of total spending during 1991/92 and 1992/93, respectively, was used for routine maintenance. It is questionable, however, whether these percentages will remain as high in the future when additional periodic maintenance contracts are completed.

All regions receive MOW Roads Fund resources. During the past two years, Dar es Salaam region has received the largest shares -- 11.93 percent in 1991/92 and 13.29 percent in 1992/93. Over 16 percent of the funds has, however, been attributed to the "Headquarters" since, apparently, many contracts for works in the regions have been paid there. Thus, the relative proportion to Dar es Salaam may be significantly greater. There is also considerable concern that Roads Fund money is being spent for purposes other than road maintenance, e.g., as salary supplements. Initial audits of the Fund for 1991/92 suggest that unreasonable amounts were used for travel allowances. Since the Roads Fund is an "off budget" item (not debated by Parliament), close scrutiny of its use is absolutely necessary.

Allocation of Roads Fund resources by the Prime Minister's Office (PMO) requires a district council to submit proposals which specify the nature of the project along with other information, including whether a contractor or the council itself will perform the work and the degree to which the local council or local residents will contribute resources of their own for the project. All proposals are "approved;" however, none are fully funded. The ad hoc nature of the allocation process impedes fiscal planning and runs the risk of being highly political rather than based on more objective measures of fiscal need. During the past two years, less than 30 percent of the total requested amount (from 62 requests) has been funded. In fact, 75 percent of all funds spent during 1992/93 was allocated to urban councils, with Dar es Salaam receiving nearly 30 percent of all spending. Over its two-year history, at least 18 percent of all Roads Fund resources (from both the MOW and PMO) has been spent in the capital city region. During 1992, however, nearly 35 percent of petrol and diesel fuel was delivered in the City.

Systematic audits of the PMO portion of the Roads Fund are a necessity because of the off-budget and highly political nature of this allocation system. In addition, the outcomes of such audits should have some bearing on subsequent allocations.

Recent growth in taxed consumption of gasoline and diesel fuel has been slow; nevertheless, our projections suggest that during 1993/94, Roads Fund revenues will permit MOW to meet its agreed-to spending target of TSh 8.793 billion at current tax rates. Meeting future maintenance requirements as agreed to by the Government of Tanzania (GOT) and the World Bank (for IRP II) will require *real* increases in the tax rates even if gasoline and diesel fuel consumption grow at an annual average rate of 4 percent. Furthermore, since maintenance cost projections are in terms of *real US dollars*, nominal road toll tax rates will also have to be increased to overcome the forces of inflation and devaluation of the shilling. But three constraints limit such increases: (1) the overall macroeconomic effects of further increases in transport costs associated with increasing vehicle fuel prices, (2) not only road users are affected by the Road Toll Tax -- railroads and other diesel fuel users, e.g., agriculture, are as well; and (3) border price disparities. Exempting some users, e.g., the railroads, from the Road Toll Tax is undesirable due to the tax evasion difficulties that it would create; however, there is no reason that petrol and diesel fuel taxes must be uniform. Hence, subsequent rate increases may be directed at petrol rather than at diesel fuel.

Recommendations

The analysis of institutional, contracting, and financing reforms leads to the following recommendations.

- (1) The public sector needs to:
 - decrease delays in tendering,
 - decrease delays in payment, and
 - limit the scope of the program to rehabilitation of priority rural roads already in the network.
- (2) Consultant services need to be strengthened. This can be achieved best by tightening supervision of the design phase, better screening during pre-qualification of supervision contractors and building greater liability into consultant services.
- (3) Local bonding and insurance parastatals appear to suffer from significant financial problems. As a result, the present bonding system does not work and, instead, constitutes a subsidy to the National Insurance Company (NIC) and NBC rather than a protection to the purchasers of road contractor services. One possible interim solution would be to establish a donor fund for underwriting contracts using contributions determined by the level of contracting.
- (4) NCC requires continued support. Training programs for contractors will yield long-term benefits. NCC is the logical place for the contractor registration required under IRP II. Short term technical assistance and minimal financial support could assist NCC in launching a program for collecting, publishing, and maintaining price data and construction trend information.
- (5) Increase the amount of contracting being done in the regions. Under ATAP, this means that check on delegated authority should come *after* the authority has been exercised. Furthermore, as regionalization becomes more widely accepted by the MOW, special consideration should be given to developing performance contract programs between headquarters and the regions, including incentive packages for those regions that perform well and disincentives for those that do not.
- (6) The scheduled *Study of Road User Charges* should probe more deeply into the apparent 11.2 percent shortfall in the flow of funds from the petroleum sector into the Roads Fund.
- (7) Any addition of existing revenue sources to the Roads Fund should focus on the motor vehicle road license tax and the transit tax, since these two revenues most closely resemble user charges as originally intended for the Fund. However, road license tax rates need to be rationalized and its administration must be improved.

- (8) The MOW allocation method, while sound in principal, may meet increasing pressures to devote extremely large proportions of funds toward periodic maintenance, at the expense of routine maintenance. The planning process in the Ministry must take steps to insure that this eventuality does not occur, lest the benefits of past investments in periodic maintenance rapidly deteriorate.
- (9) The PMO's method of allocating its Road Fund share should be made more transparent. With additional study, it should be possible to design an intergovernmental grant system that recognizes relative needs for funds and benefits from the projects and, preferably, encourages local councils and road users to contribute toward project costs.
- (10) The earmarked Roads Fund escapes the scrutiny of a public budget setting process. Thus, audits of both the MOW and PMO shares are essential if these scarce resources are to be used as effectively as possible. Some additional training of personnel from the Office of the Controller and Auditor General may be desirable to ensure that they are capable of conducting audits of road maintenance activities. In any event, the funds should not be seen as simply an easy way of supplementing compensation packages.

I. INTRODUCTION

This section will describe the background and scope of work for this assignment, and the analytical perspective used to help understand the problems the research was intended to address.

A. Scope of Work

The Decentralization: Finance and Management (DFM) Project was contracted by USAID/Tanzania to conduct a policy review of the Agricultural Transport Assistance Program (ATAP). The review was to concentrate on three reform areas -- contracting, funding, and institutions -- and was to (1) specify all the policy reform parameters the ATAP program supports and promotes; (2) assess the problems being encountered in the implementation of these reforms; and (3) recommend remedial measures to ensure the establishment and operation of sustainable rural road maintenance in Tanzania.

To complete the review, a four-person DFM team conducted a four-week study of the roads sector in Tanzania during July of 1993. Research included interviews, data collection, and review of sector related documents in Dar es Salaam, and field visits to Kilimanjaro and Iringa Regions.

B. Background

The ATAP program leverages policy with incremental tranches of dollars transferred into an import support facility providing scarce hard currency to the private sector in exchange for policy and institutional reform of the roads sector. Conditions precedent to cash disbursements over the past five years have included the establishment of the Rural Roads Division within the Ministry of Works (MOW) (formerly the Ministry of Communication and Works), placement of more engineers in regional offices to provide supervision of works, development of comprehensive maintenance programs, drafting of sustainability and environmental protection plans, and works prioritization procedures. In addition, recent amendments have focused conditionalities on setting adequate maintenance funding levels, establishment of the Roads Fund, and limiting road damage due to overloading. Throughout the program, starting essentially at zero, conditions have required that the MOW increase the number of private sector contracts for road rehabilitation and maintenance.

ATAP operates within the Integrated Roads Program (IRP). The IRP is funded by the World Bank and integrates the work of 16 donors in 20 regions. It was implemented in 1990, launching a mammoth commodity and services procurement program in the government consisting of more than 200 contract actions aimed primarily at rehabilitating the trunk road network, including ATAP rural road rehabilitation contracts.

C. Report Format

This report presents the findings of the policy review. Section 1 provides background to the study and describes the analytical perspective used for the research. Conclusions regarding the institutional arrangements of the roads sector are contained in Section 2. Institutional arrangements regarding contracting are addressed in Section 3. Section 4 contains findings and conclusions regarding financing of the maintenance portion of the roads Sector. Section 5 describes the implications of the team's findings for the donors currently participating in Tanzania's Integrated Roads Program.

D. Analytical Framework Employed

The context within which the ATAP program is operating and within which the roads sector of Tanzania is being reformed is one of incredible flux. Virtually every aspect of the economy is undergoing reform. Changes in the road sector reflect changes in Tanzanian society as a whole. To understand those changes and to provide a consistent method for analysis of the reforms, this study used the analytical perspective described in this subsection. This perspective was applied to all three reform areas--contracting, funding, and institutions.

A glance at the list of acronyms from the July 1988 ATAP Program Assistance Approval Document (PAAD) speaks to the numerous changes which have swept the public sector entities directly involved in the Tanzanian roads sector in recent years. The Ministry of Finance, Economic Affairs and Planning (MFEAP) has given planning over to the National Planning Commission and limits Ministry of Finance (MOF) activities to revenue collection and expenditure (including administration of the Roads Fund) and financial sector reforms (which are administered in concert with the Bank of Tanzania). The Ministry of Local Government and Cooperatives (MLGC) has ceased to exist, leaving the responsibility for feeder roads--District Roads--with the Prime Minister's office (PMO). The Ministry of Communication and Works (MCW) has become the Ministry of Transport and Communications (MTC), the Ministry of Works (MOW), and Plant and Equipment Hire Company, Ltd, (PEHCOL). Plans are currently being developed to establish a Ministry of Transport (MOT), lumping ports, rails, roads, and air transport together and separating them from communications. The proposed restructuring would give greater autonomy to the roads managers through the creation of an authority provisionally named TANROADS.

As depicted in an August 1989 Amendment to the ATAP PAAD, Annex 10, public management of roads at the time ATAP was conceived was divided among the MCW/Trunk Roads, PMO/Rural Roads and MLGC/District Roads. In the scheme--one increasingly dependent on the private sector and a reduction in force account works--MCW authority crossed the trunk road boundary to assist the PMO in the management of regional roads. In turn, PMO crossed the line from regional roads to district roads providing technical assistance

to MLGC. In 1990, with the initiation of the IRP, today's arrangement, in which MOW is responsible for trunk and regional roads and the PMO is responsible for district roads, was established. The arrangement is still in a considerable state of transition and uncertainty.

Given the variety of changing players in recent years, the review and reform of procedures, introduction of new systems and regulations, the occasional overlap of responsibilities, the potential for redundancy, and unavoidable positioning on the learning curve in restructured offices and departments, it is not surprising that reforms designed to solve problems on the public sector-side have produced one of three empirical results:

- the targeted problem was solved;
- once one problem was solved, a completely new problem arose; or
- solutions identified unexpected sets of secondary problems.

The reform process should therefore be seen as ongoing; some problems have been solved, but some new ones remain to be responded to.

To better understand the ongoing reform process, the changes that have occurred, the issues they have both resolved and raised, and the opportunities they present for improvement of roads sector policy, this policy review adopts a "public service industry" approach for its analysis. To understand a complex public service such as roads, especially when it is undergoing complete restructuring, requires an understanding of which actors (organizations, government agencies, private industry) participate in the delivery of that service, and the variety of roles those actors play. It therefore is helpful to view the public service as an "industry" where various actors are responsible for various components or functions of the industry, all of which are required to achieve the end product. In this case, the public service industry of interest is the roads industry of Tanzania, and many actors are involved in attempting to deliver the industry's product -- sustainably constructed, repaired, and maintained roads.

Furthermore, it is helpful to realize that the actors involved divide roughly into those that *provide* the good (roads) and those that *produce* the good. *Provision* includes those actions that are necessary to determine how much of a public good to provide, how to finance it, and how to monitor those who actually produce the good. *Production* includes the processes for turning the various required inputs into the desired outputs in the form of goods and services.

For public goods such as roads, provision decisions are considered most appropriately the realm of the public sector. Those decisions include:

- the design and location of roads to be provided;
- the degree to which private activities related to road construction, maintenance and use are to be regulated;
- how to finance road construction improvement and maintenance;

- how to resolve disputes between the various parties involved;
- how to arrange for the production of road infrastructure (construction, improvement, repair, and maintenance); and,
- how to monitor the performance of those who produce road infrastructure.

Although it is usually deemed most efficient to organize the public sector for provision activities and the private sector for production activities (as is occurring in Tanzania), this is hardly a steadfast rule. Road maintenance production can also be organized by individuals, communities, and governments in addition to being contracted out.

There are, therefore, a variety of mechanisms through which road services can be provided and produced. Assuming the roads in question are yielding benefits and meeting the demands of the road users, the institutional arrangements that are chosen should be designed to maximize the ultimate objective of keeping roads as well repaired and as sustainably managed as possible, at a reasonable cost. To make decisions about institutional arrangements, it is necessary to know what functions are required to achieve the objective, what actors are performing those functions, and, given the functions, required, which can be most efficiently done by whom.

Road maintenance functions are particularly complex because maintenance demands vary depending on road construction, use, and climate. Hence, it is difficult to develop uniform maintenance regimes. It is also difficult and expensive to restrict the use of roads. Increased use, however, leads to increased deterioration and an increased need for maintenance. Therefore, financial arrangements for maintenance are complex because it is difficult to mobilize resources by restricting access and enforcing user charges. This is why, as Tanzania has previously discovered, it is difficult to make a toll road approach work.

The solutions to these complex problems depend on the particular circumstances and the maintenance activities required. Furthermore, the institutional arrangements necessary to solve maintenance problems may have to be flexible enough to accommodate several alternatives; for example, supporting labor-based maintenance methods for some requirements and capital-intensive methods for others.

A significant part of the decision-making process regarding the most appropriate institutional mechanisms must acknowledge that decisions about road maintenance almost inherently involve opportunity costs: since there is rarely enough money to go around, money spent on road maintenance means there is less money available to spend on some other desired public service.

Perhaps the simplest criterion for evaluation of the institutions responsible for provision of public service is their responsiveness to public demands. Production can be evaluated by the efficiency with which inputs are transformed into goods and services. It was with this criterion in mind that this policy review was prepared.

II. INSTITUTIONAL ANALYSIS OF TANZANIAN ROADS SECTOR

This section reviews and assesses the institutional reforms of concern to the ATAP program. This section will: (1) describe the roads sector in Tanzania in terms of the analytical framework used; (2) describe the three political/administrative levels that are concerned with the roads sector in Tanzania and assess both the institutional progress that has been made and the institutional issues that have yet to be resolved in the roads sector; and (3) analyze what the implications of the progress made and the issues to be resolved might be for achieving sustainable institutional reform.²

A. The Tanzanian Roads Industry

From the perspective of a public services industry, analysis of the Tanzanian roads industry requires an understanding of the network itself; those involved in its construction, repair, and maintenance; and the functions all the institutions and organizations play. This subsection describes these components of the roads industry.

1. Road Network

The basic component of the roads industry is the roads themselves. In Tanzania, the road network consists of 10,200 km of trunk roads; 20,400 km of rural roads (regional, essential district and feeder roads); and 54,000 km of district roads.³ These include surfaced, gravel, and simple dirt roads throughout the country's 20 regions and 101 districts (19 urban and 82 rural).

² This institutional analysis did not include a rigorous investigation of the internal structure of the government organizations associated with the Tanzanian roads sector. Several organizational arrangements and options have been developed and proposed in recent years, and one that incorporates development of a Ministry of Transportation and an independent roads authority is currently being discussed. It was felt that this policy review would be more useful if its institutional analysis used a broader institutional frame of reference, versus restricting itself to studying and proposing an organizational chart.

³ An official of the MOW explained that the complexity of the Tanzanian roads sector is compounded by difficulty in inventorying, classifying, and mapping roads in Tanzania. This results in discrepancies regarding the total length of the network. The figures included in the body of this report were provided by the MOW Rural Roads Division. Alternate numbers were provided by others. For example, one report listed the network as 3,800 km of paved truck roads, 6,500 km of unpaved truck roads, 17,730 km of regional roads, an estimated 30,000 km of district feeder roads, and approximately 30,000 km of unclassified roads. Clearly for national-level purposes, a thorough mapping and inventorying of the physical network, including accurate numbers, is required to make sustainable planning decisions.

Rehabilitation, repair, and maintenance of the network is the focus of the World Bank, the Government of Tanzania, and the multiple-donor-funded IRP. According to *Road Policy Reform in Africa*, (Gaviria, 1991) a projected investment through IRP of \$809.5 million for rehabilitation and maintenance of this network will yield an economic rate of return of 19 percent to 24 percent (annualized benefits as a proportion of GDP = >3%).

2. Relevant Actors

Many actors participate in the provision and production of road services in Tanzania's roads industry. Relevant government agencies include:

- Ministry of Transportation and Communications (MTC) - currently responsible for transportation policy;
- Ministry of Works (MOW) - responsible for the roads subsector, specifically the trunk roads and regional roads parts of the network, including the 20 regional engineer's offices (REOs);
- Prime Minister's Office (PMO) - responsible for the 101 district councils and district engineers;
- Regional Development Committees - responsible for regional development, including cooperation with the REOs on roads decisions;
- District Councils - responsible for district roads;
- Villages and Wards - on an ad hoc basis, communities take initiatives for various road services;
- Plant and Equipment Hire Company, Ltd. (PEHCOL) - the government parastatal responsible for mechanized road equipment; and,
- Ministry of Finance (MOF) - responsible for funding the various government agencies.

Funding for the roads industry is provided not only through the above listed government agencies, but also through the World Bank and the 16 international donor agencies (including USAID) that are presently participating in the IRP.

To a greater and greater extent, the government agencies listed above restrict their participation to the provision side of the roads industry. Production is the purview of private contractors. A recent registry of potential roads contractors listed 427 foreign and local contracting firms in Tanzania.

The private sector is also involved as users of the roads industry. By one estimate, there are up to 30,000 km of unclassified roads in Tanzania. This includes an unknown number of kilometers that are owned, operated, and maintained by private concerns such as tea and sisal plantations.

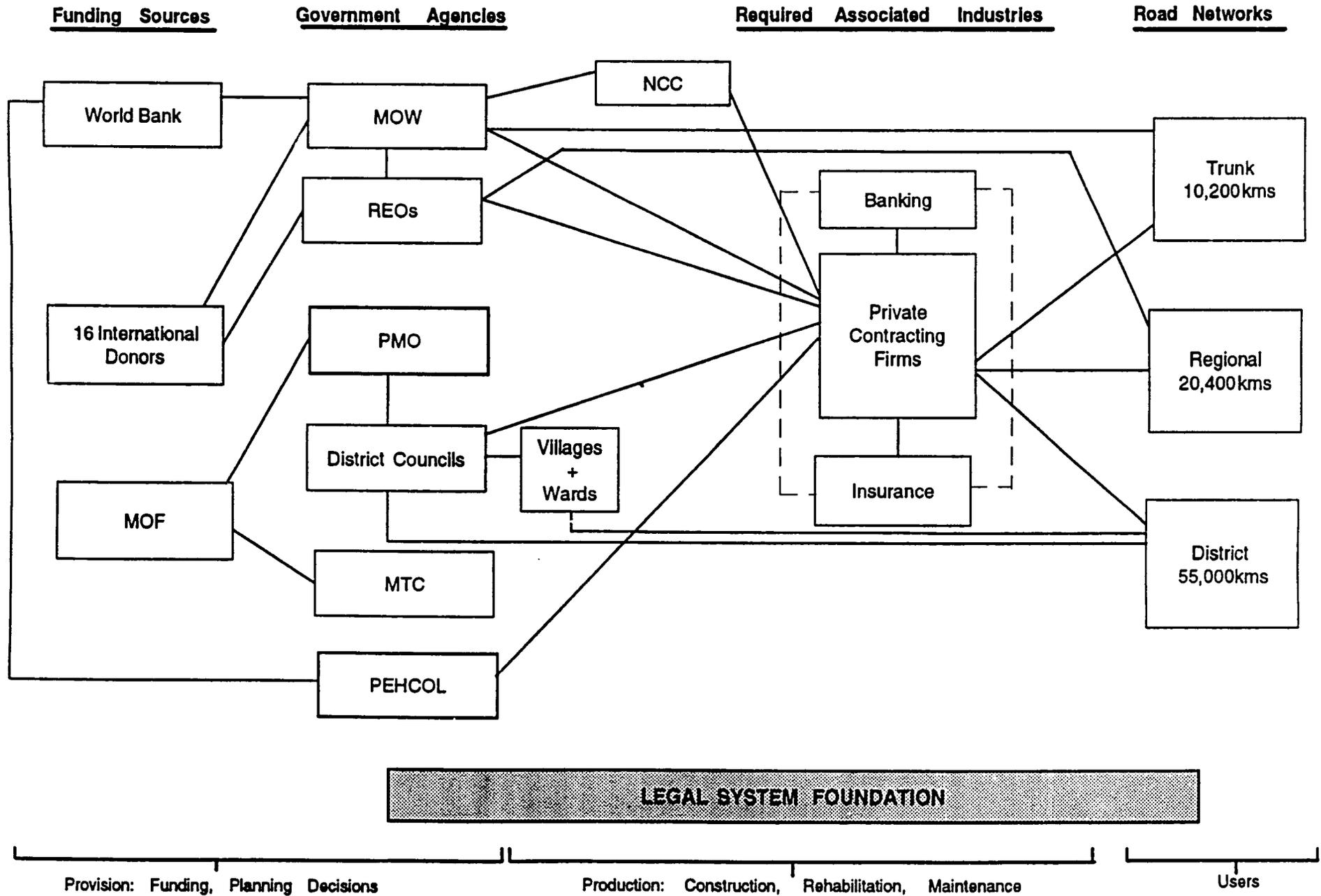
The organizations that help create the climate within which the roads industry can operate must also be considered:

- the banking sector which provides funding and bonding for contractors;
- the insurance industry which insures contractors;
- the National Construction Council (NCC) which registers and trains contractors; and,
- the legal system which can be expected to play a growing role in resolution of contracting disputes.

Sometimes forgotten in the list of actors are the road users themselves. In Tanzania, these include such diverse users as international trucking firms and subsistence farmers. Their national-level interests have recently received greater attention with the establishment of the Central Road Board (which includes representatives of the private sector as members). At the district and regional levels, it can be assumed that district councils and the RDCs represent local road users.

Listing all of the actors is one thing. Understanding how they relate is yet another (Figure 2-1). The complexity of these relations illustrates the difficulty inherent in achieving institutional arrangements which facilitate efficient operation of all these actors, such that the result is sustainably managed roads.

**Figure 2-1
The Tanzanian Roads Industry**



3. *Functions*

Regardless of the complexity of their relations, it is important to recognize that all of these actors perform functions essential for the successful operation of the roads industry. Table 2-1 lists the functions required for operation of the industry and the actors currently performing those functions.

**TABLE 2-1
PROVISION/PRODUCTION FUNCTIONS
TANZANIAN ROADS INDUSTRY**

FUNCTION	TYPE OF FUNCTION	ACTORS
Planning	Provision	Central MOW, REOs, RDDs, National Planning Commission
Programming and Prioritization	Provision	Central MOW, REO, RDD
Revenue Generation/Funding	Provision	MOF, District Councils, Donors
Budgeting	Provision	Central MOW, REOs, RDDs, District Councils, PMO, Parliament
Tendering	Provision	Central MOW, REOs, District Councils
Contract Monitoring	Provision	Central MOW, REOs, District Councils
Site Technical Supervision	Production	REOs, District Engineers, Consultant Engineers
Payment	Provision	Central MOW, REOs, District Councils
Dispute Resolution/Mediation	Provision	Legal System
Design	Production	MOW, REOs, Contractors
Construction/Repair/Maintenance/Rehabilitation	Production	REOs, Contractors, District Engineers/ District Councils, Communities
Equipment Rental	Production	Contractors, PEHCOL
Credit Financing	Production	Banks
Bonding and Insuring	Production	Banks, Insurance Co.
Training	Production	Donors, REOs, NCC
Materials Supply	Production	Donors, Contractors

B. Description and Assessment

The result of all of the activities and functions performed by the various actors is intended to be a well maintained road network. Achieving result requires institutional arrangements that provide incentives for all of the various actors to perform their functions most efficiently and to cooperate with one another to produce well maintained roads. The previous subsection described the actors and their functions. This subsection describes and assesses the progress made by Tanzania's three political and administrative levels of government (central, regional, and district) toward achieving sustainable roads maintenance, and discusses some of the institutional issues that remain to be resolved.

1. Central Level

Tanzania's IRP is part of the World Bank's "Road Maintenance Initiative." This initiative is based on the belief that sustainable improvement to road networks is contingent on policy reforms. The key policy areas typically requiring reform are planning, programming, and financing; operational efficiency (including increased accountability, improved information and management systems, downsized mechanical fleets, more use of contractors, and more use of labor-based methods); and, institutional and human resource reforms.

The initiative is also predicated on having participating countries build national constituencies for improved roads in part through establishment of national road associations. The initiative requires the participating nation's commitment (1) to the policy identification and reform process, and (2) to getting donor support for the program. Coordination of these donor efforts is also considered essential. Tanzania's IRP follows the Initiative model. The IRP, in essence, is the national plan for roads and to a large degree determines what happens at all levels of the roads industry.

Central-Level Progress

Institutional reforms at the central level have focussed on two areas: (1) establishment of a rural roads division within the MOW, and (2) strengthening the technical and management capabilities of the REO. Noted successes have been achieved in both of these areas.

The MOW has established, staffed, and funded a Rural Roads Division, which now performs important central functions including setting technical standards and specifications, establishing contracting procedures, and setting guidelines for approximately 20,400 km of regional and selected district roads.

At the same time, responsibility for operations, planning, and budgeting has been delegated to the regional level.

Central Level Issues

Despite the progress, institutional issues remain to be resolved. Specifically, the degree of regionalization required to achieve the greatest impact on maintenance does not seem to have been universally achieved. That is, some functions that might be better performed by actors stationed at the regional level continue to be performed at the center.

Though central procedures and standards have been established, how well and how uniformly they have been dispersed to the regions is questionable. This is not to say that improvements have not been made. However, the Rural Roads Division was designed as a central office, and tensions between the center and the regions are natural as decisions are made about what authorities best reside where. From an institutional view, standards are best set at the central level, but regional involvement should be required and solicited for development of those standards; and, once standards are established, their contracting and implementation needs to be regionalized. (These procedures most specifically deal with contracting issues and are discussed more completely in Section 3 of this review.)

One institutional weakness recognized at all levels, which is likely part of the problem associated with the relative degrees of regionalization achieved, is that of manpower. Reform of the institutions associated with the roads sector, particularly when they have moved from producing road services through force accounts to becoming providers of road services, requires changes both in the composition of the staff and the location where that staff resides. It is currently agreed that the MOW is overstaffed in some areas, but understaffed in critical areas required to manage a decentralized, contractor-based road maintenance system.⁴

These manpower weaknesses are recognized. Plans have been developed for training and re-training of personnel, and plans are currently underway for a management study to review staffing levels for all regional offices. In addition, significant retrenchment of the ministry is expected.⁵

⁴Statistics for manpower levels in the MOW headquarters in Dar es Salaam and in each of the 20 regions, were difficult to come by. Numbers were available from the MOW training Office for the Roads and Aerodromes division. According to those figures, there are a total of 2,333 total Roads and Aerodromes staff -- 233 engineers (10 percent of the total), 698 technicians (30 percent), and 1,402 other staff (60 percent). The largest Roads and Aerodromes staff was in Mbeya Region (237 total). According to these statistics, Headquarters had the third largest Roads and Aerodromes staff (162 total).

⁵ Associated with the manpower issue is that of incentives. The need for adequate compensation as a necessity for efficient and effective performance is recognized by this study. It was not, however, a specific topic of research because it has been covered in several other documents and studies; see for example, Ministry of Communications and Transportation, 1992, regarding Tanzania specifically, and The World Bank, 1991, regarding the transport sector in general.

