The Case for a Commercially Managed Road Fund

By Ian G. Heggie

Shortage of Finance

All countries suffer from a shortage of funds for both maintenance and improvement of roads. This is manifested in the form of rapidly eroding asset values, increase in traffic congestion (particularly in Asia), increased numbers of accidents, and worsening environmental pollution. In particular, expenditure on road maintenance is well below the level required to stop the steady decline in asset values and keep road networks in a stable, long-term condition. In 1995, the World Bank estimated that about $43 billion, amounting to about one-third of the investment in roads in Sub-Saharan Africa, had been eroded due to lack of maintenance. Furthermore, lack of adequate maintenance was a world-wide problem. A survey of 9 countries in Latin America, Africa, Eastern Europe, the Middle East and Asia, published in 1998, showed that maintenance allocations varied from a high of 89% of requirements to a low of 29%. On average, they were only amounted to about 50% of requirements. This was a short sighted policy, since cutting $1 from the maintenance budget for roads in poor condition increases vehicle operating costs by about $2 ~ $3.

Earmarking

Many countries responded to the growing shortage of finance by attempting to in crease their revenues by getting the Ministry of Finance to "earmark" selected road related taxes and charges (primarily fuel taxes) and depositing them into a special off-budget account, or road fund. Earmarking is not a new idea and several earmarked road funds were set up between 1910 and the late 1930s, but most were soon closed or left dormant. The rationale behind the early road funds was to provide a mechanism to ensure that the owners of motor vehicles – under State guidance – could raise and spend money on construction and maintenance of roads.

However, not everyone was in favour of earmarking and road funds. Those in favour argued that the earmarking: (i) applied the benefit principle of taxation (i.e., those who benefited from the roads paid for them); (ii) assured a minimum level of expenditure for desirable or essential expenditures (e.g., maintenance); (iii) reduced the costs of civil works by assuring prompt and continuous funding; and (iv) helped to reduce the resistance of the public to new road taxes, or increases in them. On the other hand, those opposed to earmarking argued that it: (i) hampered effective budgetary control; (ii) could lead to a misallocation of resources, with too much revenue going to the road sector at the expense of other sectors; (iii) introduced inflexibility into overall budget management; (iv) weakened the powers of the executive and legislative branches of government; and (v) often resulted in the earmarking provisions remaining in force long after they were needed.

Many of the above arguments against earmarking were nevertheless based on a Utopian view of how governments manage their budgets. According to economic theory, governments allocate funds between the various sectors of the economy to ensure that benefits at the margin are equalised across sectors. This view has been regularly challenged on the grounds that it assumes a system of public finance and democratic decision making that bears little relation to reality. Roads have to compete for funds against other more visible (and politically popular) sectors like health, education and law and order. This places them at a considerable disadvantage in the annual budget debate, particularly when arguing for maintenance funds. Maintenance can always be postponed in the hope that the money might be available later and it rarely is.

There was renewed interest in earmarking and road funds during the early 1950s when New Zealand, Japan and the US (at Federal level) set up road funds. Both Japan and the US accepted that their road programs – building a modern road system in Japan and an inter-state defence network in the US – could not be financed through regular budgetary allocations. Although the authors of these road funds appeared to accept that earmarking generally hampered effective budget management, they argued that road funds represented "benign" earmarking and were therefore acceptable. Provided the taxes chosen were levied only on the people who benefited from the expenditures, they would act as surrogate prices and might actually improve allocative efficiency. As the Japan road improvement special account put it, the road fund was "based on the concept that road users who enjoy the benefits of improved roads should bear the burden for their improvement." The US likewise argued that the concept involved two elements: first the user pays, while second, the government credits the user fees directly to a highway special account to avoid confusing them with other government revenues. These principles, which did not differ significantly from those underlying the earlier road funds in UK and South Africa, became known as the "user pay" concept.