Another important central function that should be improved is that of technical communication and coordination. The center is the logical point through which to convey and communicate both new standards and technical innovations (with the understanding that REOs will have the discretion to adapt technical specifications to local conditions as required). It is important that the center be used to facilitate this process without becoming a bottleneck. To the degree possible, regions should be encouraged to communicate directly with one another. Both regions visited said they had only infrequent contact with their counterparts, but each had developed innovative management and technical methods that would have been useful to share with their counterparts -- especially in those regions that do not have technical assistance teams.

2. Regional Level

At the regional level, the Regional Engineer, Regional Commissioner, Regional Development Director (RDD), and Regional Development Council are involved in provision of roads services, through the auspices of both the MOW and PMO.

Regional roads are the responsibility of the regional engineer, whose functions include road condition surveys and assessments, contractor assessments and management of contracted work, training, planning and budgeting (including prioritization of work) and any force account work.

The government has recently reactivated the Regional Roads Boards. These boards are intended to advise the MOW on management matters related to the roads network. Their presence was not yet, however, in evidence in either of the regions visited for this study.

Regional-Level Progress

Notwithstanding the need for further regionalization of certain functions, progress has been made deconcentrating some activities most appropriately done at the regional level.⁶ Systems are now in place so that prioritization of road maintenance activities starts at the regional level. If Kilimanjaro and Iringa Regions are any indication, regional engineers are now capable of prioritizing and planning their activities based on traffic counts and condition

⁶ Because the term *decentralization* has been used to indicate a variety of institutional and organizational arrangements, it is important to use several well accepted subconcepts that provide more precise meaning than the more general term. *Deconcentration* has been most often used in the context of public administration. It denotes a transfer of administrative authority, from the center to lower levels of the government hierarchy. *Delegation* also indicates transfer of authority, but may also encompass transfer to extra-governmental entities such as parastatals. In both cases, revocability is implied; i.e., the center of power has given authority, for specific functions with well defined limitations that may be rescinded. Also, though decentralization is often associated with increased popular participation, deconcentration and delegation do not specifically address this issue. *Devolution* has a more permanent connotation; i.e., a transfer of power and authority, including revenue mobilization to local government, special jurisdictions, or other non-administrative public entities. Devolution also has a greater participation connotation because when full authority is devolved, it is more likely that local officials will encourage popular participation in order to be successful in solving local problems.

surveys for the roads in their regions. Regional engineers plan their activities and submit their routine and periodic maintenance budgets for review at the MOW in Dar es Salaam, from which the allocation comes.

In Kilimanjaro Region, a participatory planning process has been instituted. A workshop that involved other regional actors (MOW, RDD, other donors and other ministries, but not district engineers) was conducted to prioritize the region's maintenance activities. Similarly, a three-day workshop for contractors on project planning and implementation was held in Iringa Region. Such activities are indicative of important cooperation between the private and public sectors to achieve an improved product.

In both regions visited, the study team saw indications that the planning process is at least somewhat responsive to the region's development requirements (as articulated by the RDD's office). In Kilimanjaro Region, both the REO and the RDD's office stated that the two cooperated well in road planning and prioritization.

Such statements were not so unanimously made in Iringa Region, but there was one notable case where the REO found a relatively simple and inexpensive way to get a specific road repaired to everyone's satisfaction after receiving a request from a local member of Parliament. Though this particular road improvement task was not high on the REO's priority list, the political and technical sides clearly managed to cooperate to meet everyone's needs.

Regional-Level Issues

As previously discussed, policy decisions have been made and steps have been taken through IRP to regionalize road maintenance functions. What is not clear, however, is whether there is sufficient regional staff to handle increased responsibilities for management of contracts. Several of those interviewed expressed concern that too much contracting could "choke" regional systems, thereby losing the efficiencies believed to be gained through regional contracting.

The manpower implications associated with increasing contracting at the regional level indicate the need to increase the REO's contractor supervision and management capabilities. In the interim, technical assistance to the regions will continue to play an important role. At the same time, however, administrative costs compared to development budget costs are high in the regions. In one region, it was reported that 60 percent of the Roads Fund, which is supposed to be dedicated to maintenance activities, was spent on covering administrative costs.

It can be anticipated that the budget for road maintenance will continue to have to compete with other demands on the government's coffers. If so, in an effort to stretch maintenance funds, less expensive technologies that rely on labor-based methods may become more attractive than equipment-based maintenance systems. This will have implications for technical manpower. For example, supervising engineers will have to be trained in these

technologies and will have to accept them as reliable and credible. As a first step, the REO should participate in the International Labour Organization's (ILO) labor-based training, which is taking place currently in Kilimanjaro Region. At this time, the Kilimanjaro REO has not participated in the training.

3. *District Level*

At the district level, roads are the responsibility of the District Council (in which representatives are elected every five years from wards), the District Commissioner, and the District Engineer.

The District Council is responsible for all planning and budgeting of construction, rehabilitation, and maintenance of its district and feeder roads, except those that have been considered regional priorities and have been or will be upgraded to regional road classification. The District Engineer is an employee of the PMO and the funds received at the district level for roads come either from the yearly central government grants or from the 20 percent of the national Roads Fund that is earmarked for district roads. By all accounts, however, funding at the district level is very meager and communities are often requested to provide self-help labor on feeder and district roads.

District-Level Progress

Due to the immediate impact the condition of a local road can have on a community and the lack of funding available for maintenance of district roads, it is not surprising that district-level roads are the focus for the most visible community-level action in the Tanzanian roads sector.

Officials in Kilimanjaro Region stated that the districts are conscious of the limitations of the government and are therefore willing to work with the RDD to combine resources for maintenance. The region has not seriously attempted resource mobilization at the district level yet, but the RDD's office stated the belief that there should be potential to raise funds because of the areas's food and cash crop potential.

The Iringa RDD's office also expressed that villages were prepared to work on their own roads, but also made the point that technical assistance was needed to make permanent structural improvements, especially for drainage.

Two communities in Iringa Region took the initiative to begin construction of a road between themselves, which in effect linked two existing road sections and potentially shortened each village's distance to the main road. They took it upon themselves to clear the land and then sought technical assistance from their district council, which referred the request to the RDD, who sought the assistance of the REO. The RDD funded the improvements, and the REO provided the required technical assistance. The communities supplied the labor required by organizing work groups that averaged 50 laborers per day

along the 14 km stretch. The entire process took six months, but labor was not required for the entire time. The communities have stated that they will conduct the required maintenance (grass cutting and drain cleaning) as part of their formal community development activities, which are organized by village or ward officials. Their commitment to perform the required maintenance will tell whether this case becomes an example of true local self-help, or whether they have only succeeded in increasing the maintenance burden on an already overtaxed government system. Nonetheless, this example must be at least considered as a possibility for cooperation among interested actors to multiply limited resources.

Nationwide, the PMO has held two seminars to introduce the district Roads Fund program to the districts so that they know how to apply for funding. Applications include project descriptions and projected costs. Since 1992, 56 districts have applied for funds and, at the time of this report, 21 requests are pending. This type of community-level activity is also likely to receive a boost with the Village Travel and Transport pilot program proposed in IRP II. This program will experiment with a variety of strategies for increasing rural mobility and agricultural productivity.

District-Level Issues

The fiscal realities of present-day Tanzania dictate that the most appropriate role for districts in the total roads scheme may be to continue exactly the function they are now performing -- that is, mobilizing communities and acting as a broker for additional resources to make simplified improvements to feeder roads on an as-needed basis.

Nonetheless, the vast number of kilometers of roads within the district network, and the fact that the majority of Tanzania's population have the most contact with those roads, argues that the district-level issues at least be recognized.

Primary among these issues may be disagreement as to who has primary responsibility for some roads, and what the relationships between the region and the district, the MOW and the PMO, and the regional engineer and district engineer are or should be in regard to roads. Specifically, "the relationship of MOW with the local government authorities is presently not well defined and developed sufficiently to enable MOW to provide the expected technical guidance and ensure attainment and maintenance of required standards" (Kaombwe et al., 1992, p. 10). This claim is supported by the differences in estimates regarding the size of the road network and by the differences in opinion (as voiced during interviews) between MOW and PMO personnel regarding what level of attention has to be paid to district roads and the district engineer's office.

There does seem to be agreement that the divisions of responsibilities and the relationship of the parties needs to be clarified, and that an inventory has to be conducted and maps produced in order to update the road classifications.

Ultimately, the problem is that "district councils are responsible for roads the length of which by far exceeds their financial and technical capacity" (Semboja and Therkildsen, 1991, p. 78). The skills and resources of the district engineers are unanimously considered to be weak and in need of support, there is a lack of management skills to handle road programs on the district level, and districts have not successfully generated revenues to maintain their roads.

The political reality is that "there will always be pressure to execute specific projects for local reasons" (Development Economics Group, Louis Berger International, Inc., 1992, p. 23), even though some rural road links may never be economically viable roads. The planning process for district roads evidently operates from this perspective. Road improvement projects reportedly rarely result from feasibility studies. The criteria are rather based on the importance of the area as perceived by those doing the planning (Kaombwe et al., 1992). The district Road Fund program seems to be operating in the same manner. The criteria for disbursing the 20 percent of the fund to districts are not clear (see further discussion in Section 4 of this report).

4. *Summary Assessment*

In sum, reform in the roads sector has resulted in significant progress, but important issues remain to be resolved.

- National-level attention is paid to maintenance and repair of rural roads through both a central division and regional offices.
- The skill levels at the regional offices particularly in planning and prioritizing have greatly improved.
- Manpower issues, regarding both technical and management skills and the need for adequate incentive and compensation, are recognized.
- There reportedly is a recognition at the district level that communities themselves will have to be the most prominent actors for repair and maintenance of district-level roads.
- The relationship between regional and district offices regarding the levels of support to be given to district roads has to be further discussed and resolved to assure that there is room for expression of demand regarding local roads.

C. Conclusions: Implications for Sustainable Institutional Reform

Given that institutional mechanisms should be arranged to promote sustainable maintenance, and in light of the above assessment and analysis of progress and issues, several questions present themselves. Their answers may be required to determine the most appropriate institutional arrangements for Tanzania's roads industry.

- Will further regionalization enhance the system and reduce constraints?
- What is the proper relationship between the center, the regions, and the districts?
- How can political and equity needs be met at the same time that the most economic and technically efficient use is made of scarce funds?
- What are the local resource mobilization possibilities, and how can these be directed to roads?

This subsection attempts to answer these questions by discussing the conclusions drawn from the institutional assessment. The conclusions are organized according to the central, regional, and district administrative structure. Finally, the major findings of the institutional analysis are presented.

1. Implications for the Central Level: Central Institutional Reform and TANROADS

The current major focus of central institutional reform attention is the restructuring of the transportation-related ministries and the consideration of establishing an independent roads authority (tentatively known as TANROADS).

Presently, general transport matters are the responsibility of the MTC, with the roads subsector handled by MOW. Under the proposed restructuring plan, the roads functions of MOW would go to the semi-autonomous roads authority which would be placed under a Ministry of Transportation (MOT). The transport functions of the MTC -- national transport policy, national transport plans, assessing supply and demand and recommending balanced investment levels, establishing physical and operational standards, monitoring transport operations and infrastructure and reasonableness of tariffs, and promoting research -- would become the responsibility of the new MOT.

The roads authority's functions would be planning and programming, monitoring and management, and maintenance and construction (most of which would be handled through contracting, though there would still be a minimal amount of force account work). The concept of TANROADS is that management of the national road system would be in the hands of an autonomous organization staffed by a comparatively few, well-paid professionals who would plan and supervise works carried out under contract. TANROADS would deal only with the road network. Regarding funding, the hope is that earmarking the road fund for

TANROADS will make it "feasible to finance at least its recurrent expenditures from clearly identifiable user charges" (The United Republic of Tanzania, 1992, Proposed Modernization of the Transport Sector).

In theory, a roads authority will respond to several current constraints: an inadequate and unpredictable level of funding that is unrelated to need; a paucity of trained staff due to inhibiting conditions of service; and too many untrained staff that are protected by the civil service.

An additional institutional change is the establishment of the Central Road Board, as announced in June. The Board will reportedly include six members of the government, four members from private roads related interest groups, and two private members appointed by MOW. The Roads Board is intended to provide a private perspective to the road decision-making process and to provide advice on how to strengthen road sector management. It will also advise on the workings of the roads fund to "ensure the government gets value-for-money from these funds" (United Republic of Tanzania, 1993, Presentation of the Second Integrated Roads Project).

Formation of the Central Road Board is part of a proposed plan for strengthening management of the roads network. Additional attempts to improve roads sector management include the proposed Management Action Group and Management Support Group. The Management Support Group "will be created at the PS (Principal Secretary) level to provide the overall policy and strategy" for management improvements. The support group will function through the action group, which will include senior road staff and technical specialists from within the ministry. The action group will be guided by the support group to "implement the programme, recommend actions and monitor progress of improvements in management performance, particularly the field of maintenance of the road network" (MOW, "Development of Management Systems," draft not dated).

As described, two major justifications underlie the proposal for reorganization and the creation of a parastatal roads authority (TANROADS): (1) the need for integrating transport planning within a new MOT; and (2) the advantages an autonomous parastatal brings to road sector management in terms of more flexible personnel policies and the potential for providing incentives for improved performance.

It is difficult to envision that establishment of a new parastatal alone will guarantee greater staff incentives and personnel management flexibility. Furthermore, there is a danger that TANROADS is being promoted as merely the next best alternative to what already exists. That is, a new parastatal is considered justified because of the difficulty in organizing, financing, and managing roads in a country where roads are poorly inventoried and where it is difficult to determine who owns them and is responsible for their maintenance. According to this justification, a singular authority such as TANROADS would at least collect all those functions in one, new, well-organized place.

This may be the most practical and immediate solution, but it also could raise new stumbling blocks in front of the still nascent effort to regionalize responsibility for roads. If it is agreed that devolution of responsibility is to a significant degree important for long-term sustainability of the roads sector, as is supported by IRP and donor programs that support REOs, then it must be assured that TANROADS or any other new organization does not inhibit such devolution and become a new central force that retards the growth of the regions.

The contemplated roads authority, central and regional roads boards, management support and action groups, TANROADS, and MOT all represent the important recognition that management of Tanzania's road network needs to be improved so that it will be better maintained. However, virtually all of the discussions about these proposed new organizations include the important acknowledgements that creation of new bodies often does not solve old problems (witness PEHCOL), and that the impact of nearly constant change and reform can have severe negative impacts in and of itself.

Given these caveats, what is most important to recognize is that regardless of what organizational model is chosen for the central government's participation in the roads industry, the most important question remains whether or not there will be sufficient funding for the work required. One cannot be assured that because an independent roads authority manages the Roads Fund, the problem of funding will somehow be resolved. What seems more reliable is that the government continue its commitment to regionalization of significant roads functions in order to gain the efficiencies realizable through decentralization, whether this be through decentralization of TANROADS or existing government agencies.

Complete regionalization would require that central government responsibilities be restricted to essential functions such as national road planning, establishment of standards and procedures, and training and sharing of information. It would also likely require serious revisions to central staffing levels. In this model, the center's actual road network would be only essential paved roads. The remainder of the network would be deconcentrated to regions and districts. The central level would also be responsible for facilitating dissemination of the wealth of information and ideas currently being generated through the regional donor activities, which at this time do not appear to be transferred between regions.

2. *Regional Implications*

Just as the donor's activities and accomplishments are visible in the regions, so are those activities and accomplishments greatly dependent for their sustainability, at least at this time, on continued donor funding. In at least one region, the donor tops off the shortfall between the requested budget and what the MOF delivers. In all regions with donor activities, donors provide large infusions of equipment and technical assistance.

There are no short-term solutions to this problem. The long-term solutions are recognized and are similar to those required of the center: limit the region's focus and correct the manpower problems. In addition, the regions must stretch their maintenance funds, perhaps by relying more heavily on alternative technical solutions.

On a regional (as well as a district) basis, authorities should also explore the possibilities for alternative methods of mobilizing resources for road maintenance. These could include "privatizing" responsibilities for roads, for example, to farming communities or cooperatives who have singular interests in seeing that specific road segments are kept open. Such arrangements were used in Tanzania in the past, are still used with some tea and sisal roads, and deserve to be reexamined, for specific instances. The proposed IRP II program for village travel and transport includes what could be a very important study of district-level resource mobilization.

Both alternative technical solutions and alternative management arrangements for road maintenance have institutional implications for the regional roads authorities, particularly with regard to training and personnel capabilities. Such alternatives will require that regional technicians be available to provide advice and technical, non-monetary support, and for establishing standards, much as the central authorities establish standards for the regions.

Finally, the regions must consider institutionally how they will respond to what appears to be steady pressure from other actors who want a voice in deciding how the donor and roads fund money is spent. The regional engineer's offices have been well schooled, and justifiably so, in prioritizing their region's road maintenance needs. The plans appear to be well formulated for economic and technical efficiency. But both REOs visited in the course of this study stated that they are pressured by the RDD and districts to change those plans based on other criteria expressed by these other actors.

Budgetary realities are a strong argument for basing planning decisions on vehicle counts and road condition surveys. The question remains, however, as to how to balance political expressions with technical and economic efficiency. Officials of both the Iringa and Kilimanjaro RDD offices expressed the belief that communities will respond to improvements in roads by increasing agricultural production. This is the source of the pressure to improve regional roads that do not fall high on the maintenance priorities list, and district roads that are not on the list at all.

Prioritizing rehabilitation has become a political issue that cannot be ignored. There must be an increased awareness at the regional level that roads are a political as well as a technical and economic issue. Though it is important to rationalize the maintenance priority process, it is impossible to totally divorce political considerations from the process. As Tanzania reforms its political system along with its economic system, it will become increasingly important that communities feel they can express a desire regarding the condition of a road, and feel their demands have been fairly considered (if not always responded to in exactly the manner they might want). These political realities mean concessions are made

and alternatives are brokered. Prioritization schemes will likely have to also account for the social and potential agricultural values of roads, in addition to considering criteria based more solely on present traffic counts and conditions, and costs of repairs. It also means some way will likely have to be found to increase the involvement of district engineers in the sector, if only through training and technical assistance that offers options for improving their district roads by themselves. Better communication about the planning process is needed to explain why some roads are chosen for repairs and others are not.

3. *District Implications*

The reality of the budget limitations for repair and maintenance of roads hits perhaps most starkly in the districts. All involved agree the resources devoted to roads are most meager by the time they get to the district level. Yet, by one informal estimate, three-quarters of the district road network -- especially that portion in high crop producing areas -- has all-year/all-weather access, which is probably as much as the country can afford at this time.

However, for the reasons described previously, concerns about the district road network cannot be ignored and the institutional reforms described above should be considered in an effort to meet the maintenance requirements of the district road network. At the district level, institutional arrangements need to facilitate the districts' continued responsibility for maintaining their own roads with few resources. Such arrangements might include, for example, pooling of district resources through creation of special district-level roads jurisdictions. These could be formed by districts which shared a vital interest in a road or roads. Further investigation is required to determine if such an arrangement is allowed under Tanzanian law, or how laws might be changed to enable it.

The concept of special jurisdictions raises the question of just how artificial or real is the distinction between regional roads and district roads. District roads considered essential have already been upgraded to regional status and if the regions have to decrease their network responsibilities, it is not inconceivable that some roads could be shifted back to the districts. Within the PMO, there are advocates of strengthening the district engineers' offices, assigning the REO to work more closely with the districts, and ultimately devolving road responsibility to the district level, including sending financial resources directly there rather than to the region.

Clearly the PMO would have an interest in seeing the districts under its jurisdiction get more funding. It also seems unlikely at this time that total devolution to the district level is a practical solution. The current process of regionalization is an important and likely efficient step in terms of institutional reform, and is probably all that is practical for the foreseeable future. It is important to realize, however, that roads have a greater likelihood of

being maintained when those who use and are dependent on them have the ability and authority to be responsible for them. Whether road repair authority resides at the regional, district, or national level is therefore best decided on the basis of who will maintain the roads best.

Indications are that communities are prepared to work within their districts to maintain their own roads. RDD offices in both Kilimanjaro and Iringa stated that there was potential for greater resource mobilization at the district levels and that part of those resources could be directed to roads. Both regions have communities which have already played active roles in repair and maintenance of local roads. The possibilities for greater local resource mobilization deserve to be considered.

The district road fund program provides a useful example. Districts that apply for funds typically contribute cash or labor to the project. It would be very useful to evaluate these PMO Roads Fund projects. Roads improved through this program are reportedly successfully repaired because the program receives a lot of attention, and people watch closely to see what happens.

4. *Summary Conclusions*

In summary, the major conclusions of this institutional analysis can be described by answering the questions posed in Section 2.3.

1. Will further regionalization enhance the system and reduce constraints?

Experience in other countries and theoretical arguments support the commitment IRP and the Government of Tanzania have made to regionalization of not only the road sector, but also to general decentralization of the government. Alleviating constraints on the system, however, depends on following through on that commitment through deconcentration of resources and responsibilities to the regions. Following through on this commitment to regionalization is more likely to achieve actual improvements to road maintenance than is reorganization of central road organizations.⁷

⁷ The institutional changes vis a vis the roads industry are not occurring in a vacuum. They are happening within a great atmosphere of reform and change affecting virtually all areas of Tanzanian society. Regionalization and decentralization are one significant area of that reform process. Much of the government is asking questions similar to MOW's regarding the degree of decentralization required to improve public service delivery. An ongoing study of the local government structure, commissioned by the government, is currently being reviewed by the government and was not yet publicly available. According to interviews with the PMO, there is interest in having more services directed from local (district) levels and less from the central and even regional levels, and in having the central government's role be to provide policy and standards, but not to actually produce services. The move to decentralize public service delivery for roads is based on the principle that the condition and utility of roads most deeply impacts those who live near them. Locals also have the best information about roads, their conditions, and their maintenance needs. Decentralization of road maintenance services holds the promise of facilitating local expression of preference and decision making, ultimately improving the quality of service delivered.

2. **What is the proper relationship between the center, the regions, and the districts?**

In keeping with of the regionalization process started by IRP, the roads sector model would approximate the following. The central road agency would be responsible for national road planning, establishment of standards and procedures, training, and information sharing. Its actual physical responsibilities for the road network would only be essential paved roads. The REO would continue to have its planning and prioritizing responsibilities, and would have greater budgetary, manpower, and contracting responsibilities for that large part of the network that includes roads essential for evacuating crops and connecting districts. The REO would also have to provide technical advice and cooperation on an as-needed basis to the district engineers. The district offices would be responsible for assisting communities--both technically and with their limited financial resources--to maintain the tertiary roads.

3. **How can political and equity needs be met at the same time that the most economic and technically efficient use is made of scarce funds?**

Because road maintenance needs at this time are great, and funds (including donor and Tanzanian government resources) are limited, choices have to be made. The decision process currently is based on traffic counts, which leads to economically efficient decisions but does not necessarily account for political demands. As the political process continues to liberalize, greater avenues must be available for expressing development concerns about, for example, where scarce road repair resources go. Greater attention should be paid to sharing information with the districts and with involving them in regional planning processes. It should be clear to all involved, however, that this cannot necessarily mean more granting of road money to tertiary roads. Community action and less expensive maintenance technologies will still be of prime importance for meeting the needs of district roads.

4. **What are the local resource mobilization possibilities, and how can these be directed to roads?**

The answer to this question is not completely known. PMO officials, both at the central and regional levels, state that communities have resources that can be tapped, whether they be financial (through taxation) or for community action. The PMO district road maintenance program should be evaluated, and the IRP II local resource mobilization study should be supported in order to answer this question.

III. CONTRACTING REFORMS

A. Introduction

Local contracting of road rehabilitation and maintenance is the foundation of the ATAP program. Initially, 1550 km of agricultural feeder roads were envisioned for rehabilitation under ATAP, of which 700 km have either been completed already or are currently under contract. The remaining 850 km have been prepared for contracting and some recently tendered packages are now being evaluated. The ATAP approach to replacing government force account brigades with private sector firms has succeeded in providing access to core agricultural regions, reducing vehicle operating costs, increasing traffic, and lowering travel times. The lead taken by ATAP to contracting road rehabilitation and maintenance works serves as a model for future contracting reforms under the World Bank's multi-donor Integrated Roads Project umbrella.

Road subsector reforms, which began in the mid-1980s, have produced a series of positive steps designed to provide greater efficiency in both the production and provision of roads. Under the IRP umbrella, government responsibility has been significantly narrowed to *provision* -- revenue generation, planning, and management of a defined road network. In this arrangement, the private sector assumes responsibility for the *production* of rehabilitated, maintained roads -- under contract to the government.

ATAP started with the assumption that the private sector would respond to government and donor-funded demand for production services at a time when concrete evidence that an adequate supply of contractors existed. What has emerged since 1988, however, is an undeniably active private sector eager to undertake a wide range of public works contracts.⁸ Policy reforms intended to increase contracting have been successful in shifting production of road rehabilitation and maintenance from government force account brigades to the private sector.

Are the reforms that have been undertaken to-date complete and comprehensive? In this section we will consider secondary data, our review of selected contract-works projects, and interviews with actors throughout the roads industry, as well as insights provided by donors, expatriate technical advisors, and consultants. We begin to answer this question by identifying the following issues that have arisen since the reform process began.

⁸Due in part at least to ATAP's broad private sector focus, the National Construction Council conducted a contractor registration exercise in 1992. The resultant *Registry of Civil Engineering Contractors for Road Works*, Dar es Salaam, March 1993, provides a catalogue of 427 foreign and local firms divided into six classes according to size, experience, assets, etc., 360 of which are defined as local contractors.

1. Public Sector Responsibility -- Provision

With a significant number of contracts for rehabilitation and maintenance underway, what are the contract management implications for the Government of Tanzania in determining the kinds, quantity, quality, and cost of road works?

2. Private Sector Opportunity -- Production

What are the constraints, if any, on contractor entry into the market for road works and the performance of those who gain entry?

3. The Legal Framework and Financial Markets

Secondary institutions provide insurance, workers compensation, bid, performance and warranty assurances, foreign exchange purchase and credit, dispute settlement and claims arbitration. Does the present environment protect the parties to the contract and ultimately ensure that the desired outputs are obtained at a fair price?

4. Efficiency and Cost Implications

Has contracting out to the private sector for road rehabilitation and maintenance services resulted in increased efficiency in the delivery of those services? What conclusions can be drawn from the cost and efficiency data available at the present?

5. Decentralized Approaches to Contracting

Until recently, the MOW was the only "firm" buying roads contracts. The advent of a one million dollar contracting ceiling for the 20 REOs is changing this situation. In effect, the number of potential clients for contractors increases from one, the MOW headquarters, to 21. What are the broader implications of pursuing this policy? Will even greater levels of production efficiency be achieved?

6. Development of the Contracting Industry

What constraints are faced by small or new firms and individuals seeking to enter the market for contract road works? What are the entry barriers, if any, and can or should they be lowered? Is there adequate training and equipment available?

B. Progress To Date

Before exploring these issues it is important to look at progress to-date. Successful implementation of ATAP road rehabilitation contracts has benefitted from a coordinated donor approach to the activity. The initial engineering designs used by ATAP were prepared by a 1987 Danish-funded feeder roads study. After analyzing the district road network, which is estimated to be anywhere from 30,000 to 50,000 km in total length, the study identified 1,550 km for rehabilitation -- so-called "core roads", essential to Tanzania's agrarian-based economy. Designs and tender documents for 600 km were produced. Later, ATAP funded the preparation of designs and tender documents for an additional 950 km, bringing the total number of feeder roads ready to contract or underway at present to 1,550 km. By the time the IRP activities began to place increased demands on the MOW contract management system in 1990, five ATAP contracts in Kilimanjaro, Shinyanga, and Mwanza regions were already being implemented. Two of the works packages have been satisfactorily completed, and the remaining packages will be completed with few problems anticipated. As should be expected, however, certain problems have been encountered during implementation. The origin of the problems and the steps taken to solve or mitigate them provide useful insights into the workings of the contracting program.

Feeder roads are officially classified by the MOW as "district roads". Maintenance of the 1,550 km of district roads rehabilitated under ATAP will become the responsibility of the MOW. The MOW is already responsible for Tanzania's primary economic and strategic network comprising trunk roads (10,200 km) and regional roads (20,400 km). Although the newly rehabilitated roads will remain classified as district roads, maintenance of them by the MOW means that the network will effectively be expanded in terms of future obligations to finance rehabilitation.

Seven ATAP-funded contracts for the rehabilitation of approximately 700 km (roughly \$18 million) are currently in varying stages of implementation. Two packages in Shinyanga region have been completed (See Table 3.1).

1993 signaled an important ATAP policy shift when the project Steering Committee authorized use of U.S.-dollar-generated local currency for periodic maintenance, minor works, and bridge repair contracts designed, tendered, and implemented in the regions. (Prior to this recent change, ATAP funds were not approved for maintenance works). The authority provided a \$3 million supplement to the Roads Fund, equivalent to 17 percent of FY 92-93 allocations. The policy shift authorized by the Steering Committee established an important precedent for other donors by allowing a more decentralized approach to contracting under ATAP.

**Table 3.1 ATAP -- Core Rural Roads Program--
Rehabilitation Contracts**

Progress as of July 1993

Package	Km	Contract Signed	Scheduled Completion	Elapsed Time	Estimated Progress	Contract Value (\$000,000)			Payment	
						Original	Amended	% Increase	Net Paid	% Paid To date
1	140	21-Aug-91	10-Oct-93	91%	65%	1672.3	1672.3	0%	1069.8	64%
2	73	04-Apr-91	31-Dec-93	85%	65%	327.4	487.4	49%	225.3	46%
3	53.1	22-Dec-89	13-Apr-92	157%	100%	244.8	244.8	0%	216.9	89%
4	71.8	22-Dec-89	30-Sep-93	96%	65%	220.4	450.3	104%	283.9	63%
5	90.1	22-Dec-89	26-Mar-93	111%	100%	303	515.2	70%	440.7	86%
6	112.6	21-Aug-91	28-Sep-93	93%	70%	579.6	766.6	32%	450.5	59%
7	80.7	21-Aug-91	04-May-93	115%	53%	433.7	566.3	31%	313.7	55%

Source: ATAP Monthly Report July 1993

Iringa Region, where most of the ATAP-funded periodic maintenance was taking place at the time of this report, awarded five periodic maintenance contracts between November of 1992 and March of 1993. The total value of these contracts comes to TSh 94 million, or roughly \$235,000. Two additional contracts for TSh 18 million and TSh 311 million are expected to be signed in the near future. The approach taken by ATAP to contracting periodic maintenance and minor works in Iringa Region is innovative. The works are packaged functionally according to task (reshaping, graveling, culverts, ditch clearing, grass cutting, etc.), resulting in a greater number of smaller contracts -- effectively expanding the base of contractors eligible to compete for the works. This demonstrates the success already achieved in implementing GOT/donor policy aimed at involving a greater number of local contractors in the program. In addition to the minor works, periodic maintenance, and bridge repair contracts, another 150 km of rehabilitation contracts are presently being evaluated and tendering for another 160 km is soon to begin.

About 150 contracts for civil works, commodities, design and consultant supervision services are presently underway at the MOW under the IRP. 1,460 km of paved road will be rehabilitated, 360 km of currently unpaved trunk roads will be upgraded (paved) and an additional 2,550 km will be rehabilitated. 3,000 km of rural roads will be rehabilitated, and 30 bridges and 10 ferry crossings will be repaired -- all under contract. At least 20 of these contracts have been awarded to registered local contractors. The remaining contract actions are for procurement of commodities, technical assistance teams, and short-term consultants. Roughly 90 percent of contract funding is provided by donor loans and grants. GOT Development Budget funds provide the remaining 10 percent for capital investment. Contract

administration costs, that is, MOW overheads and salaries, are paid largely from the general treasury. Roads Fund resources earmarked for maintenance are reportedly co-mingled with general revenues on occasion, to make-up for shortfalls in overhead and administrative funds. Contract maintenance, including maintenance of roads rehabilitated under donor-funded contracts, is normally paid out of the Roads Fund. (As indicated above, ATAP local currency is now approved for specific maintenance activities, supplementing the Roads Fund.)

A great deal has been accomplished thus far in shifting the production of roads to the private sector. A significant number of contract works are currently underway, and more are pending. It is not surprising that increased activity in the private sector has produced increased demand for contract tendering and management at the MOW.

C. The Tendering Process

The reforms and restructuring plans within the MOW have contributed to a favorable environment in the public sector, inviting the growth of the private construction industry. But an increase in the number of contracts, pending and awarded, has resulted in some new problems being generated and the identification of a number of secondary public sector, issues. Perhaps the most significant problem is delays in tendering, which negatively affects the contracting system by driving up costs, increasing contractor risk, inhibiting sectoral expansion, and ultimately slowing-down both the reforms and the rehabilitation of the road network.

When holdups occur in the bidding process, the contractors involved must tie up scarce capital in bonds and put a hold on using equipment and personnel for other works. Award of long-delayed contracts invariably means that the winner was required to revalidate the tender price and unit costs knowing that economic and financial conditions had changed. Inflation during delays often has serious consequences on contractor cash flow. Delays sometimes result in escalation of the cost of construction materials. On occasion, even the donors are unable to meet their own disbursement schedule.

MOW engineers and technical advisors point out that contracts implemented after significant delays require remeasurement, usually resulting in upward revision of quantities. Escalation clauses, as a rule, apply only to approximately 20 percent of the total contract value, and thus, do not compensate for the full impact of inflation and other cost increases. The cost of bonds is determined by contract amount and the term of validity. Delays mean that bonds have to be extended. Rental prices often increase, and suppliers may withdraw *pro forma* invoice quotes as the cost of commodities and equipment changes. All of this can happen before a private sector firm is awarded a contract. Finally, losses to the economy may occur when benefits derived from improved roads -- i.e., lower vehicle operating costs, reduced travel times, and decreased transport costs -- are postponed.

A number of tender boards play active roles in contracting according to the type of work and size of the package. The Central Tender Board (CTB), chaired by the Deputy Principal Secretary of Finance, handles all contracting over \$5 million. This senior-level committee faces the problem of coordinating busy member schedules in order to meet regularly. The National Tender Committee (NTC) was created under the IRP to address some of the problems of the CTB. Chaired by the Principal Secretary (PS) of Works, the NTC eased demand on the CTB as expected, but has not yet fully solved the problem of contracting delays. The Contracts Control Unit (CCU) in the MOW was established to advise the Principal Secretary of the MOW concerning the legal and procedural aspects of contracting. The CCU performs the function of an *ad hoc* tender board, sometimes contributing to delays by stepping between the line engineering sections and the formal tender boards. Regional Tender Boards (RTBs) also play an important role in the relative speed or delay in the contracting process. Figure 3.1 shows the flow of contracting actions. In principle, all of the functions and relationships are in place. In practice, however, experience with contracting reforms to-date indicates a need for improvement to shorten the contracting period, contributing to the efficiency of the system.

In spite of a commendable move on the part of the CCU to issue standard advertisement, pre-selection, bidding, and contract documents for international, local, and small contracts, donor regulations impede the flow of tender documents in the present system. Each of the 16 donors in the IRP has its own procurement procedures. The World Bank, for example, requires clearance of designs, bid documents, and contract awards in Washington. Each time that step is taken, weeks may elapse. Approval requirements may contribute to delays regardless of the essential quality control assurance such clearances and approvals provide the donors.

Private sector consultants, architectural and engineering firms and designers play a major role at the conception stage, adding necessarily to the time it takes to contract for road works. In the case of poorly developed specifications or inadequate or obsolete designs, previously undetected contract weakness can turn up during the tendering phase -- e.g., during site visits, pre-bid conferences, or bid preparation, etc. -- and these can contribute to the cumulative number of days required to complete a contract award.

How long does it take for these actions? When contracting actions are followed from conception to payment of the advance loan or mobilization fee, few (if any) exercises are completed in six months, and most large contracts exceed 500 days. The period referred to in this study begins with the pre-selection advertisement, not conception and design, which can often take years. Placing the benchmark for completion of tendering at disbursement of the mobilization or advance payment to the contractor is important because MOW and donor cash flow problems figure prominently among the reasons for delays.⁹

⁹Fully documenting these delays is difficult because start-to-finish project files are not available in the ministry. Instead, correspondence, approval-amendment notes, step-by-step tracking of a project's history are maintained throughout the MOW. It is not until a contract is awarded that the project file is consolidated (as it should be) in the line engineering division. It is advisable, however, that the ministry establish project-by-project files for tracking contract works from the conception stage, through tendering, implementation, to final liquidation.

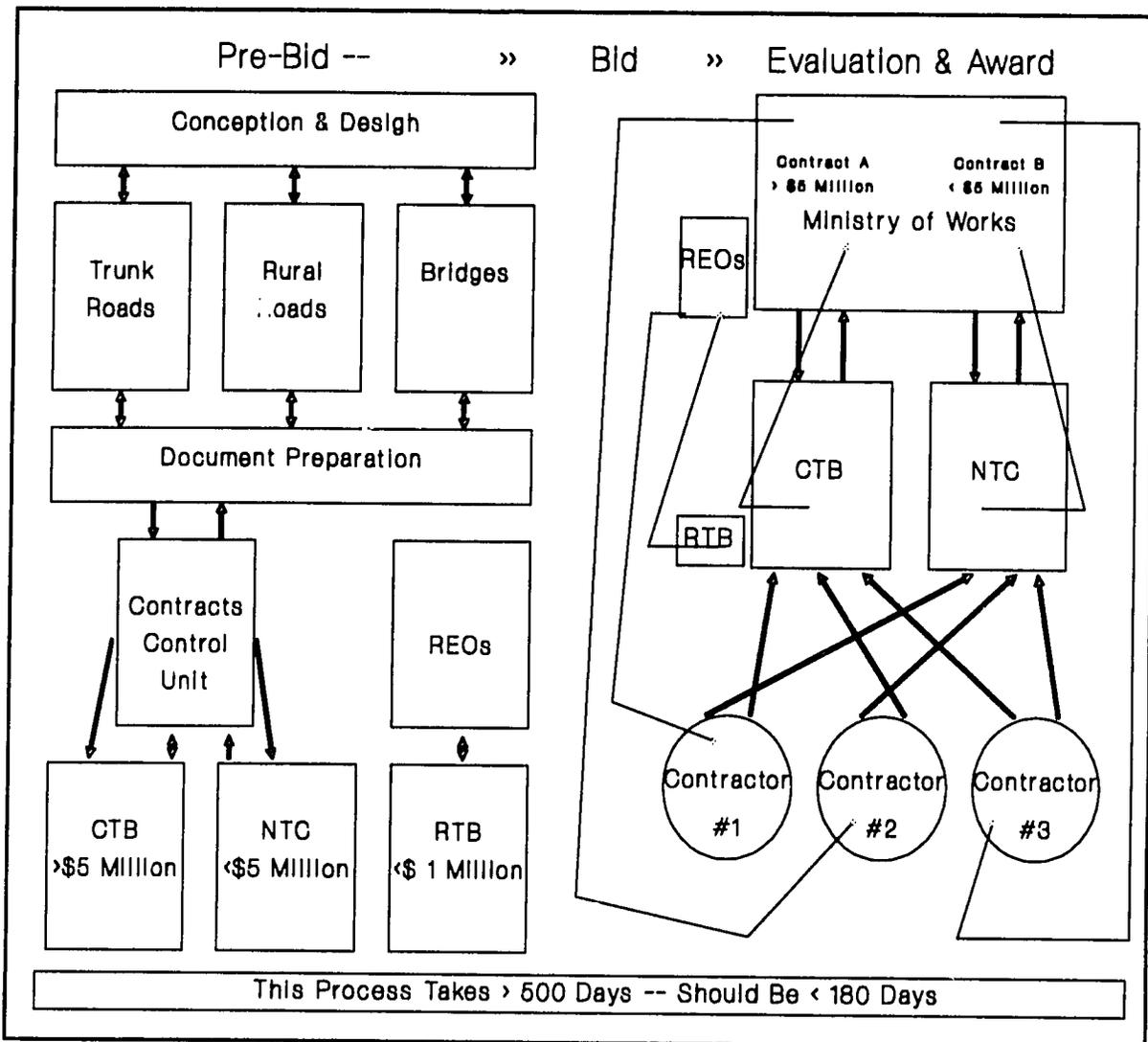


Figure 3-1: Tendering Flow Diagram

During the preparation of draft tender documents, editorial changes, mathematical corrections, and amended "standard" contract language often require repeated iterations in the Trunk or Rural Roads Divisions or in the CCU. Once a project engineer in the Rural Roads Division has completed the preparation of a tender package and is ready to advertise pre-selection, the documents are transmitted to the Chief Engineer (of either Rehabilitation or Maintenance sections) for clearance. Upon approval, the package moves to the Senior Engineer for Rural Roads. If there are no corrections, an official note is drafted and the package is transmitted to the Director of Roads, where a similar procedure is followed. The entire package is then transmitted under cover of an official memorandum to the CCU. If there are no additional corrections, the package is finalized and transmitted to either the NTC or the CTB for action.

CCU staff we interviewed indicated that careless preparation by the technical divisions had become standard practice because it was taken for granted that CCU would make the necessary changes. Minor, but nevertheless time-consuming, editorial corrections ultimately

require that the papers flow upstream through the bureaucracy for re-editing and printing. The technical divisions view the problem a little differently, however, stating that *ad hoc* demands from above added to the time required for the preparation of new proposals, progress reports, and accounting greatly reduces the time available to thoroughly prepare tender packages.

The NTC, CTB, and RTBs act as clearinghouses for all GOT procurement actions independent of the line ministries. Due to increased contracting under IRP, the demand on the tender boards from the MOW is significant. (Meeting that demand is the very reason the NTC was created in the first place.) The tender board first reviews the tender documents and assigns a tender number before approving the contractor pre-selection advertisement. When this step is completed, the MOW is notified that it may publish the advertisement. Experience demonstrates that this procedure may take three months or longer.

Pre-qualified contractors are shortlisted by the MOW and the results are sent back to the tender board for concurrence. The tender board then instructs the MOW to notify contractors that bid documents may be picked up from the tender board. If there are disagreements among tender board members concerning short-listed contractors, additional delays may occur. Pre-qualification is an extremely time consuming and often controversial step in the contracting process. It is a step which certainly cannot be eliminated, but there is ample room for improvement.

After the tender documents are issued, the bidders must prepare their proposals within the specified period or be disqualified. When the sealed bids are submitted, the tender board convenes in a semi-public session where the bids are opened, read aloud, and recorded. Standard procedure requires copies of the bids to be transmitted to the MOW for evaluation by both the appropriate technical section and the CCU. In at least one recent case, this seemingly perfunctory transmittal resulted in an impasse when the NTC refused to hand over the bid documents to the Rural Roads Division for photocopying. The approved ATAP tender documents had failed to specify the number of copies of the bid documents to be submitted. The NTC required two copies, but the bidders had only submitted one. The result was a 30-day delay in contracting while the photocopying problem was resolved.

Once the bid packages are returned to the MOW, a bid evaluation committee is convened. There are actually two evaluation committees, a working committee comprising junior staff and a decision-making committee comprising the senior engineering staff of the Roads Division. Based on the analysis of the working committee, following a review of the bids by individual committee members, senior engineers select the "lowest responsive bidder". This committee is chaired by the Director of Roads and Aerodromes (DRA), who transmits the committee recommendation under cover of an official note to the Principal Secretary, who also reviews the evaluation. If there are no problems, the committee recommendation is transmitted under cover of an official correspondence to the appropriate tender board.

NTC, CTB, and RTBs reserve the authority to overrule the recommendations of the evaluation committee, the Director of Roads, and the Principal Secretary in the event that disagreements occur in the selection of the "lowest responsive bidder". Delays at this stage may also occur in convening the tender board and settling disagreements among the members. (RTBs appear to have significantly fewer problems because the demands on the time of board members at the regional level are fewer.) The NTC normally meets every other Friday, but additional delays occur in drafting and circulating the official minutes of the tender board meetings. Lastly, delays arise because of formal and informal protest by contractors.

Pre-contract negotiations must take place following selection of the contractor. Then, before headquarters actually signs the contract, the MOW requires that adequate resources be transferred into the MOW account. Experience over the past two years has demonstrated that delays in the tendering process affect estimated cash flows; that is, allocations earmarked or set aside for payment of scheduled contract advances may be diverted to emergencies, contingencies, escalation, and upward revision payments for other works. In such cases, the result is a shortage of funds when the new contract is ready to be signed, adding to the delays.

Effective management of the tendering process is critical to ensuring timely and efficient delivery of private sector services. In spite of the many efforts underway to streamline MOW contract management, delays in awarding contracts, when they occur, have a deleterious outcome for reasons discussed above.¹⁰ In the effort to improve contract tendering, it is recommended that the GOT reduce the number of approvals across the board, consolidating responsibility among those who are familiar with the bidding/contracting procedures and have requisite technical skills and hands-on knowledge of the project.

D. Private Sector Production in the Roads Industry

There are many private sector actors in the roads industry in addition to the contractors themselves. *First*, consultant engineering firms play a pivotal role in design and supervision of government-administered rehabilitation and maintenance contracts. *Second*, suppliers and rental/leasing companies buttress the industry and figure officially and unofficially in the technical evaluation of bids. *Third*, banks and insurance companies -- even though they are public institutions in Tanzania's case -- interact directly with private sector firms and individuals established or seeking to establish themselves in the industry. *Fourth*, a variety of ancillary operators in the roads industry (both public and private) interact directly with the contracting industry: labor organizations, special donor programs designed to aid the private sector, parastatal construction and engineering societies, technical and vocational

IRP II appraisal mission in Dar es Salaam at the same time this study was conducted has proposed including a Management Action Group (MAG) component in the second phase of the umbrella project. The purpose of MAG -- comprising MOW senior staff as well as technical advisors and consultants -- will be to address the problem of delays in decision making and delays due to obsolete bureaucratic procedures.

schools influence contractor performance and development of the overall industry. *Fifth*, extra-legal structures seeking to benefit from formal private sector activity exist in the form of cartels, monopolies, and price-setting "organizations".

1. Consulting Engineers

ATAP awarded seven local consultant engineer contracts for supervision of its original seven rehabilitation contracts. Generally, the community of small, local consultant engineers shares many of the same characteristics as the highway construction industry. Consultant firms require close pre-qualification and supervision if they are to develop along with the rest of the roads industry. Remarks in this section will be limited to two factors, design quality and performance liability.

Delays, disputes, and cost overruns attributable to the quality of designs, specifications, and tender documents can be controlled--indeed, need to be controlled--before tendering is begun. Once a set of documents is put up for bid, delays, disputes, and cost implications stemming from poor designs are essentially unavoidable. A qualified contractor will employ engineers, surveyors, and estimators skilled in the business of interpreting designs and specifications, so it is critical for the equilibrium of contract implementation that the consulting engineer operates on a par professionally with the civil works contractor. This assumed parity of excellence is controlled in three ways: (1) during pre-selection and evaluation of technical proposals; (2) through regular inspection at intervals frequent enough to ensure that a high standard of work is maintained; and (3) at the final acceptance stage, if design and supervision inadequacies has not been detected earlier.

In any case, poor or questionable designs should not be tendered. To ensure this, proper technical evaluation of designs must be performed. Technically competent individuals must inspect consulting engineer performance and final submissions. This may require that agents of the government and donors reject unacceptable work before it infects the tendering and construction process. Penalties should be assessed when appropriate. Liquidated damages and other instruments designed to protect the client from the multiplier-effect on cost, which inevitably arises from inadequate design work, should be utilized.¹¹

¹¹The MOW places the blame for many of its contracting problems on design, and certainly there are enough examples of quantities overruns on the order of 200-400 percent, resulting in contract values increasing by 50 or even 100 percent, that designs and specifications would seem to be implicated in the problem. However, as shown in Table 3-1, ATAP contract managers have kept the overruns from going out of line and have maintained equivalence between progress and payment. The greatest design problems for ATAP occurred when designs were prepared for feeder roads some years ago, prior to reforms which led to the emergence of an active road contracting industry. These designs assumed the use of labor-intensive techniques and failed, among other things, to specify graveling of earthen roads. Three cases have to be watched for and avoided: (1) a long delay period between the initial design work and the tendering of the contract without reverification of the quantities; (2) shortcuts taken in quantities surveys to save time; and (3) cases where known deficiencies in designs and specifications are passed on to the contractor to solve in order to accelerate the tendering process. Delays in tendering and contract implementation are only exacerbated by seeking shortcuts in design and supervision contracts.

Contracts between the consultant and the government require liability clauses binding the consultant to the performance of the construction contractor. The GOT, donors, and advisors will have to experiment with pre-qualification exercises, terms of reference, and contracts to best ensure that designs are sound, on-site supervision is adequate, and the consultant is in some realistic way held liable for contractor performance.

If full designs are used, they should be properly executed and timely -- not "updated" by the contractor during construction. In cases of lower standard, lower cost roads to be rehabilitated or maintained -- cases where full designs are not justified--supervision, quantity surveying, and payment certification are the MOW's best insurance that the contractor will perform as agreed. In the existing legal relationship between the consultant, the MOW, and the contractor, the consultant has little real authority, simply acting as an on-site liaison with the regional engineer. Consultants complain that contractors need only appeal to REOs or headquarters to overturn or otherwise appeal decisions made by the supervising engineer. This situation may change with the introduction of revised standard contracting documents, effectively naming the consultant as the certifying engineer for work orders, claims, and payment. If this does not occur, however, the consultant's ultimate responsibility (and liability) will remain a constraint to effective contract implementation.

2. Equipment Lease and Purchase, Spares, and Materials

The issue of equipment and construction supplies is fundamental to the sustainable development of the roads industry. Perhaps no other single aspect of industry development depends on so many other aspects of the industry, i.e., commodity imports, customs, availability of spares, quality of materials, currency exchange, and credit facilities. Attempts to address these diverse issues through the creation of PEHCOL resulted in another set of problems which may or may not eventually ease constraints imposed by the need for equipment and spares in the hands of the private sector.

Larger contractors owning equipment or with access to other lease/rental arrangements than those provided by PEHCOL, expressed concern that PEHCOL contributed to distortions among competitors for contract works. PEHCOL equipment is often unavailable when it is needed and unreliable when it is being used. Contractors interviewed agreed that bids based on the use of PEHCOL equipment allowed enterprises without equipment to compete against contractors with equipment. The disadvantage of the system would occur if PEHCOL equipment unavailability or breakdowns resulted in time or price adjustments for contractors using PEHCOL, while contractors using other arrangements for equipment may lose in competitive tendering situations.

The reform process has had a positive impact aside from PEHCOL. There is appreciably more equipment -- or more equipment reported -- in the country and in the hands of the private sector than before the reform process began five years ago. Table 3-2 shows figures provided by the NCC from early 1989 and early 1993. (These values should be considered as illustrative only as data collection techniques differ between the 1989 and 1993

inventories.) In 1989, only 17 local contractors reported equipment assets. By 1993, 360 local contractors reported owning equipment. Contractors we interviewed unanimously voiced concern about procurement of replacement equipment, but stressed that availability and purchase of spares was the biggest problem by far.

	A	B	B/A
	1989	1993	Increase
Dozer	39	128	3.28
Grader	28	125	4.46
Loader	38	117	3.08
V-Roller	31	88	2.84
Tanker	9	130	14.44
Tipper	65	574	8.83
Total	210	1162	5.53

The principal constraints to maintaining adequate equipment pools in Tanzania are documented in many reports:

- credit terms;
- customs delays;
- few in-country spare parts inventories and service representatives; and
- erratic demand and contracting delays leaving expensive plant idle.

There is much yet to be done in the areas of finance, credit, customs, and transport to create a favorable environment for equipment and parts suppliers. Contractors unanimously complain that established suppliers' prices are prohibitive. The suppliers explain that their prices reflect the cost and risk of doing business. Construction contractors and suppliers holding substantial plant pools may eventually solve the problem of lease/purchase, rental, and spares if incentives for them to develop their businesses by putting depreciation allowances and profits back into spares and replacement equipment are available.

3. *Banks, Insurance, and Financial Markets*

Section 3.5 *Legal Framework and Financial Markets*, discusses the contractual guarantees protecting the parties to public works agreements. Bank guarantees, insurance bonds, currency buying-selling, and lending rank high on the list of constraints which affect contractor performance. At present, banking and insurance in Tanzania are still public sector functions, while money markets are being significantly liberalized. Both the National Insurance Company (NIC) and the National Bank of Commerce (NBC) are undergoing restructuring, decentralization, and streamlining, but both contract underwriters suffer from reported difficulties.

4. *Ancillary Organizations*

Foremost to-date in assisting in the development of the private construction industry is the parastatal NCC. Due to the success of contracting reforms under IRP and ATAP, the role of organizations like NCC has become increasingly important as the roads industry develops. Professional engineering societies, labor unions, chambers of commerce, and other business associations provide a broad range of functions: professional/peer inclusion, exclusion and review, arbitration, mediation, training, introduction to developing technologies and monitoring market dynamics. Increasingly, as public policies create opportunities for the private sector, the strength of these organizations will become even more important as advocates for the industry and as self-regulating or lobbying groups. NCC has proven to be instrumental in the contractor registration exercise. Likewise, NCC arbitrators have been used in the past to settle disputes between building contractors and the government.¹²

Further developments through ancillary construction organizations might include reforms related to labor laws, minimum wages, severance, retrenchment, and benefits, for example. NCC activity may be expanded to include maintenance of the Registry of Civil Works Contractors and monitoring of economic trends in the construction industry as a whole. This function will provide essential construction industry data to the Bureau of Statistics and the Central Bank and allow for monitoring fluctuation in unit prices independent of the MOW. The World Bank, USAID, and other donors generally agree that NCC performance may be considerably improved if it is allowed to collect and keep registration fees as a part of its duties.

¹²Not surprisingly, NCC faces its own set of problems related to interministerial relationships, functions, and roles. Right now, the registry is maintained by the CCU within the MOW, although the function is performed by the NCC. CCU collects a fee which is remitted to the general treasury, but requests contractor pre-selection information from NCC. As a result, NCC loses out on revenues from the fee while playing the role of reviewing registered contractors from its own database for the MOW. The MOW should cede the contractor/consultant registration function to the NCC. There is an initiative underway to create separate parastatals for contractor registration; consultant, architect, and quantity surveyor registration; consultant engineering firms; and professional engineers. This idea should be reconsidered because NCC's present role allows it to perform all three functions efficiently -- if it is permitted to retain the fees collected from the registration exercise and is provided incentives and institutional support to perform.