Problems with Earmarking

Many developing countries were attracted by this concept and went ahead and set up their own earmarked road funds in the 1970s and 1980s, while most Eastern and Central European countries did the same during the early 1990s. Apart from New Zealand and the US Federal Highway Trust Fund (which restructured several times) and Japan (which was a special case), most of these road funds failed. They did not deliver a secure and stable flow of funds for roads and produced a number of undesirable side effects. The most important were:

(i) Earmarking increased the revenues available to the road sector by taking them away from other sectors (i.e., since the government's overall budget envelope is typically fixed – at least in the short term – additional funds for the road sector have to be taken away from other sectors);
(ii) The road fund rarely received all the revenues it was entitled to – the Ministry of Finance often withheld funds (due to the weak legal basis of most earmarked road funds) and the staff managing the road fund usually had little, if any, formal financial training (e.g., the original Ghana road fund was simply a bank account

and no one took the trouble to check that all the revenues assigned to it had been collected and deposited into this bank account);

(iii) Without strong oversight, funds were regularly used to pay for unauthorised items (e.g., hotel bills, refurbishment of houses/offices, etc.), or items which were never delivered to the road agency (e.g., for vehicles which ended up registered in the names of private individuals);

(iv) Record-keeping was poor and so was financial management – the staff (if any) managing the road fund did not keep proper accounts and this meant that several road funds could not even be audited;

(v) The road funds were regularly "raided", usually to finance roads in marginal constituencies just before election time, but sometimes simply to pay for "shopping trips" by officials to neighbouring countries.

The extent of these problems is illustrated in Box 1 below which contains excerpts from audit reports on selected road funds. They clearly illustrate why ministries of finance and the IMF strongly opposed setting up any further earmarked road funds.

Box 1: Excerpts from Audit Reports Carried Out on Early Road Funds

"No guidelines and accounting instructions were issued to enable effective management of the funds raised………"

"Records of quantities of fuel sold … suggest that a substantial sum of money was collected from road users but was not paid into the road fund."

"About $200,000 was used to purchase vehicles which were never delivered [to the road agency]."

"Funds were used to pay hotel bills, including substantial amounts billed as extraneous expenses."

"We were unable to certify the accounts due to a general lack of financial information and lack of specific information on the revenue side."

Commercialising Road Finance

Not only had the earmarked road funds failed, but people also started asking why roads continued to be managed through a government department and financed through general budget allocations – the same way that governments manage the health and education sectors? Why were they not managed like other commercially operated infrastructure sectors (e.g., telephones and water supply)? Furthermore, why not charge for road use in the same way that the other infrastructure services charged for their services? More fundamentally, why not move roads closer to the boundary between the public and private sectors and subject them to the normal discipline of the market place where they would be forced to produce only what people wanted at a price they could afford?

This change of philosophy – away from earmarking (now usually referred to as "first generation road funds") towards a market based, incentive driven management paradigm – was informed by studies carried out on existing road funds, including those in New Zealand, Japan, USA, Africa and Latin America. These studies attempted to find out why so many earmarked road funds had failed and what might be done to design a

"modern" road fund that worked. The review ended up setting down five key design elements for an effective road fund:

(i) The expenditures financed through the road fund should be fully funded by road users and not by any transfers from the government's general tax revenues (i.e., the road fund should be financially self-sufficient).
(ii) The road fund should be managed by an independent board that includes road users and they should be nominated by the organisations they represent. This would fundamentally change the incentive system by re-casting road users as customers, rather than simply as tax-payers. The chairman should be a person of standing and the board should be supported by a small secretariat, headed by a manager appointed by the board.
(iii) The board should recommend the level of the road user charges (the road tariff) and it should be regularly adjusted. The recommended tariff should initially be approved by the Ministry of Finance (while the road fund remained subject to the Finance Act), but the board should eventually have power to set the tariff themselves within guidelines laid down by the Ministry of Finance.
(iv) The fuel levy should be collected under contract by the fuel companies and deposited directly into the road fund bank account. Where feasible, all other charges should be collected under contract and deposited directly into their bank account. This would prevent diversion of funds.
(v) The road fund should be managed according to sound commercial principles. It should have clear disbursement procedures and funds disbursed should be subject to independent technical and financial audits.

These were the guiding principles that became the basis for the so-called "second-generation" road funds.

Winning Ministry of Finance and IMF Support

The concept a new style road fund – one that was well managed and did not simply divert funds away from other sectors – still had to be demonstrated to Ministries of Finance and the International Monetary Fund (IMF). This was not easy, since the experience with first generation road funds had made people wary of earmarking and off-budget funds. To pave the way for an agreement on new style road funds, the World Bank therefore wrote to the IMF to explain what they had in mind, based on the extensive reviews they had carried out (see Box 2 below).