In the area of dispute settlement, NCC and labor organizations seem to be likely candidates to provide assistance to contractors. NCC's eventual role in arbitration should be clarified. If NCC collects fees from contractors, it should not also mediate disputes between those same contractors and clients. Contracting reforms evolving within the MOW currently envision a system where contractor and client will select a mutually agreed-upon arbitrator from a pre-approved short-list. The arbitrator will be called upon if disputes cannot be resolved during contractor-consultant negotiations. This sensible proposal should be tested in upcoming contract actions.

5. *Extra-Legal Practices*

As Tanzania breaks down the state monopolies in a move to liberalize the economy, various extra-legal practices may affect development of the industry: shadow monopolies, collusion and price-fixing, and control of market entry. At this point in the reform process, it is important to remain aware of such market dynamics and attempt to reduce their negative effects if indeed they become factors in roads industry development. Measures which encourage competition and fair pricing include monitoring unit prices, screening out blacklisted and otherwise unqualified individuals and firms using contractor registration information, and lowering barriers to the market by creating opportunities for firms which otherwise would not be able to compete with those more established.

Regulations and procedures should not raise unreasonable barriers to entering the market. Fair competition and reasonable price should continue to be encouraged. Because technology, plant, labor, and training requirements are widely variable in rehabilitation and maintenance contracting, diverse contract sizes, technologies, and machine-labor mixes should be sought. In this way, a greater number of potential contractors (differing in profile, experience, size, and capability) will be suitable to compete for an increasing number of contracts.

Most importantly, perhaps, both donors and the government need to be aware that extra-legal practices do exist, and may be neutralized to a large degree by considering the issues mentioned above.

6. *Rehabilitation and Maintenance Contractor Performance*

In spite of the risks associated with inflation, logistical headaches, procurement setbacks, and tendering delays, *contractors are performing*. Field visits to Regional Engineer Offices in Moshi, Kilimanjaro Region, and Iringa, Iringa Region; traveling on 700 to 800 km of recently rehabilitated paved trunk roads as well as an additional 150 to 200 km of rural regional and district roads under rehabilitation and maintenance contracts, it is abundantly clear that contractors -- in varying degrees of proficiency -- are performing.

We spoke to 12 local rehabilitation and maintenance contractors in Dar es Salaam and in the field. The firms ranged from civil works and building contractors with plant capacity and lots of experience, to traders, transporters, and inventors hoping to get in on the ground floor of what each clearly perceived as a growth industry. In most cases, the contractors were not entering the market using grants, donor credit programs, or the like, but by investing their own financial and human capital, creating conditions to become short-listed for road works contracts. For example, one transporter had invested \$1 million in used heavy equipment and waited a year for IRP to get underway. Another contractor funded training costs to send three of his employees in a small building construction business to participate in the NCC-ILO-USAID program for labor-based works contractors.

Of the twelve, ten were performing anywhere from adequately to exceptionally. Even in cases where implementation was not going smoothly, the contractors were willing to openly discuss cash flow problems, disputes, technical difficulties, and delays. Results, for the most part, were tangible, visible to anyone driving along the rehabilitated and maintained sections of roads we visited.

E. The Legal Framework and Financial Markets

Interviews with central and branch office managers for both the NIC and NBC left the impression that neither organization expects the MOW to call in bonds because of contractor default. In fact, no one interviewed could remember an instance when a bond was cashed in. Some MOW staff claimed this situation existed because the NIC and NBC would not honor the bond in the first place, so default situations normally resulted in negotiated settlements. The bank and insurance company representatives suggested that the reason was because no contractors ever defaulted.

Whatever the reason, after many years of this unwritten arrangement, the untested nature of the financial instruments designed to guarantee works appears to have become institutionalized. As one NIC official explained, it would be impossible to make any profit if large claims were paid, and indeed, he suggested, the present financial difficulties of the insurance industry were due to payment of too many small claims.

It was difficult to find a claims manager in any office who agreed precisely with another as to the exact cost of bid bonds, performance bonds, advance loan bonds, and bank guarantees. Contractors pay a non-reimbursable fee and provide the required collateral (normally the deed to buildings) to obtain bonding. If it is true that bonds are seldom if ever called in, regardless of contractor performance, then collateral is only an issue for smaller firms attempting to enter the market. Nonreimbursable fees -- if one assumes that guarantees do not work the way they are meant to -- simply increase the cost of doing business, raising the barrier to market entry, while providing essentially unearned revenue to the public banking and insurance industry.

Until the economic policies of the Bank of Tanzania yield positive financial sector reforms, check clearing, savings accounts, the availability of currency exchange, and credit will continue to constrain the development of the private sector. In the case of road works contractors, these constraints will be passed on to the GOT and the donors in the form of high cost in compensation for financial risk. The insurance industry, personal and group health plans, property, fire, theft insurance, workman's compensation, state-underwritten pension facilities, and social security all share similar financial and administrative difficulties.

Availability of credit, import facilities and access to hard currency cannot be addressed by IRP and ATAP, nor should they be overlooked either. Lack of means to procure reasonably priced equipment for building and maintaining the roads constrains the expansion of private sector contracting. As the number of contracts for mechanized works increases, the inability of the private sector to procure equipment, vehicles, and spare parts may seriously constrain development in the sector and inhibit progress in reaching government road network rehabilitation and maintenance goals.

F. Efficiency and Cost Implications

In Kilimanjaro Region, the ILO labor-based training project estimates rehabilitation of one kilometer of murrum-surface rural road at approximately \$12,000/km. A local mechanized contractor 10 kilometers away rehabilitating ATAP project roads to essentially the same standard is receiving more on the order of \$45,000/km, based on the exchange rate at the time the contract was awarded.¹³ In Iringa, the REO obtained RTB approval of standard rates for periodic maintenance. On one 30-km stretch of road, three separate contracts were let for reshaping, drainage works, and culverts. The gross unit price for the combined works came to less than \$3000/km. Another stretch of road on the other side of Iringa requiring almost no culvert works and no graveling cost less than \$1000/km.

What is the explanation for the variations in price? Shifting from force account to contract works after 15 years has meant that MOW estimates based on force account unit prices may not be entirely valid. Likewise, recent private sector experience in determining its prices (i.e., rates, overheads, and profits) is shallow. Earth works can be notoriously tricky for the best of estimators because of unforeseen excavation costs, unpredictable weather conditions, unanticipated haulage distances, and all the other unknowns that go with earth moving. When rates prove to be too low, the most qualified private contractors are also most skilled at manipulating conditions and quantities to work to their advantage. Those who are

¹³ At today's rate the per-kilometer price is closer to \$25,000. Inflation, parallel exchange markets, and calculated risk play havoc with estimating costs and benefits on roads projects. Fixing prices in dollars can be quite misleading whereas discussing prices in inflationary TSh terms can be equally misleading. Adding to the range of prices coming from the private sector today, new rehabilitation packages being tendered for the Iringa Region report prices as low as \$13,000/km.

not so skilled become the victims of circumstance and suffer from delays and cash flow problems. In either case, the cost of rate and quantity revision, delays, and rectification often gets passed on to the client.

Naturally, the best way to ensure that costs are fair and reasonable is to compete works projects and compare the prices with engineering estimates. But this does not always work as well as it should. Engineers with little practical experience in private sector contracting, consultants lacking the incentive to deliver estimates based on reliable quantities, and forces operating against the market to control prices, bar entry to competitors, and maximize profits unfairly can contribute to distortions of what might be considered the "real" fair and reasonable price.

Estimates are important, but still more work needs to be done in valuating contractor overheads and profits. MOW engineers know how much it costs for a machine to move 10 tons of earth 10 kilometers with precision, but less is known about what it really costs a private firm to prepare a bid, mobilize, and get the work done, or how much profit is reasonable for assuming the risk of undertaking the project given delays and inflation. MOW engineers and technical advisors know how the costs are built up into unit rates, but growing competition and the emergence of greater efficiency among the private contractors means that prices can fluctuate. More should be done to better understand construction market dynamics.

Standards and technology can be used to control costs when resources are scarce. The differential implied in the Kilimanjaro example is striking. Labor-based contractors with whom we spoke know what the machine-based contractor is making to produce the same type of road that labor can construct. There may be cases where labor-based works drive machine costs down, but in the end, there will be limits below which machine works cannot drop and above which labor-based works cannot compete. Labor-based works are limited by time and quantity factors, which can be overcome by capital investment in machines and fuel costs. This needs to be considered in developing tender packages and should be reflected in a differential between labor-based rates and machine-based rates on projects where machines can do more work, faster, at a generally higher cost than labor alone.

The private sector should be studied in order to get a better idea of the real cost of doing business, calculated risks, and profits. There are two ways this can be done to help estimators and planners understand costs. First, unit prices and contract values can be monitored publicly. (This is a suitable role for NCC, as discussed in Section 3.4.4.) Real aberrations will be more visible against a backdrop of market trends over time. Second, private contracts should be audited for use of advance payment, overheads, and profits. In some cases, contractors reportedly operate secondary businesses using advance payments. In other cases, contractors operate at a loss and fail to meet the schedule of advance and mobilization repayment.

Diversified contracting will create an environment where cost differentials can be monitored, as in the case of ATAP-funded activities in Iringa. Multiple contract arrangements on single segments of Iringa roads call for different types of works using a range of technologies, machinery-labor mixes, total value, and duration. This diversity reduces the likelihood of one large contractor operating with high overhead and profit shares not only patching asphalt but also cutting the vegetation or clearing culverts, when a smaller firm could do the latter work at a fraction of the cost without significant tradeoffs in efficiency or quality.

G. Decentralized Approaches to Contracting

Given the evident administrative workload at MOW headquarters where most of the contracting takes place, at least until recently, it is sensible to ask if more cannot be done at the regional level to effectively reduce workload at headquarters? IRP designers considered a great number of functions could be more appropriately performed at the regions. In fact, regionalization is central to IRP; however, implementation of the reforms has been slow. The institutional analysis in the Section 2 discusses how decentralized institutional arrangements can be established according to the functions to be performed.

Performance contracts between the REOs and headquarters would enhance interregional competition if performance had a bearing on remuneration, receiving greater authorities, and possibly increased resource allocations to REOs. Applied to a contracting program, performance agreements could be used to increase incentives for individuals supervising contracts, preparing certificates, and authorizing payment. Competition, performance agreements, bonuses, and career advancement for MOW employees who produce results regionally are important incentives for improving production efficiency.

As best we could tell from visits to two REOs largely considered to be among the most competent, the delegation of contracting authority was not a genuine delegation at all. The problem was twofold: (1) headquarters continued to exercise ultimate authority over REO contracting actions, and (2) REOs lacked experience, skill, training, and sometimes the confidence to exercise its delegated authority without soliciting approval from headquarters. Assuming the proper authorities, incentives, and controls are in place, REOs and headquarters need to test the system; that is, they need the delegation of authority to approve contracts below the \$1 million ceiling (see Case 2: Delegation of Authority).

Cost and efficiency can be affected by increased regional contracting. For one thing, regional price variations will become more pronounced when the process is managed regionally, instead of at Dar es Salaam where price norms cover a greater number of works. If properly monitored, regional differentials may be used to better estimate costs on large interregional works projects as well. Regional prices will vary for economic and geographic reasons, and there is also likely to be variation due to contractors preferring the relative advantage of selling to one region instead of another. Standard specifications, contract

documents, and procedures will prevent institutional delays while cost and efficiency differentials according to region should encourage using a variety of arrangements, solutions, and price structures for rehabilitation works.

Plans are underway in the Rural Roads Division to tender a batch of new rehabilitation contracts through the regions to avoid the inevitable delays at headquarters. Technical assistance is in place in many of the regions to help ensure that designs and estimates are correct and that no procedural steps have been overlooked in decentralized contracting actions. The place for headquarters to get involved in REO contracting should be at the audit and evaluation stage. Audits are sometimes viewed as tantamount to accusation of misconduct and guilt in Tanzania. Nevertheless, technical, performance, and financial audits need to be introduced into the contracting reform process to serve a control-sanction function and to identify good performance, innovation, and achievement in attaining objectives.

H. Recommendations for Continued Development of the Private Roads Industry

No single project or policy, be it micro or macro, can address all of the issues affecting the emergence of a viable private roads industry and its sustainable growth. Five years ago when ATAP began, the policymakers considered human resource shortages in the regions, the lack of contracting precedents, delegations of authority of less than \$1000 to regional engineers, and the poor condition of the roads to be the key constraints to the development of the industry. Today, there are more qualified inspectors in the regions, scores of contracts are underway, regional engineers have authority to enter into contracts up to \$1 million, and significant improvements have been achieved on the roads themselves. Still there are issues -- some linger and some are new, the result of an evolving reform process.

The initial steps for enabling the development of the roads subsector have already been taken through the reform process underway in the IRP and ATAP. Taking the next steps -- future reforms -- will ensure that contracting with the private sector for road rehabilitation and maintenance is sustainable -- that is, manageable and affordable in the Tanzanian context.

In the near term, the public sector can do three things to improve the contracting environment:

- decrease delays in tendering,
- decrease delays in payment, and
- make standard documents, standard rates, and competitive prices available to the public.

The Management Action Group (MAG), as it is conceived under IRP II, may be the answer to much of this, but steps should be taken as soon as possible to open the bottlenecks in the system. MOW and MOF officials should meet with advisors and donors and agree to interim procedures for speeding up the tendering process when it becomes bogged-down in the engineering offices, the CCU, the NTC, the CTB, the RTB, an evaluation committee, or at the final stages prior to award. Ideally, the tender boards should be the point of conflict resolution, where the process can be speeded up when it slows down due to purely bureaucratic delays. As shown in Figure 3.1, an appropriate structure for tendering is in place. Certainly, creating another review board would only add another layer to the problem. In any case, the norm should go from greater than 500 days in tendering (placing the benchmark at first payment) to less than 180 days. For contract amendments, the norm should go from greater than 180 days to less than 45 days.

The MOW will not be inundated with Roads Fund resources any time soon, which, from a contracting standpoint, simply means that resources are limited accordingly. It follows that the network maintainable with Roads Fund resources will be limited. The policy of rehabilitating District Roads using ATAP funds then adding those kilometers to the MOW maintenance roster should be reevaluated. Expansion of the maintenance network geographically or financially is not recommended. There are three alternatives to the present arrangement.

- Do not add to the maintenance roster -- District Roads should remain the responsibility of districts to maintain using PMO, locally generated, and donor resources;
- If District Roads are to be maintained by the MOW, lowest priority rural roads should be subtracted from the network;
- Limit the scope of the program to rehabilitation of priority rural roads already included in the network.

The work being done in the Rural Roads Division, REOs, and through projects like ATAP and the ILO training program in analyzing unit costs and experimenting with diverse contracting arrangements (size and duration, labor-machine ratios, technologies) is highly innovative and can be built upon. Considering the contracting reforms underway, minor works and periodic maintenance contracts together with the cost analyses in Kilimanjaro, Iringa, and headquarters are among the most compelling activities underway in terms of complementary development of both the private roads industry and sustainable road maintenance institutions. Use of contracting authorities already delegated to the regions should be expanded and monitored (audited), contract size and duration, and unit costs should be monitored regularly by the NCC, and diverse contracting arrangements should be increasingly used at headquarters and the regions to expand the base of eligible contractors and perfect competition.

The amount of contracting being done in the regions can easily be increased. ATAP is in a good position to follow through on its regional contracting program with one caveat for the Rural Roads Division at headquarters: the check on delegated authority should come **after** the authority has been exercised in the form of technical or performance audits. As regionalization becomes more widely accepted in the MOW, performance contract programs between headquarters and the regions, featuring incentive packages for regions that perform well and rational disincentives for those that do not, should be strongly considered.

In the private sector, consultant engineering services need to be strengthened. As previously discussed, this can be best achieved by improving oversight during the design phase, better screening during pre-qualification of supervision contractors, building greater liability into consultant contracts, and through training.

Organizations like NCC require continued support. Training programs conducted by NCC for contractors will yield long-term benefits. Under the conditions of IRP II, the government will be required to institutionalize contractor registration. NCC is a logical place for such a registry. For the system to work, registration must be a continuous process. Short-term technical assistance and minimal financial support could assist NCC in launching a program for collecting, publishing, and maintaining price data and construction trend information.

More analysis is needed to better understand barriers to entry and possible weaknesses in the system created by bonding and insurance requirements. Efforts that are already underway to diversify contracting arrangements, providing market access to smaller firms, and lowering financial requirements more appropriate to large firms, need to be continued and expanded wherever possible.

Equipment and spares pose a problem to industry development, demanding a coordinated approach by private sector entities, the GOT, and donors. Credit, currency exchange, and import support programs working in concert with easing of customs regulations and the establishment of firms for expediting spare parts imports under IRP are all viable actions which should be considered to mitigate the problems facing equipment supply and rental companies that serve private sector contractors. Interim solutions to immediate shortages may be necessary while long-term development is ensured by realizing broad economic reform. One example of such an interim measure would be for the GOT and donors to establish a program for expediting the purchase, procurement, importation, and clearance of spare parts for all contractors under IRP using off-shore and in-country private sector firms specializing in equipment and spare parts procurement.

With the expected increase in the number of rehabilitation and maintenance contracts comes the need to ensure that competition and market entry among prospective firms is fair, providing for growth of the industry as well as reasonable prices and acceptable quality. Reforms underway have laid a solid footing with the registry of contractors. The registry, however, must be maintained and regularly updated.

IV. ROADS FUND FINANCING

A. Introduction

In August 1991, the Government of Tanzania (GOT) established a Roads Fund through an announcement by the MOF. The Fund was created in accordance with Clause 17(1) of the "Exchequer and Audit Ordinance" (Cap. 439) which permits the Government to open special funds. As stated in the original announcement (English translation contained in Fisher, 1992), the objective of the Roads Fund is to "cover the costs of rehabilitation and maintenance of major and core roads" and is to be funded from:

- i road tolls imposed on diesel and petrol sales at an amount to be decided annually by the Minister of Finance, effective July 1991/92; and
- ii various levies and duties from motor vehicles such as licenses, registration, and transferring of vehicles, at amounts to be decided by the Minister of Finance, effective July 1992/93.

The Fund was initiated and has operated since July 1991 (retroactively from the announcement of its creation). It is now appropriate to review the operations of the Fund to determine how well its objective of funding road maintenance in Tanzania has been accomplished. (A review was conducted after one year of operation; see Fisher, 1992). This section explains how the Roads Fund has been operating and analyzes where and how it might be improved to meet the objectives stated in the ordinance.

The Roads Fund is a type of earmarked revenue; that is, specific revenues are set aside and designated to be used for a particular purpose. It is, therefore, appropriate to consider both generation and spending of those revenues. To that end, what follows are four major sections. Section 4.2 is devoted to revenue generation -- both actual and the potential for the Road Fund based upon clause (ii) above. Section 4.3 discusses the method for transferring revenues from the MOF to the offices that allocate and spend the proceeds of the Fund -- the PMO and the MOW. The allocation and spending processes used by these organizations are the topics of Section 4.4. The final section (4.5) discusses the principal policy and administrative issues that arose from this review and also makes several recommendations for improving the Roads Fund.

B. Roads Fund Revenues

The Roads Fund was created under the powers of the "Exchequer and Audit Ordinance", rather than as an Act of Parliament. As such, the Fund does not have an explicit set of rules that generally govern the administration of tax instruments. Thus, our investigation has relied exclusively on interviews with persons involved in administration of the Fund rather than on a review of written rules.¹⁴

This section is organized by revenue source. The first subsection (4.2.1) reviews the overall revenues generated by the MOF directly or indirectly from drivers and/or owners of motor vehicles. Section 4.2.2 focuses on generation of revenues from the road toll tax; Section 4.2.3 discusses other possible sources of revenues for the Roads Fund.

1. Vehicle-Based Revenues

Table 4.1 shows the principal direct road-use related revenue items currently collected by the GOT (found under Sub-Vote 396 of Vote 50 in the Annual Budget (Revenue Estimates)). Of these, only the road toll tax has generated resources for the Roads Fund since July 1991. In spite of the second clause in the resolution which created the Fund, no other revenues have been used for that purpose. Discussions with the MOF indicated that, while they are, in principal, not opposed to earmarking other revenue sources for the Road Fund, they are not convinced of the current need for such revenues. We return to this issue in both Sections 4.2.3 and in 4.5 below.

Of the nine separate items listed in Table 4.1, the road toll tax is, by far, the largest, accounting for nearly three-quarters of the revenues collected from those sources. Briefly, the other fees and charges are levied as follows:

- **Registration Fees** - Fees imposed on vehicle owners when they first register their vehicle; not imposed annually, but only upon initial registration.
- **Driving Licenses** - Fees paid by individuals who obtain a license to drive on the roads and streets of Tanzania.
- **Foreign Permits** - Fees paid by owners of personal vehicles registered in other countries.
- **Foreign Commercial Vehicle Licenses** - Fees paid by owners of commercial vehicles registered in other countries.

¹⁴ Whether or not efforts should be undertaken to ask Parliament to pass a Roads Fund Act as an explicit law is outside our team's field of competency. We recommend that a person trained in Tanzanian law be commissioned to address this question.

TABLE 4.1

**REVENUE COLLECTED ON MOTOR VEHICLE TAXES
AND LICENSES, FY 1992/93**

Budget Code	Tax or Fee	1992/93 Revenues (TSh millions)*
1301	Motor Vehicle Licenses & Fees	
	Registration Fees	201.25
	Driving License	263.97
	Foreign Permits	87.69
	Foreign Commercial Vehicle License	108.69
	Transit Charges	125.47
	(Subtotal)	(787.25)
1302	Motor Vehicle Registration Tax	211.03
1303	Motor Vehicle Transfer Tax	215.97
1304	Car Benefit Tax	707.74
1306	Motor Vehicle Road Licenses	556.02
1309	Road Toll Tax	6,830.48
	TOTAL	9,308.50

*These data should be viewed as preliminary since they were obtained before the accounts for FY1992/93 were closed.

Source: Sales Tax and Inland Tax Department of MOF.

- **Transit Charges** - Charges imposed on vehicles carrying cargo that is in transit to or from neighboring countries to the port at Dar es Salaam.
- **Motor Vehicle Registration Tax** - Tax imposed on vehicle owners when they first register their vehicle; like the registration fee, this tax is not paid annually, but only upon initial registration.
- **Motor Vehicle Transfer Tax** - Tax imposed on the purchaser of a new or used vehicle at the time of initial registration.
- **Car Benefit Tax** - Tax on private employers who, as part of the compensation to their employees, provide the employee with a vehicle.
- **Road Toll Tax** - Tax levied on petrol (premium and regular) and diesel oil.

There are, of course, other taxes that are imposed directly or indirectly on road users when they purchase vehicles or vehicle use inputs. For example, there are sales and excise taxes imposed in addition to the road toll tax; and there are also sales and excise taxes as well as customs duties applied to the purchase of vehicles, spare parts, lubricants, tires, and batteries. (The revenues from these are much more difficult to sort out since they are imbedded in the totals of customs duties (Item 1001 of Sub-Vote 396), excise duties (Items 1201 and 1202), and sales taxes (Items 1203 and 1204).

For example, purchasers of new imported vehicles pay customs duties as well as sales and excise taxes on the purchase. These can easily more than double the price of the vehicle. In addition, there are duties, sales, and excise taxes imposed on imported spare parts, as well as other vehicle inputs such as tires, batteries and lubricants. Some vehicle inputs, e.g. tires and batteries, are also produced within the country. On these, the vehicle owner bears both sales and excise taxes, but no customs duties.

There is little doubt that the road-using public (which obviously includes the consumers of products transported over the roads) bears considerable taxes. As discussed in Case 4: Vehicle Taxation at the end of this report, this is not surprising since in most developing countries, vehicle-related taxes are an extremely convenient form of taxation, and such taxes also meet other tax evaluation criteria. This should not be interpreted to mean that the sector can or should be taxed without limit; however, the range of taxes imposed on the sector in Tanzania is not uncommon.

2. *Road Toll Tax*

The revenue potentially available from any tax is the product of the tax base times the rate imposed. While this product constitutes the statutory amount of tax, actual collections of any tax are also affected by how the tax is administered. That is, observed revenues may fall short of what could have been collected due to failures in the tax administration system.

Thus, ultimately, *Actual Revenues = Base x Rate x Collection Efficiency*. The current section is organized in a similar fashion. We first discuss the statutory base and rates of the tax in Section 4.2.2.1, followed by an explanation of how the tax is administered. The final portion of this section focuses on the actual revenues that have been generated for the Roads Fund from the road toll tax and the amounts being projected for 1993/94.

Tax Base and Rates

The term "road toll tax" stems from a discontinued practice in which users of certain roads in Tanzania were charged a direct toll. Toll booths were constructed along various routes with certain vehicles, for example, large lorries and some cars, stopped and charged a toll. There were several problems associated with that form of taxation. First, the GOT found it costly to administer, since toll collectors were located in rather isolated places and therefore required vehicles, housing, and other capital investments. Second, their isolation and the direct collection of fees made misappropriation of funds from truckers much more likely. Finally, stopping vehicles creates inefficiencies in the flow of commerce. Thus, the practice was abolished in 1990 and the present system was initiated.¹⁵

Since consumption of fuel by vehicles is highly correlated (albeit not perfectly) with road use and the costs that users of the road impose on other users as well as on its maintenance and upkeep, a reasonable proxy for a road usage charge is to tax the fuel consumed by road-using vehicles. The road toll tax is levied against the principal fuels consumed by road-using vehicles in Tanzania -- gasoline (petrol) and diesel fuel (gas-oil). In fact, the base of the Road Toll tax is *all* premium and regular gasoline and diesel fuel released through customs officers by the several oil companies engaged in the distribution of petroleum products in Tanzania (see Case 5: Tanzanian Petroleum Sector). That is, the price of every liter of gasoline or diesel oil which is distributed to any user (including the GOT and its parastatals) is to include the road toll tax. Thus, railroads and government vehicles also pay this levy.

¹⁵ Unless roads have considerable traffic, the costs of administering such tolls often exceed the revenues collected. Furthermore, experiences in many developing countries, e.g., on the Indian sub-continent where the *octroi* is collected by many cities, show that such toll operations are open to considerable administrative abuse.

There is, however, one important exemption to the road toll tax. Petrol and diesel oil delivered to and consumed in Zanzibar is not taxed under this levy. (The Roads Fund is, however, also not distributed to Zanzibar.) This exemption complicates administration of the tax and provides a potential loophole for illegal tax evasion.

The rate of the tax has varied during the two years the Roads Fund has been operating. At its inception in July 1991, the tax was set at TSh 7 per liter of petrol and diesel fuel. This rate remained constant during FY 1991/92. In July 1992, it was raised to TSh 10 per liter; and in January 1993, the rate was doubled to TSh 20 per liter. During his presentation of the 1993/94 Budget to Parliament, the Minister of Finance announced that the tax would be raised to TSh 25 per liter. (At the time this report is being written the final increase has not yet been made permanent by Parliament.) Thus, during its two-year history, the tax has been raised three different times, and now is more than three and one-half times higher than when it was established only two years ago.

The road toll tax is not, however, the only tax imposed on petroleum products. The tax laws also include sales and excise taxes to be applied to all petroleum products. Table 4.2 shows the tax rates that apply to all road-related petroleum products. The entries in the table clearly show that GOT tax policy has targeted automobile users for heavier tax burdens while exempting diesel oil users (which include not only road users, but also other industrial users including the railroads) from these other general taxes. Furthermore, the GOT's cross subsidization petroleum pricing policy also burdens petrol users most heavily. As discussed in Case 5, the current per-liter price of petrol is TSh 40 higher than it otherwise would be so as to subsidize consumers of propane, kerosene, fuel oil, and jet fuel. Diesel oil users receive a small TSh 3 per liter subsidy.

Motor fuel prices effective 18 June 1993 were as follows: ¹⁶

Petrol -- premium:	TSh 223/liter
Petrol -- regular:	TSh 213/liter
Diesel Fuel (Gas Oil):	TSh 155/liter

Thus, the TSh 25 per liter road toll tax results in effective tax rates (tax as a percent of price) slightly above 11 percent for the two grades of petrol and in excess of 16 percent for diesel oil. The policy issues associated with further increases in such rates are discussed in Section 4.5.

¹⁶ These are prices effective in Dar es Salaam. As explained in Annex 4-2, the GOT abandoned its policy of country-wide uniform prices in June 1993. A 30 July 1993 *Business Times* newspaper article reported that retail prices would be raised to reflect devaluation of the TSh.

TABLE 4.2
SALES AND EXCISE TAXES IMPOSED ON
PETROLEUM PRODUCTS, JULY 1993

Product	Sales Tax^a	Excise Tax^b	Road Toll Tax^b
Propane Gas	10 percent	TSh 7.1875	--
Premium Petrol	30 percent	10.1590	TSh 25.00
Regular Petrol	30 percent	7.8659	25.00
Aviation Fuel	5 percent	8.0311	--
Kerosene	5 percent	8.7145	--
Diesel Oil	Zero	7.1772	25.00
Industrial Diesel Oil	Zero	7.1839	--
Fuel Oil	10 percent	11.2614	--

^aThis *ad valorem* tax rate is applied to the price of the product as paid by Tanzania Petroleum Development Corporation (TPDC) and before the inclusion of profit margins for either TPDC or the oil companies.

^bThese are specific taxes expressed as TSh taxes per liter.

Source: TPDC

Tax Administration

Theoretically, the road toll tax should be very easy to collect and should involve quite low compliance costs. Rather than being imposed at the pump, the tax is imposed when the petrol and diesel oil leaves the bonded warehouses of the oil companies. As explained in Annex Case 5, all petroleum products in Tanzania are distributed by private or semi-private companies. Each of these companies maintains a bonded warehouse containing petroleum storage tanks for their products. The road toll tax along with the sales tax and excise duty are to be paid when the taxed product leaves the bonded warehouse and is taken to one of the storage depots which the oil companies maintain throughout the country.

The companies do not, however, write a check each time a tanker truck or rail tanker leaves their bonded warehouse. Instead, a representative of the company takes a check to the Office of the Commissioner of Customs (in Dar es Salaam) and, in turn, receives a Certificate of Payment, equal to the size of that payment. This occurs *before* the gasoline or diesel oil is taken from the bonded warehouse. Then, when a tank truck leaves the warehouse, the customs officer (who is stationed at the warehouse) debits the Certificate of Payment by the amount of the road toll tax due on the product being removed from the warehouse. This process continues until the remaining balance on the Certificate of Payment is drawn down to approximately TSh 2 million. At that time (generally only about seven to ten days after obtaining the previous Certificate of Payment), the oil company again sends an agent to the Commissioner of Customs to make its next payment toward the road toll tax (as well as the sales and the excise tax). *Separate checks* are written by the oil companies for the three different taxes that they must pay in this process. As such, it should be much easier to trace payments than if a single check was drawn for all three levies.

The Commissioner of Customs deposits these funds into the special Roads Fund Account maintained by the MOF. Its subsequent transfer from the MOF to the MOW and PMO is the topic of Section 4.3.

Tax Revenues

During the two years the road toll tax has been earmarked for the Roads Fund, revenues have grown primarily due to increases in the tax rate. Table 4.3 shows total revenues collected by month, as recorded by the Minister of Finance. The data in Table 4.3, obtained from the Accounts Department of the MOF, indicate that total road toll tax collected during 1992/93 amounted to approximately TSh 6.67 billion. This is substantially below the TSh 6.83 billion shown in Table 4.1. The probable reason for this difference is that the data in Table 4.1 were obtained from the Sales Tax Department of the MOF and had not been processed and finalized.

During 1991/92, monthly collections fluctuated on a monthly basis from about TSh 240 to 290 million. There were, of course, increases in collections associated with the rate increases in July 1992 and January 1993. During the 1991/92 fiscal year, monthly collections averaged TSh 256.7 million. From July through December 1992, monthly collections averaged TSh 406.8 or 58 percent higher than in the previous year (after rates were increased 43 percent, from TSh 7 to TSh 10). But the doubling of rates in January 1993 has not doubled average monthly revenues; instead, since January, road toll tax collections are up an average of only 69 percent relative to the first half of the fiscal year. This suggests a substantial decline in taxed fuel consumption. Consumers have apparently responded to the tax-induced price increases by decreasing petroleum consumption, or there may be increased evasion of the tax.

Since tax rates are known and uniform, it is a straightforward exercise to estimate taxed fuel consumption by dividing tax collections by the tax rate. The estimates of monthly fuel sales are shown in the final column of Table 4.3. The data show that there are no obvious strong seasonal fluctuations in fuel consumption. Monthly sales of taxed fuels peaked from September through December 1992, coinciding with TANESCO electricity generating difficulties, and dropped off again since the beginning of 1993. It is difficult to pinpoint the exact cause of the slowdown in fuel sales, but it is probably due to the combination of improved electricity generation, possible decline in economic activity, and the effect of increased petrol prices associated with the increase in the road toll tax.

The data in Table 4.3 also permit one to determine whether our estimated consumption of petrol and diesel oil correspond to petroleum consumption as monitored by the Tanzania Petroleum Development Corporation (TPDC). (The role of TPDC in the fuel sector is discussed in Case 5.) TPDC maintains data as supplied by the petroleum companies on a calendar year basis of petroleum use by individual product. Table 4.4 shows the amounts of road toll taxed petroleum products that, according to TPDC (and the oil companies) were distributed throughout the country during calendar years 1990 - 1992, as well as data for the first quarter of 1993. The quantities of these products delivered to Zanzibar, where the road toll tax is not levied, have been deducted from the original totals as have some very small quantities exported to Kenya.¹⁷

As shown there, TPDC estimates that a total of approximately 526.2 million liters of the three taxed products was used during 1992. This is, however, considerably greater than the 467.2 million liters shown in italics at the bottom of Table 4.3. The imputed petroleum consumption totals are 11.2 percent below the estimates provided by TPDC.

There are several possible explanations for this apparent discrepancy. One is that the oil companies (and hence TPDC, since its data are obtained from the companies) overstated the amounts of petroleum released from their bonded warehouses. Under the allocation system used by the TPDC to allocate refined oil products, overstating its activities in 1992 would permit a company to receive increased allocations in 1993.

A second possible reason for the discrepancy is that, whereas the oil company (and TPDC) data may be accurate, they do not reflect the volume of petrol and diesel oil on which the road toll tax was paid. That is, in spite of the apparently simple administrative procedure used to record and collect the road toll tax, it might not be working as planned. Even though the customs official located at the oil company does not directly handle the proceeds from the road toll tax (or the other taxes levied against petroleum products), the oil companies have strong incentives to avoid paying the tax. At present they are petitioning the GOT to raise their profit margin of TSh 5.804 per liter on all products sold. Avoidance of the road toll tax

¹⁷ Tanzania does not as a rule export petroleum to other neighboring countries; the export to Kenya was an exceptional case and did not constitute a large amount.

TABLE 4.3

**COLLECTIONS OF ROAD TOLL TAX BY MONTH AND CORRESPONDING
ESTIMATE OF PETROLEUM SALES, JULY 1991 - JUNE 1993**

<u>MO/YR</u>	<u>RATE</u> (TSh/liter)	<u>COLLECTIONS</u> (TSh 1,000)	<u>IMPUTED</u> <u>PETROLEUM SALES*</u> (liters 1,000)
Jul 91	7	247,216	35,316.57
Aug 91	7	260,339	37,191.29
Sep 91	7	242,302	34,614.57
Oct 91	7	272,647	38,949.57
Nov 91	7	238,263	34,037.57
Dec 91	7	257,639	36,805.57
Jan 92	7	248,921	35,560.14
Feb 92	7	273,890	39,127.14
Mar 92	7	265,880	37,982.86
Apr 92	7	238,665	34,095.00
May 92	7	244,837	34,976.71
Jun 92	7	289,682	41,383.14
Jul 92	10	415,641	41,564.10
Aug 92	10	375,256	37,525.60
Sep 92	10	400,332	40,033.20
Oct 92	10	440,154	44,015.40
Nov 92	10	387,493	38,749.30
Dec 92	10	422,081	42,208.10
Jan 93	20	772,779	38,638.95
Feb 93	20	659,135	32,956.75
Mar 93	20	731,358	36,567.90
Apr 93	20	645,741	32,287.05
May 93	20	638,333	31,916.65
Jun 93	20	783,341	35,250.34 ^b
TOTALS			
FY 1991/92		3,080,281	
CY 1992			467,220.7
FY 1992/93		6,671,644	
CY 1993			451,713.3

* Computed by dividing tax revenues by tax rates.

^b This amount was estimated under the assumption that the TSh 20 was in effect for one half of the revenues collected and that TSh 25 was paid on the other half. Rates were increased effective 18 June.

Source: Road Toll Tax collections provided by MOF; petroleum sales estimated by authors.

TABLE 4.4

TPDC ANNUAL PETROLEUM CONSUMPTION DATA, 1990-1992*

Year	Petrol Premium	Petrol Regular	Diesel Fuel	Total
CY 1990	117.52	23.08	375.46	516.07
CY 1991	115.72	23.20	393.79	532.71
CY 1992	93.29	19.72	413.23	526.24
Avg Annual Growth	-10.90%	-7.56%	+4.91%	+0.98%

*In million liters; excludes deliveries to Zanzibar or other countries.

Source: TPDC

at its current level of TSh 25 would certainly go far to help them achieve their objective. The companies would, of course, probably have to obtain the cooperation of the customs agent to assist in this evasion strategy.

A third possibility is that even though the oil companies accurately paid the road toll tax, there were other clerical errors made in the data. For example, perhaps the deposits were not properly recorded in MOF records at the Bank of Tanzania (BOT). The use of separate checks for each of the taxes collected from the oil companies would seem to argue against this alternative; nevertheless, clerical errors in an accounting system which is not highly computerized are quite possible, if not inevitable.

A fourth possibility is that since the MOF faces strong pressures to balance its budget, it cooperates in clerical errors of reporting road toll tax revenues as general revenues. This is always a problem facing earmarked funds (see Case 6: Tax Earmarking). Meeting general payrolls and paying interest on debt may be viewed as a higher priority use of funds than maintenance of roads, in spite of a Roads Fund.

A combination of these possibilities may account for the discrepancy, or there may be other reasons altogether for the apparent shortfall of the flows into the Roads Fund. It was not the purpose of this policy review to attempt an audit of the actual flows of funds including an in-depth examination of oil company records maintained by the Customs Department. In any event, the findings suggest that additional investigation of these flows is warranted.

3. *Other Roads Fund Revenue Sources*

As noted above, the GOT has opted not to supplement Roads Fund revenues from any of the other sources mentioned in the original ordinance. A question that needs to be answered is that if this policy were to change, what revenues currently collected should be added? Obviously, the answer to this question can be given arbitrarily without any sort of analysis. However, as explained in Cases 4 and 6, any potential revenue source added to these earmarked funds should be tied as closely as possible to road use (and, hence, to the damage that the use causes on the roads). Furthermore, the policy should also recognize that taxes have non-neutral effects on economic choices.¹⁸ The effects of these choices may not be socially desirable. Thus, for example, to raise taxes on vehicle inputs such as tires or spare parts such as brakes, will discourage replacement of these parts which, in turn, can decrease road use safety to everyone. Furthermore, our investigation of the road toll tax suggests that administering it is sufficiently complex in this environment to recommend that, at least in the short term, there should be no attempt to try to factor out sales and/or excise taxes associated with specific products and add them to the Roads Fund.

If one limits the search for new revenue sources to those listed in Table 4.1, which ones make sense theoretically to be added to this earmarked fund? One advantage of an earmarked fund for roads is that it can link tax payment with benefits as well as with road maintenance costs. Not all of the entries in Table 4.1 provide a close link between tax/fee payment and road use.

Any tax/fee that is paid only once does not effectively reflect relative road usage. Thus, registration fees, the motor vehicle registration tax, and motor vehicle transfer taxes are not good candidates for being added to the Roads Fund. Furthermore, it is also desirable for administrative purposes to encourage all vehicle owners to register their vehicles (so that the motor vehicle road license can be collected annually). Thus, adding significantly to the three one-time-only charges could have a negative effect on registration and, hence, on other revenues.

¹⁸ During the course of our interviews, we heard an interesting example of the effects of such nonneutralities. At present, purchasers of new passenger cars (sedans) are forced to pay very high import customs duties. The duty on four-wheel drive vehicles is, however, much lower based on the argument that such vehicles are used for business purposes. With the inclusion of the duties, the consumer prices of the two types of vehicles are much more similar than international prices would predict. Some vehicle buyers therefore opt for the larger vehicles even though they may consume more scarce petroleum and probably create additional congestion on city streets.

It is difficult to know whether foreign permits and foreign commercial vehicle licenses have any relationship to relative road use. We expect that they do not and, instead, are imposed under the expectation that they are a convenient way to get nonresidents of Tanzania to pay taxes, i.e., a way of "exporting" the tax burden. We therefore ignore them here. We also ignore driving licenses, since they too do not reflect differential amounts of driving and, more importantly, high license fees can discourage people from obtaining such licenses which could have negative safety implications.

The car benefit tax, although the second largest of the entries in Table 4.1, is also not an appropriate addition to the Roads Fund. That tax is levied on firms that provide vehicles to their employees. Such benefits are effectively a part of the compensation package; hence, the tax is most appropriately thought of as a payroll or income tax rather than a road-use levy. In fact, it is probably not a good indicator of road use or the damage road users cause to a road.

This leaves us with two remaining revenues: road license fees and transit charges.

Road License Fees

Owners of all registered vehicles are required to pay the road license fee annually. The tax is administered at the regional level by the Sales Tax and Inland Revenues Department of MOF. Government vehicles are not liable for these fees; however, parastatal-owned vehicles must pay these fees on an annual basis. Unfortunately, due to lack of computerization, it is not easy to determine the exact base of the tax nationwide since no data on the number of registered vehicles by type of vehicle are compiled centrally. The lack of such information obviously hinders monitoring tax collections. That is, without centralized information, it is not possible to determine whether the amounts being collected are plausible when compared with the size of the tax base.

The current rate structure of these fees is shown in Table 4.5. As might be expected, the fees paid are related to type of vehicle and its use as well as to its size. In the case of passenger vehicles, a distinction is made between vehicles owned by or used for business purposes and those owned by individuals but not for business use. Interestingly, somewhat higher rates are charged on passenger vehicles used for business purposes.¹⁹

Of particular interest for road maintenance purposes are the rates imposed against heavy vehicles. Higher rates are charged to trucks licensed to carry heavier loads. However, although the damage to roads by heavier vehicles increases at an exponential factor of 3 or 4, essentially linear or proportional increases in the rates are imposed. Thus, the owner of a

¹⁹ In at least some countries, e.g., Indonesia, significantly higher rates are charged to owners of private, non-business vehicles since such rates are anticipated to fall more heavily on higher income persons and will not discourage business activity.

vehicle with a load capacity of 5,500 kg is required to pay TSh 52,000 for use of the roads each year whereas a truck with load capacity of one half that (2,250 kg) would pay TSh 26,500 or slightly *greater* than one-half that of the heavier truck.

If the road license tax is included as a revenue source for the Roads Fund, it would be important first to attempt to rationalize the rate structure. Such a structure should reflect differential costs of road maintenance associated with different types of vehicles. The upper rate being imposed currently is TSh 52,000 or approximately US\$120 (at a US\$1 = TSh 436 rate) per year. Whether or not this is "adequate" or "excessive" relative to factors such as the costs of road damage and the macroeconomic effects of transport charges cannot be assessed here. Nevertheless, the issue should be addressed in subsequent analysis related to funding of the roads sector.

At the current rates and registration levels, including Motor Vehicle Road Licenses in the Roads Fund would increase it by only about TSh 550 million, or only about 8 percent relative to collections from the road toll tax during 1992/93 (Table 4.1). If vehicle owners observe that, in fact, the condition of roads is improved and maintained, they may be quite willing to pay additional annual fees to use the roads.

A principal reason that the collections are so very low is tax administration. According to the Sales Tax Department, 29,585 vehicles paid the Road License Tax within the Dar es Salaam region during 1992/93.²⁰ Even if these were the *only* vehicles in the country on which the license tax was paid this past year, that would amount to only TSh 18,794 per vehicle. In 1991/92, vehicle owners in Dar es Salaam paid nearly 41 percent of the TSh 411 million collected from this levy. If, in 1992/93, the same percentage of the TSh 556 million collected (Table 4.1) was paid by Dar es Salaam vehicle owners, this would mean that the *average* payment was only TSh 7,705. According to Table 4.5, this is the amount that owners of the smallest passenger car are required to pay! Thus, not only should any future initiatives to bring the road license tax into the Roads Fund address its rate structure, it absolutely must also address the administration of this levy. Without administrative improvements, a rational rate structure would have no real effect at all. Indeed, with no improvements in administration, increasing rates might simply increase the unfairness of the tax if only a small portion of vehicle owners comply with the levy.

²⁰ The number of vehicles by type were as follows:

Private passenger cars:	5,611	Trucks:	8,287
Business passenger cars:	6,513	Motorcycles:	2,835
Public service vehicles:	2,004	Other:	1,481
Buses:	2,854		

TABLE 4.5

CURRENT RATE SCHEDULE OF MOTOR VEHICLE ROAD LICENSES

Vehicle Type	Annual Fee (TSh)
Non-Business-Use Passenger Vehicle - Engine Size (cc)	
No greater than 1,100	7,600
1,100 - 1,400	8,400
1,400 - 1,650	9,200
1,650 - 2,200	10,800
2,200 - 3,000	12,400
Exceeding 3,000	14,000
Business-Use Passenger Vehicle (Excluding Buses) - Engine Size (cc)	
No greater than 1,100	10,000
1,100 - 1,400	10,800
1,400 - 1,650	11,600
1,650 - 2,200	13,200
2,200 - 3,000	14,800
Exceeding 3,000	18,000
Public Service Vehicle - Engine Size (cc)	
No greater than 2,200	14,000
2,200 - 3,000	15,600
Exceeding 3,000	22,000
Buses - Seating Capacity	
No greater than 10 seats	13,200
11 to 15 seats	14,800
16 to 20 seats	16,400
21 to 25 seats	18,000
26 seats	21,200
Greater than 26 seats	21,200 plus TSh 80/seat above 26
Commercial Trucks (including Trailers) - Load Capacity (Kg)	
Not exceeding 1,500	14,500
1,500 - 2,000	18,500
2,000 - 3,000	26,500
3,000 - 4,000	34,500
4,000 - 5,000	42,500
Exceeding 5,000	52,500
Motorcycles - Engine Size (cc)	
Not exceeding 50	4,500
50-150	5,500
150-300	6,500
300-500	7,500
Exceeding 500	8,500
Other	
Ambulance	3,000
Hearse	3,000
Dumper	3,000

Source: Sales Tax and Inland Revenue Department of the MOF.

Transit Charges

A final tax which could be included in the Roads Fund is the transit charge imposed on vehicles hauling goods in transit to and from neighboring countries through Tanzania. Although the amount currently collected from this source (TSh 125 million) is rather trivial relative to the overall size of the fund, it is logical for this source to be added to the Fund.

The GOT does not unilaterally set the charges imposed on vehicles carrying goods in transit. Instead, those rates are determined by the countries in the region. At present, the rates are US\$6 per 100 km for single-axle trucks and US\$16 per 100 km for trucks with three or more axles (including articulated vehicles). Any subsequent increases in rates will have to be negotiated. Based on several conversations, perhaps the greatest improvement in revenue collection from this road charge would arise from improved administrative practices.

C. Transfer of Revenues

The discussion to this point has indicated how the revenues for the Roads Fund are collected. This section will discuss how those revenues are transferred to those organs of the GOT responsible for ensuring that funds are spent as specified in the resolution creating the Roads Fund.

Table 4.6 indicates the path of the funds and the major actors involved in the transfer process. Actually, the process is quite simple. After accounts are verified by the Commissioner of Customs ²¹ information on the amounts collected is forwarded to the PS of MOF. The MOF then instructs the BOT to transfer funds. The instruction (which is made in the form of a letter and two copies) specifies that 80 percent of the funds collected in the previous month are to be transferred to the account of the MOW (the exact amount to be transferred is specified in the letter). The letter also instructs the BOT to transfer 20 percent of the funds into the BOT account maintained by the PMO. The BOT initiates that transfer and indicates on the copies of the letter that the transfer has been made. These stamped copies are then sent to the Chief Accountants (MOF employees) posted in the MOW and PMO.

The Chief Accountant then informs the PS of the concerned ministry that its Roads Fund Account in the BOT has been credited by the stated amount. At that point, the allocation methods used by the MOW and PMO are initiated.

²¹ The MOF has reorganized its Customs Department, and, effective 1 July, has split the task of supervising collection of both customs and excise taxes into two departments -- a Customs Department, and a Sales Tax and Other Inland Revenues Department, each headed by a separate commissioner.

A year ago, there was considerable concern with the slow and rather erratic rate at which funds were being transferred (see Fisher, 1992). MOW records indicate that the process has been greatly improved. The exact dates of transfers for the past two years are shown in Table 4.7. The entries suggest that the process has become much more regular. During the past six months, the MOW has received its proceeds from the Roads Fund approximately one month after the end of the month in which the funds were collected. While this delay could plausibly be shortened somewhat, obviously the MOF must first be sure of the exact amount in the fund and that all oil company checks have cleared.

Records show that, although in 1991/92 the full 80 percent of collections was not transferred to the MOW, it was reconciled during 1992/93. Thus, it appears at present that the transfer process is working quite well.

TABLE 4.6

THE FLOW OF FUNDS WITHIN THE ROADS FUND

I. Payment of Tax

1. Petroleum imported into the country by TPDC
2. Refined product (either refined locally or directly imported) enters oil company bonded warehouses
3. Upon leaving warehouse, road toll tax paid to Commissioner of Customs (the oil company anticipates this action and prepays tax to obtain a certificate of payment against which it draws when petroleum removed from bonded warehouse)

II. Accounting for Tax Payment

4. Oil company checks deposited into the Commissioner of Customs Account at the BOT.
5. Several weeks after the end of the month, the Commissioner of Customs writes a check to the MOF Roads Fund account in the BOT and informs the MOF of the amount of that deposit, the check number, and the number of the deposit slip (paying slip).
6. Upon verifying that the deposit was made, the MOF then writes a letter instructing the BOT to transfer 80 percent of the Roads Fund collections from the previous month into the MOW account at the BOT and to transfer 20 percent of those collections into the PMO account at the BOT. Two copies of that letter are stamped by the BOT verifying that the transfer was made.

III. Flow of Funds to Roads and Streets

MOW

7. On a monthly basis, MOW allocates funds to regions and writes a check to NBC and one to BOT, along with instructions to transfer proceeds of the check to accounts of Regional Engineers (depending upon whether region is served by BOT; if not, they use NBC services).
8. Warrants authorizing specific use of funds sent to REOs.

PMO

7. On a periodic basis (during the past two years, distributions were made on 14-1-92, 1-12-92, and 25-6-93), checks are sent by PMO to RDD in those regions in which recipient district councils are located. The RDD is instructed to write check from his account to cover costs of Road Fund activities supported by the PMO.

TABLE 4.7
TIMING OF TRANSFERS OF ROADS FUND
FROM MOF TO MOW

Road Toll Collection Month	Date of Transfer	
	1991/92	1992/93
July	16 October	28 August
August	16 October	2 October
September	31 December	11 November
October	31 December	25 November
November	14 February	28 December
December	14 February	28 January
January	14 April	25 February
February	14 April	29 March
March	29 May	28 April
April	2 June	26 May
May	2 August	uncertain
June	2 August	not yet transferred

Source: MOW records

D. Allocation of Roads Fund Spending

The two GOT agencies that allocate and oversee the spending of the Roads Fund are the MOW and the PMO. Since their allocation and oversight procedures, and the outcomes of these procedures, differ substantially, we consider each separately. We are particularly interested in the methods used to allocate the funds and the implications of these processes on the regional allocation and functional uses of the Roads Fund. The section closes with an analysis of the overall region-wide distribution of the Fund when both the MOW and PMO programs are combined.

1. Ministry of Works

The Roads Fund is considered an "off-budget" item; that is, allocation of these monies is not a part of the annual budget and, therefore, is not presented to and debated by Parliament during its budget deliberations.²² Instead, an annual plan is prepared by the Ministry and submitted to the MOF and the Planning Commission for approval. Thus, although the earmarked funds do not directly face a public approval procedure, the allocation process does extend beyond the confines of the MOW.

The allocation methods used in the MOW are reasonably straightforward and appear rational. The remainder of this section considers first the methods used to make the allocations (both in theory and in practice) and then turns to the results of this process. The discussion of the MOW allocations closes with a brief discussion of audit procedures.

Allocation Methods

For each region the MOW allocates Roads Fund money according to (1) the type of roads (trunk and rural), and (2) the purpose for which the funds are to be spent (periodic or routine maintenance as well as emergency or spot repairs). Different approaches are used for these various types of spending.

During the past two years, there have also been emergency needs for road repairs, particularly those associated with floods which affected various parts of the country. These repairs take second priority in the allocation process.

In the case of periodic maintenance expenditures, the MOW relies heavily on the maintenance planning exercise that has been an integral part of IRP. The bulk of these production activities is to be accomplished by contractors who are paid from Roads Fund resources. In fact, the flow of funds for this purpose has been slow over the past two years, primarily because major problems in the initial contracting process caused extensive delays in getting that work completed. Apparently, work on periodic maintenance activities originally planned for 1990/91 was only being completed in 1992/93 due to delays in the planning, design, and tendering process. In any event, as the Ministry receives Roads Fund resources, its first priority is to reimburse contractors for the periodic maintenance work which has been certified as having been completed.

²² While the spending of the Roads Fund is not a part of the annual recurrent budget, the revenues allocated to the Fund, i.e., the road toll tax, is included on the revenue side of the ledger. During our work, we were unable to reconcile this apparent asymmetric treatment of revenues and expenditures into and from the Roads Fund.

The third priority is for routine maintenance spending. The method used by the MOW in this regard has been based on road condition surveys conducted in all regions in which roads, both trunk and rural, were classified as to whether they are in "good," "fair," or "bad" condition along with information on their type of surface--asphalt versus gravel/earth. In keeping with reasonable allocation practices, no funds are to be spent on routine maintenance of roads in bad condition, although spot emergency repairs may be made in order to keep the road open.

The MOW has compiled total resource needs by region for rural and trunk roads based on a "standard unit rate" procedure, which lists the sorts of activities necessary for routine maintenance by type of road surface. For example, the standard unit rate for grading gravel roads may be 2, which means two gradings per budget year; the standard unit rate per km of gravel road may also include 1,000 square meters of pothole patching. These same standard unit rates are used throughout the country and are also the same for all roads, trunk or rural. As such, there is no attempt to differentiate between traffic levels or interregional differences in topology or soil conditions, even though each of these factors would it seem to affect routine maintenance requirements.

In any event, each region can then simply multiply the kilometer length of its maintainable roads by these standard unit rates to determine total routine maintenance requirements for the various activities in a region. These amounts are then multiplied by unit costs per activity and aggregated to yield an estimate of routine road maintenance needs (for rural and trunk roads separately within a region).