The IMF were sympathetic to this approach and, following a meeting between the World Bank's Roads Adviser and the IMF's Fiscal Affairs Department, the IMF set down the principles that should underlie these new style road funds. Briefly, the road fund should: (i) not simply be a means of avoiding strict budget discipline; (ii) be an agency which acts as a purchaser, not as a provider of road maintenance services; (iii) have a mission statement, objectives, physical output indicators, and a total resource envelope; (iv) ideally only finance work carried out by private contractors; (v) have a commercially based financial management system; and (v) have a management board with a significant

private sector presence, genuinely free from a supplier (e.g., contractor) or trade union interest. Additional "desirable" features were that there should be a high degree of cost recovery through the road user charges, income from budgetary sources should continue to be subject to normal budgetary discipline and the fund should not receive any guaranteed share of total tax revenues from the Ministry of Finance.

Box 2: Commercialisation of Roads: World Bank View

Commercialisation is not the same as earmarking general budget revenues to enable the road sector to capture more of the government's budget resources. The World Bank rejects that approach, which was unfortunately a common feature of most road funds in Latin America and Africa in the 1970s and early 1980s. Commercialisation attempts to "bring roads into the marketplace, put them on a fee-for-service basis, and manage them like a business". Four main principles underlie the concept:

- Road users pay for usage of roads through an explicit road tariff that must be clearly separated from the government's other taxes. It usually takes the form of a two- or three-part tariff: an annual license fee that charges for access to the road network (sometimes supplemented by a heavy-vehicle license fee), a road maintenance levy added to the price of fuel that charges for use of the road network and, where feasible, a congestion charge to manage congestion.
- The above road tariff must not abstract revenues from other sectors. The ministry of finance is generally invited to convert the existing allocations for road maintenance into an equivalent fuel levy, but that is all. Additional revenues must come from extra payments by road users. That is part of the objective—road users pay for using the road network, they know that they are paying, and they then demand value for money.
- The proceeds from the road tariff are deposited into a road fund managed by a board that includes representatives of road users and the business community. At least half the board members generally come from outside government and are nominated by the organizations they represent. The chairperson is independent. This structure creates a form of surrogate market discipline. Board members represent the people who are paying for roads and thus have a strong vested interest in seeing they are not overcharged and that the money is well spent.
- Finally, the board must have a small secretariat to manage the funds, published legal regulations should govern the way the funds are managed, and the auditor general's office or private sector auditors appointed by the auditor general must carry out independent technical and financial audits.

Additional elements are that the fund should ideally support maintenance of all roads (including cost-sharing with local governments and communities), responsibility for different parts of the network should be clearly assigned to a competent road authority, and the road authorities should introduce sound business practices.

Some of the strongest supporters of the above system are the ministries of finance. They see it as making road financing more transparent and as tightening financial discipline in the road sector. Ministries of works are less enthusiastic, since it imposes on them a large measure of (unwelcome) financial discipline.

Extracts from a memo from the World Bank Road Adviser to the IMF Senior Managing Director

Second Generation Road Funds

Most road funds set up after 1990 attempted to apply the above principles, starting with those in Zambia, Lesotho, Malawi, Namibia and the restructured road fund in Ghana. The objective was to change the incentive system by creating some form of market discipline. Many of these principles were borrowed from the road funds in New Zealand (the star performer summarized in Box 3), USA and Japan. However, they also "invented" many of their own features *de novo*. These road funds were exclusively in developing and transition countries where they were introduced under donor supported

programs which were trying to reform management and financing of roads. Surprisingly, these second generation road funds tended to be strongly supported by Ministries of Finance, since they offered greater transparency (i.e., better governance), better financial management and tighter financial controls. Road agencies tended to be less enthusiastic for the same reasons – the road fund forced them to justify their programs and held them accountable for results.