As resources flow into the MOW from the Roads Fund, they are allocated across regions. Instructions from the MOW specify whether the funds are for routine or periodic maintenance and the amounts allocated to rural roads and to trunk roads. Within these general categories, the regional engineer does have some discretion concerning which road segments are to receive the maintenance efforts. He can reallocate routine maintenance funds between rural and trunk roads, however, only with the approval of the MOW.

Allocations

The MOW retains quite complete records regarding the regional allocation of Roads Fund resources both by region and by the nature of the work. During the past two years, a total of TSh 7,193.93 million was spent by the MOW from the Roads Fund (TSh 2.06 billion during 1991/92 and TSh 5.13 billion during the most recent fiscal year).

Funds have been allocated to all regions (Table 4.8). Several entries are notable in that table. First, the Dar es Salaam region has directly obtained about one eighth of the funds each year. Second, the entry "DSM Hq" refers to Roads Fund money spent directly from the MOW central offices. We were told that this entry is large because many contractors are paid from the Roads Fund at the headquarters even though the maintenance activities were carried out in the regions. The Planning Office soon hopes to be able to retrace through the

TABLE 4.8

**REGIONAL DISTRIBUTION OF MOW ROADS FUND SPENDING
1991/92 AND 1992/93**

Proportion of MOW Roads Fund Spending

<u>REGION</u>	<u>1991/92</u>	<u>1992/93</u>
Arusha	6.92%	3.34%
Coast	6.54%	3.43%
D'Salaam	11.93%	13.29%
Dodoma	4.35%	2.78%
Iringa	3.37%	3.45%
Kagera	3.39%	3.79%
Kigoma	3.02%	2.39%
Kilimanjaro	4.73%	3.23%
Lindi	4.52%	3.26%
Mara	4.25%	2.80%
Mbeya	3.96%	6.40%
Morogoro	4.80%	4.58%
Mwanza	5.08%	3.82%
Mtwara	6.58%	3.76%
Rukwa	2.79%	2.88%
Ruvuma	4.23%	5.33%
Shinyanga	2.82%	3.47%
Singida	4.05%	3.29%
Tabora	3.31%	2.98%
Tanga	2.88%	5.01%
<u>DSM Hq</u>	<u>6.49%</u>	<u>16.70%</u>
TOTAL	100.00%	100.00%
TOTAL DISBURSEMENTS	TSh 2,058.35 mill.	TSh 5,135.58 mill.

Source: MOW records

records to determine in which regions the contractors carried out their work. This will be extremely important in order to ascertain the full interregional implications of the Roads Fund program in the MOW.

Since routine road maintenance is often given short shift, a second question of interest is the degree to which Roads Fund resources have been allocated by the MOW to routine maintenance vis-a-vis periodic maintenance (as well as emergency and spot repairs). Table 4.9 has been constructed to address this issue. The upper portion of the table reveals that during the past two years, almost exactly 50 percent of total Roads Fund spending has been classified as being used for routine maintenance. The regional data in the table also reveal that the proportion of total spending for routine maintenance is extremely high in most regions. The one obvious exception to that generalization has been spending in the Dar es Salaam region. Here, the preponderance of the funds is being used for periodic maintenance or emergency and spot repairs. One reason for this may be that considerable construction activity is occurring in the Dar es Salaam area and, therefore, routine maintenance is less necessary.

Two comments regarding these findings are in order. First, that funds have been spent does not, of course, mean that roads are any better maintained now with the Roads Fund in place than prior to its creation; that is, the data discussed here reflect financial inputs, not measure of the quantity or quality of outputs. As was mentioned in Section 2 on institutional arrangements, there are reports that significant portions of the Roads Fund have been spent as salary supplements. As such, this spending may not result in additional road maintenance.

The second comment concerns the relatively large allocations to routine maintenance. In part this may be attributable to the previously noted problems associated with periodic maintenance contracts initiated early in this decade. In fact, some of the work planned at that time is only now being completed. As these contracts are certified and funds are allocated to reimburse the contractors for their efforts, the ability of the Roads Fund to support routine maintenance at the levels experienced during the past two years may decline significantly.

Flow of Funds and Audits

Once allocation decisions (by region and type of activity) are reached by the MOW, two actions are taken by the Chief Accountant. First, two checks are written against the MOW's Road Fund Account in the BOT. One of those checks is deposited in the NBC with the request that the funds be transferred to the accounts of the Regional Engineers in each region in which there is not a branch of the BOT. Approximately TSh 1.5 million was paid to the NBC for this service last year. A second check is drawn against the MOW Roads Fund account in the BOT with instructions to the BOT to transfer funds to the Regional Engineers' accounts in the three regions served by the BOT. This procedure, which was adopted only during the past year, has been used to avoid the long delays that had arisen previously when checks were written directly to the Regional Engineers.

TABLE 4.9**ROUTINE MAINTENANCE SPENDING BY MOW 1991/92 AND 1992/93
(Total and as Proportion of Total Spending Within Each Region)**

Total Spending (TSh mill)			
	<u>1991/92</u>	<u>1992/93</u>	<u>Two-Year Total</u>
Routine Maintenance	878.81	2,692.00	3,570.81
Periodic Maintenance*	1,182.54	2,443.58	3,626.12
Total Spending	2,058.35	5,135.58	7,193.93

Routine Maintenance As Percent of Total Spending by Region		
<u>REGION</u>	<u>1991/92</u>	<u>1992/93</u>
Arusha	28.22%	87.25%
Coast	21.65%	57.62%
Dar es Salaam	17.26%	17.06%
Dodoma	54.06%	84.24%
Iringa	80.71%	95.77%
Kagera	47.39%	79.47%
Kigoma	56.88%	71.10%
Kilimanjaro	38.10%	83.32%
Lindi	29.56%	79.62%
Mara	49.26%	78.26%
Mbeya	74.78%	55.20%
Morogoro	51.70%	61.29%
Mwanza	58.26%	72.30%
Mtwara	36.66%	71.81%
Rukwa	66.87%	77.52%
Ruvuma	49.60%	59.78%
Shinyanga	63.85%	58.48%
Singida	46.61%	62.29%
Tabora	72.73%	68.60%
Tanga	91.06%	75.09%
TOTAL	42.55%	52.42%

*Includes emergency and spot improvements

Source: MOW

In addition to the transfer of funds, the Chief Accountant warrants the use of those funds according to the specific purposes determined by the MOW and as explained above. According to standard policy, the account officers posted in each REO are then to provide a full accounting of the use of the Roads Fund money within 15 days after the close of business each month. The use of these funds is to be kept separate from all other resources being used by the regional engineers.

Due to the newness of the procedures, apparently the accounts for 1991/92 are only now being closed. This has, of course, hindered the auditing process. As is the case for all GOT accounts, the Controller and Auditor General has a senior auditor in charge posted at the MOW to audit the use of the Roads Fund. Due to the lack of closed accounts, the only audits that have as yet been performed were based on bank reconciliation statements. From this evidence, the auditor has issued instructions to the MOW to decrease the amount of Roads Fund resources that have been spent on travel allowances. The controller plans to conduct a field audit of the activities supported by the Roads Fund sometime soon in several different regions to observe whether, in fact, the maintenance activities have been carried out as shown in the records. Since two years have passed since many of those activities were completed and since the outcomes of routine maintenance work may not be obvious, this is likely to be a complex undertaking.

2. *Prime Minister's Office*

Twenty percent of the Roads Fund is allocated to district councils by the PMO. Unlike the MOW case, the allocation and use of Roads Fund resources did not become systematized until the start of FY 1992/93. The later start was because Parliament had not approved the creation of a new account for the Roads Fund within the PMO in August 1991; hence, regular flows into the account did not occur until June 1992, even though spending from supplemental appropriations to the PMO did occur throughout FY 1991/92. After the special account had been created, the arrears were all transferred into it.

Unlike the procedures used by the MOW, the allocation of Roads Fund resources by the PMO is much more ad hoc. Indeed, since the PMO allocates funds to local councils, the Roads Fund allocation method is effectively an intergovernmental grant scheme and can be evaluated as such. This section describes the allocation methods used by the PMO and their results. The section closes with a discussion of auditing of Fund spending.

Allocation Methods

Local councils wishing to receive allocations from the Roads Fund are required to request such resources on a project basis; that is, the council is required to submit a formal request for funds. This request must include the following information:

- the exact location of the proposed road or bridge project,
- engineering plans for the project,

- cost estimates,
- a maintenance plan,
- the nature of the work to be performed,
- who will carry out this work -- a contractor or the council itself; if a contractor is to be used, the name of the contractor must be provided along with proof that the contractor has been certified by the RTB; if the council is to do the job, it must indicate in the plans what equipment/personnel it has available to complete the work,
- what resources will be contributed from the council's own revenues, and
- what local residents will contribute towards completion of the project.

Thus, the PMO procedure is effectively a project-based, categorical grant allocation method. In spite of the considerable information required from local councils, the procedures are still quite ad hoc in nature with considerable discretion exercised by the PMO in determining the allocations. Interestingly, councils are generally not denied their requests. Of course, this does not mean that their full requests are funded; instead, the project is approved, but then is only partially funded.

Although local councils are required to submit plans for cost sharing (either directly from council resources or from local residents), no matching requirement is specified; that is, a council may indicate that it will bear 20 or 40 or 60 percent of the project costs, but this information is not necessarily used in evaluating the relative merit of different projects.

We were told that two factors improve the chances for funding: (1) whether or not a contractor will be used on the project (this increases the likelihood of funding), and (2) bridge projects are viewed more positively than simple rehabilitation of roads. Apparently, the view is that construction of a bridge which permits commerce to use a road has a greater economic payoff than does road rehabilitation (probably not an unwarranted assumption if the new bridge opens a road to year-around traffic).

Unlike the allocation procedures used in the MOW, the PMO methods are very ad hoc, non-transparent, and quite possibly political. Although professional planners and bureaucrats initially evaluate the projects (although as noted above, no project has ever been rejected), ultimately the Prime Minister approves the allocation. Furthermore, the Member of Parliament (MP) from the district in which a project is located is informed of the application and, apparently, plays a role in the allocation process. It is noteworthy that an information booklet concerning the PMO program was prepared for members of Parliament this past budget season. It contained lists of both local councils that had applied for the allocations and those that had not applied. According to PMO officials, the information had the immediate effect of prodding local councils to request Roads Fund resources. While 77 requests had been made as of mid-June (when the booklet was distributed), PMO officials estimated that the total number of requests would exceed 100 by the end of July.

The PMO Roads Fund allocation method is not unlike ad hoc grant programs used in many countries throughout the world. A principal problem with such allocation techniques is that they result in very uncertain revenue flows to local governments and do little to promote fiscal planning or efficient allocation of resources. The procedures, which are generally not transparent, leave recipient governments at the mercy of granting government officials. This, in turn, encourages local officials to attempt to use personal influence over the allocation process rather than assuring that funds are allocated on the basis of merit. In countries where there are multiple parties, local governments headed by opposition party leaders can be treated quite unfairly vis-a-vis localities governed by members of the same party as is in power at the national level.

Allocations

Apparently, the initial plans were to allocate Roads Fund resources to more urban areas. However, this was, subsequently amended to allow all district councils to request allocations. As previously mentioned, although essentially all requests are "approved," approval is not equivalent to funding. Here we review the distribution of requests and flows of funds by region and by the urban/rural nature of the local council. (Individual local council data are available; however, the categories used here should indicate the nature of the outcome of the allocation process.)

Table 4.10 shows, by region, the shilling values of requests made to the PMO during the past two years. The data have been disaggregated by type of local council -- rural or urban (which include both town and municipal councils). In addition, in three cases the RDD applied for funds, so these requests are shown separately. The size of the requests differ greatly -- from less than TSh 5 million to the TSh 1.3 *billion* request for a project in Singida town. This latter request was twice as great as the 1991/92 request from Dar es Salaam of TSh 650 million.

Obviously, there was no way that the PMO could fill all these requests totalling more than TSh 4 billion. To show relative success rates by region, Table 4.11 is based on actual allocations during both 1991/92 and 1992/93. The data show that, on average, only about 30 percent of the local councils' requests were filled during that time with the RDDs being the only applications that were fully filled. There is a definite urban bias in the success rates. Even though the overall average ratio of allocations to requests for urban councils is less than 40 percent, that average is skewed by the extremely large request that came from the town council in Singida. Urban councils in twelve of the regions have been granted more than one-half of their requested amounts, with the Bukoba town council granted somewhat *more* than the amount requested. These data are therefore in keeping with the statement (Fisher, 1992) that GOT policy was to use the PMO Roads Fund primarily in urban areas even though, probably for political reasons, the Government has not precluded rural districts from applying for the funds.

TABLE 4.10**TOTAL REQUESTS TO PMO FOR ROAD FUNDS, BY REGION (thousands TSh) 1991/92 AND 1992/93**

Region	Number of Requests	Urban	Rural	RDD	Total
Arusha	9	86,500.0	65,017.0		151,517.0
Pwani	3		40,500.0	5,000.0	45,500.0
Dodoma	5	32,000.0	52,931.2	7,200.0	92,131.2
Iringa	4	58,000.0	46,700.0		104,700.0
Kigoma	1	18,000.0			18,000.0
Kilimangaro	4	44,600.0	211,160.3		255,760.3
Kagera	4	25,420.0	57,924.2		83,344.2
Lindi	1	21,600.0			21,600.0
Mara	1	76,200.0			76,200.0
Mwanza	5	56,600.0	58,785.0		115,385.0
Morogoro	2	81,000.0	21,800.0		102,800.0
Mtwara	2	63,820.0			63,820.0
Mbeya	2	74,600.0	22,000.0		96,600.0
Ruvuma	2	15,000.0	40,000.0		55,000.0
Shinyanga	4	86,468.0	52,378.9		138,846.9
Singida	4	1,343,984.3	226,000.0		1,569,984.3
Tabora	3	79,729.0	176,700.0		256,429.0
Tanga	4	108,395.0	58,200.0		166,595.0
Rukwa	1	23,000.0			23,000.0
DSM	1	650,000.0			650,000.0
TOTAL	62	2,944,916.3	1,130,096.5	12,200.0	4,087,212.8

Source: PMO

TABLE 4.11**TOTAL PMO ROADS FUND ALLOCATIONS RELATIVE
TO REQUESTS, 1991/92 - 1992/93
(amounts in percents)**

Region	Urban	Rural	RDD	Total
Arusha	57.80	61.06		59.20
Pwani		17.28	100.00	26.37
Dodoma	53.13	20.78	100.00	38.21
Iringa	46.55	37.26		42.41
Kigoma	61.11			61.11
Kilimanjaro	62.78	12.79		21.50
Kagera	106.22	43.16		62.39
Lindi	99.54			99.54
Mara	18.37			18.37
Mwanza	33.57	37.42		35.53
Morogoro	35.80	27.52		34.05
Mtwara	54.84			54.84
Mbeya	53.62	45.45		51.76
Ruvuma	60.00	50.00		52.73
Shinyanga	46.26	42.00		44.65
Singida	2.53	7.96		3.31
Tabora	37.63	6.79		16.38
Tanga	50.74	17.18		39.02
Rukwa	86.96			86.96
DSM	64.94			64.94
TOTAL	31.53	21.87	100.00	29.06

Source: PMO data

Actual PMO allocations by region during 1992/93 are shown in Table 4.12. Again the allocations are divided between those flowing to urban and rural councils (as well as the small amount flowing to the RDD in Dodoma region). In total, nearly TSh 1 billion were distributed during the fiscal year with over three quarters of that amount flowing to urban councils. Obviously, allocations to Dar es Salaam was the principal recipient region, accounting for nearly one third of the allocations. This proportion was, however, significantly lower than their share during 1991/92, when the capital city council received 52 percent of total allocations.

<u>Region</u>	<u>Urban</u>	<u>Rural</u>	<u>RDD</u>	<u>Total</u>	<u>Total Including Bitumen</u>
Arusha	40,000	39,700	0	79,700	90,680
Pwani	0	7,000	0	7,000	7,000
Dodoma	8,000	11,000	7,200	26,200	26,200
Iringa	23,000	17,400	0	40,400	48,408
Kigoma	7,000	0	0	7,000	19,909
Kilimanjaro	23,000	27,000	0	50,000	51,716
ro	25,000	25,000	0	50,000	59,527
Kagera	17,500	0	0	17,500	17,500
Lindi	10,000	0	0	10,000	10,000
Mara	15,000	19,000	0	34,000	45,064
Mwanza	25,000	5,000	0	30,000	39,724
Morogoro	35,000	0	0	35,000	42,392
Mtwara	30,000	10,000	0	40,000	51,434
Mbeya	5,000	20,000	0	25,000	25,000
Ruvuma	40,000	22,000	0	62,000	74,584
Shinyanga	30,000	13,000	0	43,000	46,432
Singida	25,000	12,000	0	37,000	45,269
Tabora	45,000	10,000	0	55,000	65,880
Tanga	20,000	0	0	20,000	20,000
Rukwa DSM	318,600	0	0	318,600	318,600
TOTAL	742,100	238,100	7,200	987,400	1,105,319
Allocations as Percent of Total:			<u>URBAN</u> 75.16%	<u>RURAL</u> 24.11%	<u>RDD</u> 0.73%
Dar es Salaam as Percent of Total:			32.27% excluding bitumen allocation 28.82% including bitumen allocation		

The final column of Table 4.12 reflects a program to transfer resources to local councils (nearly all urban ones) that was initiated during the past year. Under the program, the PMO purchases bitumen and makes it available to the local council for road/street repairs. The value of these additional resources totalled approximately TSh 118 million during the past year. Again, allocations are based upon applications by the local councils.

Unlike the case of the MOW, it is not possible to show in detail the nature of the road work accomplished under the PMO Roads Fund program. While all work is purportedly on roads and bridges, it is not clear whether the work is principally routine or periodic maintenance or, in fact, road rehabilitation. Given the condition of many urban streets, it would not be surprising to find that the bulk of the work would be classified by engineers to be rehabilitation. The program has, as well, been used to purchase tipper (dump) trucks in three instances. A 10-ton truck (TSh 25.6 million) was purchased for the Arusha municipal council and several 7-ton trucks (TSh 17.5 million) were obtained for Monduli district council and the town council of Lindi. The value of these capital purchases is included in the allocations shown above.

Flow of Funds and Audits

The PMO does not allocate Roads Fund money on the same systematic, monthly basis as does the MOW. Instead, during the past year (recall that the Fund was only formalized in June 1992), two distributions were made on 1 December 1992 and on 25 June 1993. The stated reason for this approach is that the monthly flow of funds is too small to attempt to allocate on a monthly or even bi-monthly basis.

Because the PMO's Roads Fund account was not formally established until June 1992, it is more difficult to assess the flow of funds from the MOF to the PMO account. We can report, however, that, based on MOF road toll tax collection data, the PMO should have been allocated a total of TSh 1.79 billion over the past two years. During the same period they have, in fact, only allocated a total of TSh 1.30 billion.

The PMO also experienced problems in efficiently transferring funds to the district councils and now use a more streamlined approach which involves the services of the RDD in each region. A check for all approved district Roads Fund projects within the region is written to the RDD. Since the RDD's account is sufficiently large, the NBC honors the check and allows the RDD to, in turn, write individual checks to each of the recipient district councils.

Because the PMO use of the Roads Fund is quite new, the Controller and Auditor General's Office has not yet worked out any detailed, special plans for conducting audits of these funds. One issue that does need to be addressed is that audit reports of local district administration are sent to the finance committees of the districts -- but the members of the finance committee are also members of the district council, the practices of which may be called into doubt in the auditor's report. As such, it is quite possible that the readers of the

report will not take it seriously. Furthermore, it is quite possible that, under the current allocation system, there will be no repercussions concerning subsequent flows from the Roads Fund. If the PMO Roads Fund allocation technique is systematized as is recommended below, the audit issues need to be addressed. The EEC-sponsored *Study of Road User Charges*, which is to investigate audit arrangements and comment on how they might be strengthened, should certainly help in that regard.

3. Regional Distribution

It is of interest to see how total Roads Fund resources have been distributed across regions, especially when compared with the regional distribution of the tax burden. Of course, since the MOW receives the bulk of the money, its allocation procedure dominates the outcome.

The data available are, as usual, not perfectly suited to such an analysis. For example, the MOW regional spending allocation data discussed above attributes a significant portion of the spending to the central office even though maintenance activities took place in a specific region. Similarly, given the potential biases in the oil companies' reporting of where fuel was delivered, the credibility of the regional fuel allocation data is uncertain. Finally, fuel data are compiled on a calendar year basis, whereas fiscal data are reported for the fiscal year. Nevertheless, Table 4.13 has been constructed to show the regional allocations of the Roads Fund for both fiscal year 1991/92 and 1992/93 from *both* the PMO and the MOW programs. It also shows for each region the proportion of total sales in CY 1992 of the three fuels taxed under the road toll tax.

The data in the table indicate that nearly 18 percent of total spending of Roads Fund resources took place in the Dar es Salaam region. The final column of the table shows that almost 35 percent of taxable fuel (the three fuels taxable under the road toll tax) was delivered to the same region. Since all other regions have obtained from about 3 to 6 percent of the resources, regions with very low fuel sales, e.g., the Coastal, Lindi, Rukwa, and Singida regions, are shown to be major net recipients of the fruits of the Roads Fund arrangement.

TABLE 4.13

REGIONAL DISTRIBUTION OF ROADS FUND AND TAXED PETROLEUM

<u>REGION</u>	<u>Roads Fund Spending^a</u> (TSh millions)		<u>Petroleum Distribution by Region, CY 1992^b</u> (thousand liters)	
	<u>AMOUNT</u>	<u>PERCENT</u>	<u>AMOUNT</u>	<u>PERCENT</u>
Arusha	414,727	5.52%	48,835.16	9.26%
Coast	323,047	4.30%	4,783.44	0.91%
Dar es Salaam	1,350,162	17.98%	184,082.37	34.92%
Dodoma	267,635	3.56%	13,663.31	2.59%
Iringa	299,068	3.98%	31,506.59	5.98%
Kagera	326,207	4.34%	17,211.45	3.27%
Kigoma	208,903	2.78%	9,738.66	1.85%
Kilimanjaro	319,961	4.26%	32,183.78	6.11%
Lindi	281,731	3.75%	3,441.24	0.65%
Mara	245,242	3.27%	7,698.61	1.46%
Mbeya	471,832	6.28%	32,212.59	6.11%
Morogoro	378,928	5.05%	24,893.68	4.72%
Mwanza	352,844	4.70%	30,169.30	5.72%
Mtwara	371,163	4.94%	8,382.72	1.59%
Rukwa	225,468	3.00%	3,646.25	0.69%
Ruvuma	389,512	5.19%	6,812.19	1.29%
Shinyanga	310,902	4.14%	14,426.50	2.74%
Singida	307,809	4.10%	4,746.39	0.90%
Tabora	271,312	3.61%	17,113.99	3.25%
Tanga	392,357	5.23%	31,590.02	5.99%
TOTAL	7,508,810^a	100.00%	527,138.22	100.00%

a Amounts include all Roads Fund spending by MOW and PMO in fiscal years 1991/92 and 1992/93, but exclude MOW spending allocated to DSM Headquarters which may have been spent as periodic maintenance in any of the regions.

b Amounts are liters of premium and regular petrol and diesel fuel distributed to the various regions during calendar year 1992.

Sources: MOW, PMO and TPDC

Policymakers should not, however, place too much stock in the apparent regional redistributive implications of the results shown in the table. Obviously, fuel can be obtained within one region, particularly at distribution centers such as Dar es Salaam or Arusha (another entry that shows considerably larger relative tax burdens than road investments) and used on roads in the regions which seem to be benefiting from the financing arrangements.

E. Issues and Recommendations

This review has raised a variety of issues concerning the generation of revenues for and use of the Roads Fund. We have divided this discussion of them into the following: revenue generation and projections relative to road maintenance requirements (Section 4.5.1); future augmentation of the Roads Fund (Section 4.5.2); allocation and use of Roads Fund revenues (Section 4.5.3); accountability and transparency in planning for and using road fund resources (Section 4.5.4). The principal recommendations are summarized in (Section 4.5.5).

1. Revenue Generation and Reconciliation with Road Maintenance Needs

Analysis has shown that during the past two years the GOT has funneled nearly TSh 8.4 billion road toll tax revenues into the Roads Fund to support road maintenance activities of the MOW and district councils. The discussion in Section 4.2.2 raised two issues. One concerns whether the amounts of revenues transferred to the allocating agencies is as much as should have been expected based on prevailing tax rates and petroleum consumption in the country. The second is whether the Roads Fund, as currently administered, is likely to be able to provide sufficient resources for the GOT to meet its projected road maintenance needs in 1993/94, as well as in the future.

As is generally the case in developing countries, the amount and quality of data available limit our ability to answer either of these questions. Nevertheless, our analysis of MOF-supplied records regarding the road toll tax, (Section 4.2.2.3) together with petroleum use data supplied by the TPDC, suggests a shortfall in the amounts of funds flowing into the Roads Fund. For calendar year 1992, the monthly revenue collections recorded in the Roads Fund amount to only about 89 percent of what the tax rates in effect at that time would have generated when based on TPDC consumption data.

In that discussion we posited four possible, but not mutually exclusive, reasons for this discrepancy. One is that the TPDC records, which are based on oil company-supplied information, are overestimates of actual petroleum use. A second is that the oil companies have not, in fact, been remitting the amounts of road toll tax as required in the law. A third is that there have been clerical misrecordings of road toll tax receipts. And the fourth is that, due to other pressing needs, not all road toll tax revenues have been credited to the Roads Fund. Since our policy analysis is not intended to be an audit, we can only recommend that the upcoming "Study of Road User Charges" to which the GOT agreed attempt to ascertain

which of these possibilities (or others) appears to be the cause of the problem. By that time they will also be able to use a longer time series of both revenue and oil consumption records.

We hesitate to recommend additional paper flows to combat the apparent shortfall problem. Indeed, it appears that the flow of paper is already so great that it impedes successful completion of the real tasks at hand -- to provide quality public services to the residents of the country. And unless the required additional paper flows are further monitored and verified, the additional information may itself not be that credible. It may, however, be desirable for the MOF to be provided a small (for example, 3 percent) "collection fee" which would be deposited in the general fund of the Treasury to provide it with an additional incentive to insure that, in fact, all funds are being collected.

What about the future adequacy of the Roads Fund in meeting road maintenance needs? This is a two-pronged question which requires projections of both road maintenance requirements and Roads Fund revenues.

We have relied fully on the World Bank's projections of road maintenance requirements rather than attempting to duplicate their extensive work. Table 4.14 replicates information found in both the 1990 *Staff Appraisal Report on the Integrated Roads Project* (World Bank, May 1990) as well as that found in the *Aide Memoire* (United Republic of Tanzania, 1992, Presentation of the Second Integrated Roads Project) based on the June - July 1993 Appraisal Mission. The original projections made in 1990 have been updated to reflect changes in costs as well as changes in the condition of the MOW-maintained road network. We have used the 1993 estimates in the analysis below along with the assumption that, as agreed to by the GOT in the first IRP, full local funding of road maintenance will commence in 1995/96. As is the case with all World Bank appraisals, their estimates are made in real terms and expressed in *United States dollars*. In that way, the IBRD does not have to attempt to project either local inflation or future values of the local currency, each of which is extremely difficult to forecast. However, since all other fiscal information contained in this section is expressed in terms of TSh, the final column of the table shows the required maintenance resource needs in terms of real TSh and computed on the basis of a constant US\$ = TSh 436 exchange rate. Any devaluation of the TSh relative to the dollar and/or increases in the prices of road maintenance inputs will require increases in the amount of *nominal* TSh that will be necessary to meet the road maintenance spending needs.

The question that needs to be addressed is whether the Roads Fund (MOW portion thereof) is likely to be able to generate this amount of real revenues as currently constituted and administered.

TABLE 4.14

PROJECTED MOW ROAD MAINTENANCE REQUIREMENTS

Fiscal Year	Maintenance Requirements (US\$ 1,000)		Share ^c	GOT Share of Maintenance Requirements ^d (TSh 1,000)
	1990 ^a	1993 ^b		
1990/91	18,634		0.40	
1991/92	16,112		0.50	
1992/93	16,009		0.60	
1993/94	18,388		0.75	
1994/95	25,119	32,269	0.85	11,958,891.4
1995/96	32,661	31,528	1.00	13,746,208.0
1996/97		31,970	1.00	13,938,920.0
1997/98		33,031	1.00	14,401,516.0
1998/99		34,274	1.00	14,943,464.0
1999/2000		35,074	1.00	15,292,264.0

^aFrom May 1990 *Staff Appraisal Report of the Integrated Roads Project*, p. 70.

^b From July 1993 *Aide Memoire, Appraisal Mission of the Second Integrated Roads Project*.

^cAs agreed to by the GOT in the First Integrated Roads Project.

^dEstimated at US\$1 = TSh 436.

Source: World Bank documents as cited and MOW

Making long-range revenue projections is fraught with uncertainty and must rely heavily on assumptions about future tax rates and the size of the base. In our initial projections, we hold the road toll tax rate at its current TSh 25/liter. Long-term trends in taxed petroleum consumption will depend heavily on the future state of the Tanzanian economy and the prices of petrol and diesel oil (which, since they are administered prices and may continue to be for some time into the future, means that one needs to predict how public policymakers will behave). A good example of the problem of forecasting petroleum demand is the 1988 *Petroleum Products Distribution Study*, which was undertaken for TPDC by Louis Berger S.A.R.L. (Berger, 1988). That study (pp 33 - 35) projected the 1992 demand for petrol to be approximately 212 million liters, when actually only about 120 million liters were sold in the country -- so actual consumption of the product last year was only about 57 percent of what had been projected. The study's diesel fuel projections were also overstated - they forecasted a 1992 demand of about 496 million liters when, in fact, only about 450 million liters were sold. ²³

Accurate projections of future petroleum consumption depend, as well, on accurate measures of current levels of consumption. In the course of carrying out this analysis we obtained and studied three different sets of petroleum consumption data. One series shows total imports by TPDC (the sole importer of petroleum into the country); however, imports include both crude oil and "white" products. Since different types of crude oil can result in different compositions of refined outputs (only some of which are taxed under the road toll tax), they are not particularly amenable to use for our purposes here.

A second set of data are those reported by the oil companies at joint meetings they hold with TPDC in order to determine market shares. Market share information is important since, if there is an overall shortage of petroleum products, companies are allocated shares on the basis of sales during the previous four quarters. As might be expected, the self-reported market share data suggest greater amounts of petroleum consumption than shown in Table 4.4 (and, if correct, would indicate an even greater amount of tax evasion than shown in the discussion there).

Without any better information, we presume that the data in Table 4.4 are as accurate as can be obtained at present. The data from which the totals in that table were computed also provide information on the regional distribution of petroleum products. These data shed additional light on the policy question as to whether some fuel sales should be exempt from the road toll tax; they also provide some very indirect evidence concerning how an oil company may be able to evade the tax. As pointed out above, consumption of petrol and diesel fuel on the islands of Zanzibar and Pemba is not taxed under the road toll tax. If the amounts reported to have been consumed on these islands are included in the total consumption data, overall sales of gasoline (regular and premium) and diesel fuel are

²³ These projections were used originally by the MOF in making Roads Fund budget forecasts for 1993/94. The MOF later reconsidered the reasonableness of these consumption estimates and scaled back its revenue projections accordingly.

estimated to have grown at an average annual rate of 3.5 percent between 1990 and 1992 rather than the 0.98 percent shown in Table 4.4. Likewise, while mainland diesel fuel deliveries between 1990 and 1992 were shown to increase at an average annual rate of about 4.9 percent (Table 4.4), when Zanzibar and Pemba are included in the computations, the annual growth rate is nearly 8 percent! These differences strongly suggest that the slow growth of sales on the mainland may be due to oil companies misreporting where the products have been delivered and consumed. In fact, as argued below, once certain fuel uses are exempted from the tax, one should anticipate large increases in sales for that use.

Based on recent changes in taxed (petrol and diesel fuel) petroleum consumption, a conservative forecast is that consumption will increase by only 1 percent during FY 1993/94. At current TSh 25/liter rates, this would yield total revenues of TSh 11.4 billion for the Roads Fund. The 80 percent of that amount allocated to the MOW would be TSh 9.12 billion. This still exceeds the TSh 8.793 billion that has been budgeted by the MOW for next year. Thus, we do not foresee MOW facing forced cutbacks relative to what it has been told to plan for during 1993/94.

In spite of the recent very slow growth in taxable sales, we assume for longer term projections (as does the World Bank) that taxable petroleum sales grows by 4 percent per year. If, in fact, the economy (including the vast, but generally unmeasured, informal sector) grows at about those rates, this assumption seems reasonable. What the assumption may require to be valid, however, is considerable tightening of the administration of the road toll tax. We have already shown that only about 90 percent of taxable fuel distribution is being taxed, and we have also indicated that with increasing tax rates, more and more petrol and gasoil are reported to be delivered to Zanzibar.

The results of projections based on the assumption that tax rates are held at their current TSh 25 levels and that taxable fuel sales grow by 4 percent per year are shown in the first column of Table 4.15. The second column of that table is 80 percent of the first column, under the assumption that the current policy of allocating 20 percent of total Roads Fund revenues to district councils is retained. The third column of the table contains the same estimates shown in Table 4.14. The final column of the table lists the revenue shortfalls that will occur unless road toll tax revenues are raised.

At first glance, the shortfalls of from TSh 2.1 to 3.6 billion may seem relatively small in a tax system that is anticipated to generate nearly TSh 12 billion next year. Still, the projected 1994/95 shortfall of TSh 2.1 billion is in excess of 22 percent of the total road toll tax revenues that are forecast to be available to the MOW in that year. Furthermore, we reiterate that IRP maintenance requirements are based on two important assumptions: (1) they are in *real* 1993 shillings, and (2) they are based on US dollar cost estimates with the assumption that one dollar is equivalent to TSh 436. If over the next two years the combined effects of inflation in the country and devaluation of the shilling increase the necessary costs of road maintenance by 20 percent each year, then the 1995/96 cost requirements for roads

TABLE 4.15**ROADS FUND REVENUE PROJECTIONS AND COMPARISONS
WITH MAINTENANCE RESOURCE REQUIREMENTS**

Year	Current Taxed Base Grows 4 Percent (Revenues in TSh millions)		IRP Maintenance Requirements (millions of 1993 TSh)	Roads Fund Shortfall (millions of 1993 TSh)
	Total	MOW		
1994/1995	12,222	9,776	11,959	2,181
1995/1996	12,711	10,169	13,746	3,577
1996/1997	13,219	10,575	13,939	3,363
1997/1998	13,748	10,998	14,401	3,402
1998/1999	14,298	11,438	14,943	3,504
1999/2000	14,870	11,896	15,292	3,393

Source: Computed by authors

will be in excess of TSh 18 billion. For the Roads Fund to meet that spending requirement will mean that the road toll tax rate will have to be approximately TSh 36 per liter -- that is, rates would have to be raised another 44 percent above their current levels.

2. Augmentation of Roads Fund

There are two ways that revenues flowing into the Roads Fund can be augmented. One is through the road toll tax -- specifically its rate and taxed base. The second is by adding other revenue sources. We consider each in turn.

During only two years, road toll tax rates have more than tripled from TSh 7 to 25. During the same period, the taxed base has grown, but very slowly. These may not be independent events. As was emphasized in both Sections 4.2 and 4.5.1, there is evidence that not all of the taxable base of petroleum sales is being taxed. Furthermore, it appears that the non-tax area of the country, the islands of Zanzibar and Pemba, are exhibiting unexpectedly high growth in petroleum sales. As tax rates rise, the return to tax evasion increases. Tax

evasion must be minimized to improve revenue yields and to insure fairness. Thus, the appropriate first step toward meeting the projected revenue shortfalls shown in the previous table will be to fill leaks in taxing mechanism.

There is still likely to be a need for increased road toll tax rates. But several factors need to be considered when contemplating subsequent rate increases. One is the macroeconomic effects of further increases in fuel prices. Additional transport costs can obviously affect the competitive position of Tanzania agriculture and industry. While it can legitimately be argued that the increased costs imposed on the transport sector for maintaining roads will actually lower transport costs, that effect is unlikely to be immediate. Requiring *all* petrol and diesel fuel to be taxed for the Roads Fund, including that used by other industries, such as the railroads, is equally important. Thus, the overall macroeconomic effect of further rate increases is likely to be greater than if only road vehicles were taxed.

One way to avoid the problem would be to exempt non-road use of petrol and gas oil from the road toll tax. While this solution has considerable theoretical appeal, we cannot recommend it since it is likely to open the system to major tax evasion and even greater administrative problems. The previously cited evidence concerning the increased flows of fuel to Zanzibar buttresses this argument. If, for example, railroads were exempted from the road toll tax, we would predict substantial increases in the amounts of fuel "consumed" by the railroads.

A second possible approach is to impose differential rates on petrol and diesel fuel since the former is almost exclusively used for road transport while the latter is used for off-road purposes as well. In fact, in his original paper on the subject, Fisher (1991) recommended that a two-tier rate structure be imposed with lower rates on diesel fuel than on petrol. We concur with this suggestion. Nevertheless, policymakers must keep in mind that the diesel oil portion of the road toll tax base (400 million liters) is about four times the size of the petrol base (about 112 million liters). Thus, increasing petrol rates by TSh 1/liter will have a revenue effect of approximately TSh 100 million (assuming no major cutback in consumption) whereas a TSh 1/liter increase in the current system will increase revenues by about TSh 500 million. Furthermore, road toll tax policy making cannot lose sight of the fact that there is already substantial cross-subsidization in Tanzanian petroleum pricing policy.

A second petroleum pricing issue, particularly in a country with seven bordering nations, concerns border price differentials. Table 4.16, based on data supplied by TPDC, shows the prices of premium petrol and diesel fuel as of July 8, 1993. The table also shows the prices in these locations relative to one outlying Tanzanian city, Bukoba, since it is not the prices relative to Dar es Salaam that are important but, instead, border prices. Entries in the table suggest that at the current prices of TSh 265/liter for premium petrol and TSh 197/liter for gas oil, only Zambia and Kenya present problems for illicit smuggling of fuel from outside to inside Tanzania. But additional tax-induced price increases (assuming constant prices in neighboring countries) could alter that conclusion.

Since there are obvious limits to increased fuel prices, the other possible method for enhancing Roads Fund resources is to invoke the second provision of the Exchequer and Audit Ordinance and add other revenue sources. As was explained in some detail in Section 4.2.3, we feel that there are two sources: the vehicle road license tax and transit fees. Both have the potential for reflecting relative road damage caused by vehicle use. However, without changes in their rate structures and particularly in their administration, transferring these revenues to the Roads Fund would have a relatively small effect on its size -- they would add less than TSh 700 million to the Fund (based on FY 1992/93 collections).

Two issues should be addressed either prior to or simultaneous with the addition of the roads license tax to the Roads Fund. First, the rates need to be rationalized. At present, they do not reflect well the relative amount of road damage by different vehicles. We noted above that the rates imposed on lorries are approximately linearly related to their load capacity even though road damage is exponentially related to load size. If Roads Fund revenues are to constitute fair user prices for road use, the license fees should also reflect the road damage caused.

TABLE 4.16				
SELECTED PETROLEUM PRICES RELATIVE TO BUKOBA, TANZANIA				
City/Country	Petrol — Premium		Diesel Fuel	
	Price/Liter	Percent of Bukoba	Price/Liter	Percent of Bukoba
Dar es Salaam	223	84.15	155	78.68
Bukoba, Tanzania	265	100.00	197	100.00
Malawi	347	130.94	327	165.99
Msumbiji	427	161.13	159	80.71
Zambia	220	83.02	126	63.96
Burundi	289	109.06	268	136.04
Rwanda	282	106.42	441	223.86
Uganda	376	141.89	332	163.45
Kenya	212	80.00	172	87.31

Source: TPDC

Second, the current administration of the motor vehicle road license tax is obviously very weak. Little knowledge of the number of registered vehicles is available, and we are certain that the current tax schedule is not administered fairly. Thus, any effort to rationalize the tax rates should be accompanied by technical assistance to improve administration of the tax.

There may be pressures to add other vehicle-related fees to the Roads Fund. We would, however, argue against such changes. The Roads Fund is an earmarked fund with revenues not unlike user charges. As such, the "prices" imposed should be related to use (as is the case of the road toll tax) and to the cost of providing the road service (as is the case for the road license tax and transit fees). Other fees such as the registration tax, vehicle transfer tax, and drivers licenses are not sufficiently linked to user benefits or costs of service provision to justify their inclusion.

3. *Allocation and Use of Roads Fund*

Section 4.4 discussed how the MOW and the PMO allocate Roads Fund resources. At least two issues are associated with these procedures.

In the case of the MOW, the allocation methods appear quite systematic and rational. (Whether actual spending of the funds is effective in terms of roads maintained, while of greater importance, is harder to judge.) The methods attempt to ensure that appropriate amounts of funds are allocated to both routine and periodic maintenance of trunk and rural roads. The data in Table 4.9 also imply that a significant portion of the funds is being used for routine maintenance.

The issue that arises is whether sufficient resources will be reserved for routine maintenance as additional periodic maintenance contracts by private contractors are certified. The MOW may find that the revenues of the Roads Fund are insufficient to meet routine maintenance demands in face of requirements to pay for contracted periodic maintenance. As explained to us, routine maintenance is third on MOW's list of priorities -- periodic maintenance and emergency repairs rank higher on the list. If this is the case, additional needs for periodic maintenance may leave the MOW short of funds for routine maintenance. The longer-term implications for road deterioration of inadequate routine maintenance cannot be ignored in the planning process.

Greater issues arise in the case of the PMO allocations of the Roads Fund. As explained above, the system is effectively a categorical grant program with allocations made on an ad hoc basis. The decisions are based, in part, on the technical soundness of the proposed road project. Intergovernmental grant theory suggests that such allocation techniques generally favor those jurisdictions with the strongest technical staff and, therefore, are generally not equalizing across local governments. Formula-based allocation techniques can help overcome this bias.

Perhaps even more problematic, however, is the degree to which PMO allocation methods are unlikely to be based on transparent, objective criteria. This can result in uncertain flows of funds and allocations that are purely politically motivated. Although few intergovernmental grant systems are ever totally devoid of political influence, steps can be taken to decrease that influence. For example, formula allocation methods that are known to all -- both the granting government and recipient jurisdictions -- can lessen the role of political influence. We think that depoliticalizing the process is particularly important as Tanzania embarks on party-based politics. In the absence of more objective-based allocation methods, district councils controlled by parties out of power at the center may find themselves paying for the Roads Fund but not deriving any significant local benefits therefrom. We therefore recommend that the allocation techniques of the PMO be analyzed much more fully than was possible in this assessment and recommendations be made to the GOT for rationalizing the system.

A final issue, only tangentially related to finance reforms, is the question of the future of district roads. The 20-percent share of the Roads Fund meets a minuscule portion of the total road rehabilitation and maintenance needs at the local level. At the same time, the previously discussed resource constraints of the MOW are sufficiently great that giving it the responsibility to improve and maintain district roads appears infeasible.

In fact, there are good arguments favoring local fiscal support for roads serving primarily only local residents. Furthermore, where there is local responsibility for roads with only minimal external financial and technical support, the technologies used are much more likely to be appropriate than when a central road-building authority attempts to take over the responsibility. In a country as large and diverse as Tanzania, what is necessary is a policy environment that enables localities to make local decisions regarding the provision of local public services, such as local roads, and to mobilize and utilize resources as they see fit. As the country moves into a more liberal economic environment which emphasizes individual, market-based choices, it seems equally appropriate to emphasize the possibility of supporting local governments to meet local public service needs.

4. Accountability and Transparency of Roads Fund Flows and Use

This section of our assessment has focused on the flow of monetary resources into and from the Roads Fund. Unfortunately, records showing that money has been spent are not sufficient to prove that it has been spent for the purpose that the Roads Fund was created -- to rehabilitate and maintain roads. Furthermore, even if the money is spent for those purposes, it does not mean that it was necessarily spent in the most effective manner.

It is difficult to gauge the degree to which the Roads Fund will be adequately audited. No field audits have yet been performed on the MOW spending of the Fund's resources. Financial-records-based audits have suggested that at least some of the funds have been spent on purposes that are only tangential to the Roads Fund's original purpose. Furthermore,

auditing actual performance of activities like routine maintenance cannot be easy 18 to 24 months after the activities purportedly took place. Still, it is crucial that systematic audits of the use of these funds be carried out.

Even more problematic are audits of the PMO share of the Roads Fund. This too, has not yet been audited since the account was established only at the start of the 1992/93 fiscal year. Discussions with the Controller and Auditor General's Office suggested that financial accounting in local councils is weak and that audit reports, which are presented to local finance committees, are not necessarily taken seriously.

It is always possible to create additional formal oversight bodies within a political - bureaucratic system. However, one basic theme of the Decentralization: Finance and Management Project is that unless the actors involved in the process have strong incentives to monitor the use of funds, such oversight is unlikely to be very effective.

Along those lines, it is highly desirable that there be greater visibility of flows into and from the Roads Fund. Ironically, it may be the very large non-road users of diesel oil who are most aware of the recent increases in the road toll tax. Road users should also be made aware that their taxes are being raised, but that these increased taxes are being applied to the roads they use. The data presented in this document is readily available; one must simply be aware of where it is collected and stored. Organized groups of users of the output of the "roads industry" -- those driving over the roads (and paying taxes in support of those roads) have strong incentives to ensure that everyone knows what monies are being raised and where they are being spent. For example, the Automobile Association of Tanzania could possibly gather the same sort of information shown in this report and distribute it, not only to MPs, but to newspapers and other media to make everyone using this industry's outputs aware of the costs they are bearing and the benefits that are being generated.

5. Summary

The following recommendations follow from our analysis:

- The scheduled *Study of Road User Charges* should probe more deeply into the apparent 11-percent shortfall in the flow of funds from the petroleum sector into the Roads Fund.
- Any addition of existing revenue sources to the Roads Fund should focus on the motor vehicle road license tax and the transit tax, since these two revenues most closely resemble user charges as originally intended for the Fund.
- In conjunction with the above, road license tax rates should be rationalized to ensure that the rates imposed better reflect the relative damages caused by vehicles to the road infrastructure.

- **Rationalizing the rates of the road license tax will, however, be fruitless unless the collection system is also improved. As estimated in Section 4.2.3, the average vehicle owner in Dar es Salaam paid about TSh 7,000 per vehicle, or the amount due on the smallest passenger car. Thus, administrative improvements must go hand-in-hand with efforts to rationalize the levy.**
- **The MOW allocation method, while sound in principal, may meet increasing pressures to devote extremely large proportions of the funds to periodic maintenance, at the expense of routine maintenance. The planning process in the Ministry must ensure that this eventuality does not occur, lest the benefits of past investments in periodic maintenance rapidly deteriorate.**
- **The allocation method used by the PMO of its Roads Fund share should be made more transparent. At present, it is impossible to explain why different local councils have received the amounts made available to them, and it is also impossible to predict next year's allocations to different localities. With additional study, it should be possible to design a formula-based intergovernmental grant system that recognizes relative needs for funds and benefits from the projects and, preferably, encourages local councils and road users to contribute project costs.**
- **The earmarked Roads Fund escapes the scrutiny of a public budget-setting process. Thus, audits of both the MOW and PMO shares are essential if these scarce resources are to be used as effectively as possible. Some additional training of personnel from the Office of the Controller and Auditor General may be desirable to ensure that they are capable of conducting audits of road maintenance activities. In any event, the funds should not be seen as simply an easy way of supplementing compensation packages.**

V. IMPLICATIONS FOR THE DONORS

The relationship of the donors to the roads sector and the GOT is a critical link in implementing policy and reforms. By definition, the IRP umbrella brings the 17 international funding sources together in a commendable effort to coordinate assistance and harmonize planning, programming, and execution of reforms, works, evaluations, and new projects.

This study was intended to cover a broad range of issues relevant to reforms underway today in the roads sector. Indeed, this study posits that a proper perspective on the "sector" means that the GOT as well as the donors should begin to consider development of the *roads industry*. This industry comprises a wide variety of public and private sector entities that interact through a diverse set of institutional arrangements, employing a number of technologies and financial mechanisms. Permeating the Tanzanian roads industry are the donors who do not limit their activities to roads alone, but are presently engaged in virtually every social and economic sector in Tanzania. It is hard to find a ministry or parastatal that is not being restructured, privatized, or eliminated. It is equally hard to find anyone in the private sector willing to go-it-alone with the government -- that is, without the assurances that come with donor-funded projects. This clear interdependence is fundamentally important for the issue of sustainability. In the roads sector, production activities largely carried out by private contractors rely on public sector provision decisions, which are largely based on the availability of donor grants and loans.

The issues of pertinence to donors interested in the development of the roads industry and, ultimately, sustainable maintenance of the considerable investment being made in Tanzanian infrastructure today include the following:

- guaranteed long-term financing of road maintenance through tax reform,
- transparency in the transactions linking provision and production of roads,
- experimenting with and encouraging diversified institutional arrangements in the case of roads through greater decentralization, and encouraging *special jurisdictions*, innovative ownership and governance situations, and local resource mobilization schemes to both increase revenues for roads and better manage the entire network.
- Balancing investments and recurrent maintenance costs -- and where the forecasted revenues are not available, *lowering costs by both limiting the size of the road network* and ensuring that prices paid for construction, rehabilitation, and maintenance services are fair and reasonable, and

- exploring alternative funding plans, innovation in program and project designs, and implementation of cross-cutting activities designed to improve and strengthen the roads industry as a whole.

A. Finance Reform

Conditions associated with many donor projects extract from the GOT the promise to finance a portion of the project and also to take on responsibility for financing some or all of the operating and maintenance expenditures associated with the project. Furthermore, there is an implicit expectation that this financing will continue long after donors have left the scene or have turned their attentions to other of the many problems facing this nation.

At the same time, the findings of the finance portion of this study do have implications for the donor community in Tanzania. Our analyses indicate that both the structure and administration of motor-vehicle-based taxes in the country are weak. Indeed, the overall tax and fee system seems to contain structural and administrative problems.

Our findings suggest that a significant portion of the estimated potential revenues for the Roads Fund are not being mobilized. Examination of the motor vehicle road license tax shows that the rates are not well structured and that the average tax paid per vehicle is on the order of only Tsh 7,000 per year, which corresponds to the lowest rate for vehicles other than motorcycles, ambulances, and hearses.

USAID and other donors in a variety of countries have supported broad-based tax reform initiatives with good success, at least in some instances. At present, reforming tax structures in countries moving toward liberal, price-based market economies is among the first of the policy initiatives to be supported by the international donor community. It seems appropriate that similar suggestions be placed before the GOT. Our conversations with individuals in the MOF indicate that they recognize that many problems exist in their tax structures and administration.

Experience elsewhere also makes clear that tax reform is a process that the host government may strongly desire but that is likely to elicit considerable opposition from those benefitting from the current system. Nevertheless, when only a portion of taxes due under the statutes is ultimately paid, major negative effects impact both the economy as a whole and particular sectors. Less money is available to support important public sector programs. In turn, this often elicits a rate-raising response to increase revenues. But such rate increases further exacerbate the non-neutralities taxes create in the system because higher rates create even stronger incentives to avoid (or evade) the tax. Furthermore, and certainly damaging to the economy and society, higher rates increase the inequities between those who comply with the tax and those who successfully evade it.

In any event, even while focused on the roads sector, tax administration and structural reforms should be on the donors' agendas.

B. Audits

A second finance-related implication for the donor community relates to auditing of Roads Fund spending and other roads sector spending. Although our study did not concentrate on the audit function, interviews with those involved in the audit process suggested that they are not certain how to carry out a field audit of maintenance works, particularly routine maintenance, when in many cases the work was performed 14 to 20 months earlier.

Donors with successful experience in the auditing of roads projects in other countries may want to support training of personnel in the Controller and Auditor General's Office.

C. Diverse Institutional Arrangements and Greater Decentralization

Concern with efficient management of the roads sector has resulted in many institutional and organizational reforms during the past several years. Key among those has been the regionalization of the MOW's operations through strengthened REOs. These reforms have also led to several reorganizations of government agencies; e.g., the formation of the Rural Roads Division within the MOW.

Though progress has been made, concerns about sector management still remain. Discussion continues about still more organizational changes that are being considered in an effort to improve the efficiency of sector management. Most prominent among these are the proposed Ministry of Transport and an independent roads authority, and secondarily, the Central Road Board, the Regional Road Boards, the Management Action Group, and the Management Support Group. With the exception of the regional road boards, all of the organizational changes currently being discussed focus on the center and the management problems at that level. More attention should be given to organizational and management improvements at the regional level -- i.e., strengthening the REOs. Adding new management structures at the center may not produce desired changes compared to the technical, administrative, and financial efficiencies that could be gained by further regionalization of operations.

Just as IRP II proposes to begin transportation activities at the village level, donors are advised to diversify research and pilot activities on a scale appropriate to lower decentralized levels. Project subcomponents could be designed to experiment with special road jurisdictions that would assume responsibility for maintenance of essential feeder roads using locally

mobilized resources. The lessons learned from these pilot activities could inform broader policy issues dealing with local and regional fiscal reform and citizen/road user involvement in road sector decision making.

D. Balancing Investments and Recurrent Maintenance Costs

Technology, diversity in contracting, enhancing competition, employment generation, and seriously exploring labor-machine mixes are means available to complement institutional reforms and bureaucratic streamlining in containing the future cost to the Government for the up-keep of the roads being rehabilitated today (IRP I & II expect to provide nearly 1.5 billion dollars in road sector investments). Donor coordination is essential to curtailing any expansion of the road network currently the responsibility of the MOW and the PMO.

Achieving a balance between investments and recurrent maintenance costs will be extremely difficult if feeder roads are continually upgraded and added to the network and other less economically beneficial roads are not taken off the list.

Finally, more needs to be done by interested donors in speeding up structural reforms which underlie the overall economy and which pose the greatest indirect constraints to development of the roads industry: financial market and banking reforms; insurance industry reforms; customs, legal and judicial reforms. Without concomitant development -- i.e., policy inputs, institutional reforms, and assured funding for road maintenance -- sustainable benefits of public works projects may not be realized.

E. Cash Disbursement, Import Support, and Co-Programming Local Currency

The ATAP approach to assistance for development of the roads sector is unique among donors, with relative disadvantages and advantages over more traditional capital investment projects. Some donors simply bring in off-shore contractors to carry out a turnkey operation, leaving the GOT with a new highway to maintain. Some donors still see force account works as a viable means for road rehabilitation and maintenance, and in fact, are reluctant to abandon that approach because of past investment as well as relative efficiency. ATAP views sustainability as a primary objective, and therefore emphasizes policy analysis and implementation of reforms simultaneously with the execution of road rehabilitation and maintenance contracts. The special advantage of generating local currency for road works with dollars used to strengthen USAID's position on policy reforms through the import support program cannot be understated.

Two innovations of ATAP stand out among the many donor roads programs:

- co-programming of local currency under ATAP has tremendous advantages and is quite flexible;

- **programming some of the local currency to fund diversified periodic maintenance, minor works and bridge contracts provides the GOT with experience in alternatives today for adequately funding and maintaining roads tomorrow.**

While these reforms, particularly when carried out in a policy environment characterized by large numbers of reforms, do not always yield the desired or anticipated results, our review suggests that progress is being made on all three policy fronts -- institutional, contracting, and finance.

ANNEX 1

Case 1: Opportunities in Labor-Based Contracting

Prospective rehabilitation and maintenance contractors in the Kilimanjaro Region have been invited to participate in a training program conducted by the NCC. Under the supervision of ILO technical advisors, ATAP funds are used for labor-based works contracts. The program requires that participants complete classroom technical/managerial training and spend 17 weeks rehabilitating an earthen road employing labor-intensive techniques. In the second phase of the ILO program, trial contracts will be entered into between the project and the trainee-contractors. (Participants include employees from the private sector building construction and transport industries as well as entrepreneurs looking to enter the market for labor-based works.) Unit rates developed by the project technical staff and analyzed in the classroom with the trainee-contractors are being used.

The trial contracts provide a good opportunity for the MOW and donors to explore appropriate technologies and the cost/efficiency implications that go along with them. Rates defined by the project build 15 percent overhead and 10 percent profit into the task-based units for typical road works, e.g., site clearing, borrow/fill, stockpiling, hauling, spreading, etc. The contractors interviewed for this study argued that the trial contract amounts were insufficient, primarily because overhead and profit shares were set too low. Despite their feeling that the overall contract price offered by the project was too low, however, several contractors responded that they intended to "make money" on the contracts, though "not enough". Incentives for following through with the trial contracts in spite of marginal profits included several advantages contractors expect to earn: (1) the training program would certify their firm for future labor-based works; (2) the training provided them a competitive edge and was considered beneficial in transferring technology and management skills to their employees; and (3) and contractors fully expected to make up for any losses in the trial contract phase once they were allowed to tender for region-wide rehabilitation and maintenance contracts.

On an optimistic note, contractors we interviewed considered the training to be adequate in preparing them and their labor-forces to compete with machines. Machine-based rehabilitation of feeder roads in the area costs the MOW as much as \$45,000/km. Labor-based works analyzed during the rehabilitation of a 6-km training project feeder road, including drainage structures, cost \$13,800/km. The contractors entering the trial contract component of the project hope to raise their prices as soon as they are put into a competitive tendering situation, closing the gap between the project rates and established machine rates.

Labor-based works are generally slower to execute and often require limited application: a 10- km contract as opposed to a 100-km contract. Machine works on the other hand become impractical at a small scale when small scale operators can do the same job for lower cost. This dynamic of price elasticity across technologies should be carefully orchestrated and closely monitored in the Kilimanjaro case to develop a better understanding of the nature of competition, economies of scale, and cost differences between labor and machine-based works.

Case 2: Delegation of Authority

The \$1 million contracting ceiling delegated to 20 REOs under IRP was seen as a very positive step in decentralizing -- bringing all of the advantages of local input into decisions which have their impact locally -- and easing the contracting burden on the MOW headquarters where delays in tendering have slowed down contract implementation. In support of the decentralized approach, ATAP co-managed local currency for periodic maintenance and minor works contracts was made available to REOs meeting specific requirements: (1) local contractors had to be registered and approved by the Regional Tender Board; (2) inventory/condition survey of the regional roads had to be completed; and (3) the network to be maintained had to be prioritized using the *Traffic times Condition divided by Cost* formula developed by headquarters.

Iringa REO responded quickly to the availability of ATAP funds, and 94 million TSh were transferred to the region for contracting maintenance works within the proper delegation of authority -- under \$1 million. Between November 1992 and February 1993, seven contracts were awarded using the *Accelerated Contractor Selection Method* developed in Iringa for speeding up periodic maintenance works. The largest single contract amounted to TSh 24.7 million, or roughly \$60,000.

Efficient tendering of the first batch of contracts was possible because of close cooperation between the RDD's office, the RTB and the REO, the Regional Engineer, and the technical assistance team assigned to the region. Innovative in this approach was the development of "standard unit rates" approved by the RTB for short-listed contractors who were also approved by the RTB. After being invited to tender, approved contractors developed technical proposals for performing the work in compliance with the standard rates. These rates are undergoing considerable analysis presently to better allow for inflation, reasonable overhead and profit ratios and *Units times distance* differentials (to build elasticity into certain variable haulage units).

Based on the initial speed of tendering the contracts in the first quarter of 1993, more invitations to tender for periodic works were issued, technical proposals were prepared, and contracts were awarded. When a contract in the amount of TSh 311 million (roughly \$900,000) was about to be awarded in March 1993, delays began to occur. The evaluation committee recommended award of the contract to *Southern Highland Estates*, a well-established local transport company. Since March 1993, no contract has been awarded. What happened to the Accelerated Contractor Selection?

Headquarters became involved in the "regionalized" process. As early as August 1992, the REO had laid the foundation for its accelerated maintenance contracting program by meeting with the RTB to develop approved standard rates and approved short-lists of contractors. But when the REO requested headquarters Rural Road Division to disburse ATAP funds, Iringa REO was instructed to go back to the RTB for redundant approval, setting into play four months of requests for additional information and delays. The contract was not approved until July 1993. By that time, the ATAP account was short of funds. At the same time, the MOF delayed cutting checks transferring funds from the ATAP Special Local Currency Account to be deposited in the MOW account. The result was more delays.

If a decentralized approach to contracting is to succeed, headquarters must resist the opportunity to exercise tacit approvals and controls in the regions where the authority to authorize contracts under \$1 million has already been delegated. Regionalization of the provision and production of road works will take time. But there is a danger that centralized allocation and expenditure will erode even the best of intentions to actually delegate authority to the regions. If requesting payment is analogous to requesting the approval to exercise an authority, then the authority, is probably too shallow.

Case 3: The Case of a Small Local Contractor

As a part of the *Accelerated Contractor Selection* program funded by ATAP in Iringa Region, five "piecemeal" contracts were awarded for small, minor works, i.e., light rehabilitation, regravelling, drainage and culverts, and pothole patching. One contractor we spoke to, *USAMICO Transport Company*, was awarded a contract in February 1993 in the amount of TSh 16,848,000 (about \$42,000). The contract, signed by *USAMICO* and the Regional Engineer, was for light grading and drainage works on approximately 30 km of rural road. The contract duration was 45 days.

By mid-July 1993, the contractor, who had been paid TSh 3.7 million in progress payments (less than one-fourth of the contract amount) estimated the works to be 70 percent finished. Assuming that the contractor's assessment is correct, the payment/progress ratio is on the order of 1-to-3. A 1-to-1 relationship is rarely achieved in contracting until the retention is finally released, but in the case of a small contractor facing a host of small problems stemming from the big problem of cashflow, a 1:3 payment to progress ratio only compounds cashflow difficulties.

The REO explained that payment is not the only problem the contractor is facing. Performance is poor and deadlines have not been met. The original contract period ended in March 1993. The contractor admitted that work, already behind schedule, was stopped in April due to heavy rains. Work was begun again in July, with completion estimated for August -- if payment disputes could be worked out.

We were unable to speak directly to the Executive Director of *USAMICO* because he did not speak English. The company accountant, whose English skills were more adequate, acted as translator. The problem, he stated, was that fuel and equipment rental prices had increased since February. When he went to the RTB to apply for a price adjustment, he learned that the contract was between the REO and *USAMICO*, not the RTB and *USAMICO*. Of the work remaining, the contractor estimated 30 percent represented rectification of work already completed but damaged due to rains -- this occurred **after** the original contract deadline. So, with a 1:3 payment ratio, delays amounting to three times the original agreement, 20 percent inflation of the TSh, and a work order for 130 percent the original contract estimate, the small contractor, who was only beginning to understand that his claims, disputes, work plans, and cashflow problems could only be negotiated with the REO, was facing default.

In another example, we interviewed a small contractor with a TSh 5.5 million contract (about \$14,000) for drainage works who faced similar difficulties but resolved them differently. *Tonda Builders*, a small construction firm, was determined to meet its deadline, make a calculated profit, and win another contract. *Tonda Builders*, employing 100 workers, insuring them all for one year at a cost of TSh 456,000 (8 percent of the contract) anticipated a gross overhead and profit of TSh 1.2 million (20 percent of the contract), *if* the variable cost of hauling sand and stones to the work sites along the road did not undermine the original calculations. For the Iringa program to work over time, standard rates indexed to haulage differentials need to be developed. RTB approval in this process is critical to success for two

reasons: (1) if the RTB is not included in the accelerated process, it may become an obstacle to progress instead; and (2) RTB approvals preempt headquarters' justification for getting involved in regional contracting issues and reinforce REO decentralized procedures.

It is interesting that the Iringa periodic maintenance and minor works contracts shared similar labor-machine ratios and proportion of machine-labor funding with the Killimanjaro labor-based contracts. For example, on the Iringa-Dabaga road, *Southern Highland Estates* performed machine re-profiling and graveling while *Tonda Builders* performed drainage works using labor-intensive techniques. *Estates'* contract for TSh 22.4 million represents 81 percent of the combined contracts. Of the remaining 19 percent share going to *Tonda Builders*, roughly 10 percent was earmarked for materials and 10 percent for labor-based works. Mechanized works and labor-based works as presented look a lot alike in contract form, with a generous proportion of the funds going into machine costs and nominal amounts reserved for labor. This argues again for continuing with the diversity of technological and employment-generation approaches to road works, while exploring innovative labor-based solutions to rehabilitation and maintenance problems at the same time.

Case 4: Vehicle Taxation

Tax policy analysis generally considers a variety of factors when evaluating the desirability of a tax instrument. These factors include ease and cost of administration; the revenue growth potential of a tax, particularly in response to inflation and a growing economy; the distortions the tax creates for economic choices; and the equity of the tax levy. Taxes on vehicles and certain vehicle-use related inputs such as petrol, oil, tires, and spare parts generally get good marks for at least some of these evaluation criteria.

In most developing countries, probably the most important factor that leads governments to tax vehicles and their complementary inputs is that they are very convenient objects of taxation. They can be imposed at relatively few locations, e.g., at the port of importation, at a refinery, or at the wholesale level where there are relatively few outlets to be taxed. Thus, tax administration is not as costly as for taxes imposed at the retail level or on incomes.

Consumption of vehicles and related inputs are also generally quite responsive to economic growth; as such, these levies are income elastic. Whether or not they respond automatically to inflation depends primarily on their rate structure. *Ad valorem* taxes (those based on the price of the product) respond automatically to inflationary pressures; specific tax rates need to be raised explicitly in order to provide increased yields.

From microeconomic perspectives, vehicle-related taxes also have certain advantages. Since some transportation, particularly private vehicle ownership, is positively related to personal income, taxes on private vehicles fall most heavily on higher income groups and, therefore, can be more equitable than many other excise or general sales-based taxes.

In a similar vein, vehicle taxation with the tax proceeds tied to the costs of maintaining roads is also equitable in the sense that the beneficiary of the service bears the costs of providing that service. Beneficiaries of transport services include consumers of the goods that are transported over the roads. Improved road conditions, in turn, lower transport costs which can benefit those consumers. However, where prices, particularly transport prices, are administered, there are limits to this linkage of benefits and costs. Thus, if transport prices are not set by market forces, road improvements will lower the costs to transporters, but will not necessarily be passed on to the real consumers of the road service -- those producers and consumers who use the products being transported over the roads.

Finally, and most directly related to the issue of earmarking vehicle taxes to road maintenance, some types of vehicle taxes are (or can be) related to road use and the costs that such usage impose on maintaining a high quality road system. From a theoretical perspective, the person who imposes additional costs on the need to maintain a road should be required to pay these additional costs. (In the case of congested highways, the vehicle user should also be required to pay the costs that his or her use of the road imposes on other users.) While direct road tolls could theoretically be designed to accomplish this method of pricing, taxing vehicles and complementary inputs is likely to be easier.

Fuel taxes such as the road toll tax impose heavier taxes on vehicle users who drive more kilometers than vehicle owners who use their vehicles very little. Furthermore, larger vehicles will use more fuel than smaller vehicles; again, this yields a positive relationship between taxes paid and road damage caused through road use.

This relationship is not perfect, however, since engineering studies show that road damage is exponentially related to load weight whereas fuel consumption is not necessarily similarly related. This suggests, therefore, that for a road user fee to reflect more closely the damage that heavier vehicles cause to the roadway, additional fees need to be imposed. Registration fees can be used to help reflect such differences (although, again, such fees are not perfect, since registration fees do not necessarily reflect different usage levels). Even with road damage-related registration fees in place, it is crucial that vehicles weighing more than the capacity of a road be forbidden to use the road since overloading quickly creates considerable damage to a road.

Heavy taxation of all vehicle-related inputs is not necessarily desirable. Taxation raises the price of these inputs and, as such, discourages their consumption. Thus, heavy taxation of spare parts such as brakes and tires will discourage replacement of worn parts and can create safety hazards. For that reason, considerable thought needs to go into the merits of certain types of vehicle taxation.

In summary, motor vehicle taxes can meet quite well the usual criteria against which taxes are evaluated -- revenue growth, administrative ease, equity, and efficiency.

Case 5: Tanzanian Petroleum Sector

Although the fuel sector is heavily regulated by the GOT, private firms actively participate in the sector. With some very minor exceptions, all oil (crude and refined) is imported through the Tanzania Petroleum Development Corporation (TPDC) which is linked to the Ministry of Energy. Crude oil (which constitutes slightly more than 60 percent of the product imported into the country) is refined by the joint venture parastatal, Tanzanian Italian Petroleum Refinery (TIPER). The refinery is managed by Agip.

Since 1991, the GOT has annually contracted with petroleum suppliers for the exclusive right to supply crude oil as well as already refined ("white") products. At present, there is a single supplier of crude oil and two suppliers of white products. The contracts call for transaction prices for these purchases to be tied directly to the world market price prevailing at the time of purchase. TPDC is required to put up a 36-percent cash (TSh) cover with the National Bank of Commerce (NBC) at the time of order. NBC then arranges for the foreign exchange necessary for the purchase.

Both locally refined and directly imported white products are allocated annually to several oil companies which are the sole suppliers of oil products within the country. That is, TPDC does not directly market petroleum products. An exception to that statement is that, through an agent, TPDC does sell and distribute bitumen throughout the country from the TIPER refinery. (See the discussion in Section 4.4.2.2 in the text.) The oil companies include BP, Agip, Caltex, Esso, Total, Bulk Oil, Shell, and Mobil. The first two on this list are the largest and are each 50-50 joint ventures with the GOT.

Quarterly allocations of petroleum products (both locally refined and directly imported) are made on the basis of market share information exchanged and discussed among the oil companies and TPDC. Company representatives and TPDC apparently meet at least once a month to discuss their supply situation and to plan for subsequent imports of products. A company will wish to obtain a larger allocation primarily to ensure that if there are shortages of a particular product sometime in the future, it will have a greater likelihood of obtaining some of the scarce product and, therefore, will be able to serve its customers.

Each company maintains bonded warehouses to store refined products prior to distribution. Taxes and duties are paid on the products once these products are removed from the warehouses and taken to the companies' various depots located throughout the country. The companies distribute a portion of their products through the service stations, which they either own outright or through franchise arrangements; the remainder of their sales are through direct contract arrangements made with large purchasers such as contractors and parastatals.

Petroleum product prices are fully controlled by the GOT. The algorithm used to compute prices includes profit margins and overhead expenses for both TPDC and the oil companies, the taxes discussed in the text, and cross product subsidies. In theory, the cross subsidization allows the petroleum sector to be self supporting while still achieving GOT objectives concerning the prices of individual petroleum products. Under current price arrangements, consumers of jet fuel, kerosene, and fuel oil receive subsidies of approximately

TSh 20 per liter; the subsidy on propane gas is nearly TSh 40 per liter; and that on diesel fuel (gas oil) is quite small, at slightly more than TSh 3 per liter. The burden of the subsidies is borne primarily by consumers of gasoline (petrol) who pay in excess of TSh 40 more per liter to subsidize other petroleum consumers; users of industrial diesel oil also bear a cross subsidy burden of about TSh 15 per liter. The apparent objective of such cross subsidization is to ensure affordable prices for the lower-income users of kerosene and the industrial users of fuel oil. (Consumption of highly subsidized propane gas is quite low.) Premium and regular gasoline users are likely to be higher-income consumers, thereby achieving some income redistributive gains from the pricing structure.

While the cross-subsidization arrangement is intended to balance financially, achieving such balance requires accurate estimates of the quantities of products purchased. This is not always achieved. For example, the problems TANESCO had last year in generating electricity led to greater than expected levels of consumption of subsidized kerosene, fuel oil, and diesel fuel. For that reason, current prices effectively lower the subsidy to propane gas, jet fuel, kerosene, industrial gas oil, and fuel oil by TSh 5 per liter to replenish the "price stabilization fund."

Until June 1993, the GOT also pursued a policy of ensuring a nationally uniform price for all petroleum products. The mechanism used to achieve this objective was the transport equalization fund. Effectively, those oil companies distributing products to regions at a distance from Dar es Salaam were provided a subsidy from this fund, whereas if the product was delivered in or near to DSM, the company was to contribute to the fund.

It was recognized that there were two problems associated with such an arrangement. First, nationally uniform prices resulted in greater cross-border price differentials for petroleum products and therefore encouraged international smuggling of those products. A second problem was that the arrangement encouraged companies and, particularly, truckers to misstate where their deliveries were being made. Although it may have been reported that a delivery was made to the western border of the country, in fact, the product may have been delivered to a much closer depot.

When the national uniform price policy was terminated, the equalization fund still retained a deficit of approximately TSh 3 billion. (At least a portion of that deficit is attributable to false assertions of delivery points.) Because of the substantial deficit in the fund, the current pricing structure also includes a TSh 2.6 per liter charge on all products.

TPDC collects a variety of similar, but not identical information. For example, it has data on total imports of petroleum into the country. Since these data include both crude oil and white products, the data are not appropriate for estimating the road toll tax base since different types of crude oil produce different compositions of white products. A second type of data maintained by TPDC is sales of its various products to the petroleum companies. While this is not the base of the road toll tax imposed when petroleum leaves the oil company's bonded warehouse, it does provide a good cross check on the final sales data. In addition to the data used in the text, TPDC also maintains a data base showing what the oil companies say are their sales. These data are used by TPDC to determine quarterly

allocations to the oil companies. They are, therefore, generally biased upwards. Finally, the data used in the text are also supplied by the oil companies, but are not used to determine quarterly allocations.

The interviews revealed a variety of issues facing the companies and, ultimately, petroleum consumers throughout the country. It is not economical to operate the TIPER refinery. Importing white product results in cost savings of approximately US\$8 per metric ton relative to using the local facility. The refinery (as well as other facilities necessary for moving and storing the products) is old and has not been adequately maintained; furthermore, it is probably not operated most efficiently. Still, the GOT views it as a strategic asset, and prefers to keep it operating in spite of the additional costs it imposes on the economy.

A second issue mentioned by everyone, and at least tangentially related to the overall thrust of our report, is the problem of credit and cash flow. Apparently, all of the actors discussed here have large outstanding arrears. TPDC owes the banks and GOT for petroleum imports. It cannot always pay since it has extended credit to the oil companies who are in arrears for past purchases. (The oil companies must pay TPDC a credit charge of 33.5 percent interest on outstanding balances.) But the oil companies are in arrears to TPDC, since many of their larger customers (who are not charged interest on their outstanding balances) are in arrears. Certain parastatals and, apparently, large contractors owe the oil companies large outstanding balances. But one reason they cannot pay their bills is because of long delays in being paid by the GOT. Road contractors were mentioned specifically in several of the interviews.

The costs of transporting products is another problem cited by the oil companies (again, an issue not unrelated to the subject of our report). Road transport of bulk petroleum products is costly, particularly given the poor condition of the roads in the country. While rail is the preferred and less costly mode of transport, there are major problems with the pricing structure and operation of the railroads as well.

Finally, TPDC is also probably a part of the problem faced by the industry. In spite of shared information among the companies and TPDC and relatively little seasonal fluctuations in demand for various petroleum products, there are instances when shortages develop for particular products. Although the shortages are often met through use of "third party stock" by companies that have sister companies in the region, with better forward planning, the shortages would not arise. Of course, regardless of the quality of forward planning, as long as TPDC faces fiscal problems, shortages are likely to continue to occur.

Case 6: Tax Earmarking

The Roads Fund constitutes a form of *tax earmarking*, in which a particular revenue source(s) is reserved to be used for a specific set of activities. It must be recognized that such arrangements have both advantages and disadvantages from the standpoint of the nation as a whole.

Governments everywhere, but particularly in lower-income countries, face severe public revenue constraints. As such, they face the twin pressures of attempting to raise more revenues and needing to cut back expenditures. A common response on the spending side of the ledger is to cut back on maintenance expenditures even though from a longer-term perspective, such decisions are uneconomic. Obviously, recent initiatives in the road sector in Tanzania (including ATAP, IRP-I and the currently discussed IRP-II) are attempting to ensure that sufficient resources will be allocated to maintaining roads rather than allowing them to deteriorate rapidly.

Earmarking constitutes a method of ensuring that the resources necessary for maintaining roads will be available and will be funneled into the road sector. As such, earmarking effectively bypasses the usual budget-making process. But this is not accomplished without costs.

First, on theoretical grounds, there is a strong argument against earmarking. Because it bypasses the budgetary process, it precludes budget makers from allocating funds to public uses which may have a larger beneficial effect on society than when used for their pre-determined, earmarked purpose. Thus, if revenues are designated exclusively for roads, they cannot be used to provide education or health services, which may yield even higher social benefits than maintained roads.

Second, there is a practical argument as to why earmarking does not necessarily work. As discussed in Case 4, vehicle and vehicle-use taxes are productive and convenient sources of public revenues. Where governments face major budgetary constraints, there are always strong pressures to use those tax revenues to avoid larger budget deficits. It is not surprising then that at least some experiences with earmarking for road activities have shown the policy to be successful initially, but that the fund eroded over time in order to meet other budgetary needs. For example, this was the apparent outcome of the Roads Fund in Zaire (see Raoul, 1989).

What implications does this have for the Roads Fund and its future in Tanzania?

1. The revenue-expenditure policies of the GOT are certainly being pulled in opposite directions. While the Roads Fund is meant to ensure that sufficient resources are available to maintain roads, there are equally strong pressures on the Government to decrease the size of its fiscal deficit, which requires additional revenues including those earmarked for the Roads Fund.

2. **Attempting to fund fully the roads sector without recognition of competing uses of the limited resources available can be as shortsighted as permitting the GOT to ignore maintenance of past road investments.**
3. **The earmarked Roads Fund is "off-budget" and, as such, bypasses the public budget-making process. It instead puts budget allocation decisions in the hands of bureaucrats and technocrats. While this may appear to avoid the political process, even bureaucrats and technocrats can be pressured by political forces to allocate funds in a manner that is not technically sound. When such decisions are not made in public forums, it can undermine a democratic public choice process.**

None of the above should be interpreted to mean that a mechanism such as the Roads Fund is inappropriate policy. Indeed, there are real merits to such earmarking in that it can provide a close linkage between tax payments and benefits received from public services. But earmarking is not a panacea and should have limits in a democratic society.

ANNEX 2

PERSONS INTERVIEWED

Ministry of Works

Dr. Peter F.C. Komba, Chief Engineer, Rural Roads Section
Mr. Chiwanga, Rural Roads Senior Maintenance Engineer
Mr. Kinyero, Rural Roads Senior Construction Engineer
Mr. Mfugale, Rural Roads Senior Bridge Engineer
Mr. A.A. Awadhi, Senior Engineer Planning & Programming
Mr. R.S. Mahuwi, Chief Accountant
Mrs. Allie Mandia, Senior Auditor-in-Charge, Controller & Auditor General, MOF/MOW
G. Mwakilufi, Project Coordination Officer, Womens Participation
N.S.D. Nkinga, Director Contract Control Unit
William Mwamyalla, Regional Planning Engineer, Acting Regional Engineer, Iringa Region
L.M. Mashamba, Director of Personnel and Administration
Mr. P. Tegwa, Construction Engineer, Rural Roads Section, Ministry of Works
K.M.I.M. Msita, Executive Secretary, National Construction Council, Dar es Salaam
Mr. Mlinga, National Construction Council, Dar es Salaam

Ministry of Finance

Mr. Raphael Mollel, Deputy PS
Dr. C.S. Kimei, Manager Economic Research Department, BOT
Mr. Mpembe, Assistant Accounts General
Mr. Emanuel Kagunila, Banking Dept, BOT
Mrs. Njovangwa, Banking Dept, BOT
Mr. J.S. Nkoma, Deputy PS
Mr. W.A. Ufwinki, Principal Finance Officer
Mr. Kissongo, Sales Tax and Other Inland Revenues Department
Miss Mtunguja, Sales Tax and Other Inland Revenues Department
Mr. Kiama, Deputy Controller, Office of Controller and Auditor General

Prime Minister's Office

B.S. Mchomvu, Deputy Principal Secretary
Mr. Lekule, Commissioner for Planning and Regional Administration, PMO
Mr. P.S. Mkomoya, Planning Officer, PMO
Mr. Mallya, Acting Commissioner for Local Government

Regional Government Officials

F. Mganga, Regional Administrative Officer, Kilimanjaro
Charles Meenja, Regional Development Director, Iringa

Other Parastatals

Mr. Yona Killagane, Managing Director, TPDC
Mr. Joel Mabiba, Director of Finance and Accounting, Caltex Oil (Tanzania) Ltd.
Ernest Mbepena, Executor/Trustee Manager, National Bank of Commerce, DSM
Thomas Kapinga, Legal Documentation Manager, National Bank of Commerce, DSM
Alphonce J. Njuu, Branch Director, Bank House, National Bank of Commerce, DSM
J.S. Mang'ana, Manager, Miscellaneous and Accident Dept., National Insurance Corporation of Tanzania, DSM
Mr. Kessi, Seconded to ILO Training Program, Moshi, from National Construction Council
J.S. Kessi, Regional Manager, National Insurance Corporation, Moshi
MR. Katemana, Branch Manager, National Bank of Commerce, Moshi
Nicas Kutumiwa, Senior Insurance Officer, National Insurance Corporation, Iringa
Godwin Mwaipopo, Deputy Manager, National Insurance Corporation, Iringa
R.M. Mvamba, Branch Manager, National Bank of Commerce, Iringa
Mr. Shao, Deputy Branch Manager, National Bank of Commerce, Iringa

Private Sector

Dr. C.J. Hedley, Managing Director, BP Tanzania Ltd
Mr. Decet, Managing Director, Agip (Tanzania) Ltd.
Mr. P.M. Mevada, Director/General Manager, Tanganika Motors Ltd.
Salim A.S. Dhiyebi, Managing Director, Abdallah S. Dhiyebi Ltd. DSM
Indra K. Patel, Director, Nyanza Road Works, Ltd., DSM
Mr. Mchai, Resident Engineer, Makconsult, Moshi
Mr. Singh, Managing Director, BECCO, Moshi
Mr. Casai, Engineer, BECCO, Moshi
Mr. J. Stokes, Field Engineer, BECCO, Moshi
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