Box 3: Transfund New Zealand: Road Fund Good Practice

On July 1, 1996, legislation was passed creating an independent Crown entity known as Transfund. The new institution:

- was set up as an independent road fund administration;
- had a five person oversight board which was nominated by the responsible minister following consultation with people from the land transport industry;
- one of the existing members of the board was appointed as chairman;
- revenues come from motor vehicle registration fees, a gasoline levy and weight-distance charges which were graduated according to axle weight;
- all revenues were collected under contract;
- off-road usage of gasoline was exempted (using rebates);
- Transit New Zealand and local authorities had to apply for funds on the basis of cost-benefit analysis and the outcome of a Road Maintenance Management System (RAMMS);
- there were cost share arrangements with local authorities based on ability to pay;
- technical, financial and procedural audits were carried out on a regular basis and, if funds were used improperly, the road agency has to repay them to Transfund;

Other attractive features were that the road fund financed traffic enforcement by the police, the work of the Land Transport Safety Authority and provided support for passenger transport. In other words, road users do not simply pay for roads, they pay for "safe" roads. The Treasury still controls the flow of funds into the road fund -- they have been unwilling to delegate responsibility for charging policy to the board.

The key features of these second generation road funds were as follows:

(i) The road funds were managed through a separate road fund administration which channelled funds to *all* parts of the road network.

(ii) Oversight was provided through a public-private board made up of nominees of organisations (including government departments) with a strong vested interest in well managed and well maintained roads.

(iii) The chairman was ideally an independent person of standing who could act – and be seen to be acting – in the public interest (the relevant Minister was discouraged from sitting on the board and was strongly discouraged from becoming chairman).

(iv) Revenues came only from charges related to road use (i.e., a road tariff, generally consisting of vehicle license fees and a levy added to the price of fuel). Eventually, these charges will be replaced by an electronic charging system.

(v) The Ministry of Finance were asked to pay all existing allocations for roads into the road fund (in the form of an equivalent fuel levy). All additional revenues then came from extra payments by road users, to ensure that the road fund did not divert money away from other sectors.

(vi) Once the fuel levy reached about $0.03-0.05 per litre, the road fund administrations were urged to introduce procedures to ensure that non-road users did not have to pay the fuel levy.
(vii) Day-to-day management was through a small secretariat that managed the road fund along commercial lines. The Head was usually appointed by the board and the Head then appointed the rest of the staff, subject to a board "no objection."
(viii) Funds were disbursed to road agencies in ways that strengthened financial discipline (i.e., all funds had to be accounted for and there had to be evidence that work has been done according to specification).
(ix) The new road funds were supported by sound legislation, together with published financial rules and regulations.
(x) There were regular technical and financial audits of all work financed through the road fund and the results were regularly tabled before parliament and published in the press;

Lessons Learned

During the last 15 years, a number of important lessons have been learned about second generation road funds. The key lessons are summarised below.

Winning Broad-Based Public Support for the Road Fund. An early lesson was that you cannot radically change the way roads are financed without broad-based public support. Otherwise, there will be resistance – mainly from the road administration and road user groups – and the road fund will fail. Since the key to the second generation road fund is that extra spending on roads has to be financed through extra payments by road users, it is essential to win road user support for the "fee-for-service" concept. The consensus building process often starts with a workshop and a study tour to share experience from other countries. The workshop could involve 15 to 20 participants, or as many as 100. It could likewise last 1 day, 2 days, or longer. The workshop usually results in an Action Plan and a timetable for establishing a new road financing mechanism. The Action Plan has to deal with four main issues. First, it has to clarify which key policy decisions need to be taken *before* any legislation can be drafted. Second, having taken some preliminary decisions, the government will often publish a Consultation Document spelling out the various options available and inviting comments from interested parties. Third, based on these consultations, the government will publish a White Paper summarizing the preferred option. Finally, the substance of the White paper will be translated into legislation and submitted to Parliament for approval. Once approved, the Act then becomes law.

Separate Road Fund Administration. Early work on second generation road funds quickly showed that they had to channel funds to all parts of the road network. They usually paid all costs on national roads and made contributions to the costs of local government roads. The reason was simple. All road users pay for roads through the fuel levy and they expect all roads to be maintained to a reasonable standard. In addition, the new road funds had to have a sound legal basis and this meant that they had to be approved by government. Few elected members are willing to approve a road fund that

only finances part of the road network (e.g., national roads only). An added concern – clearly expressed by local government – was that the road fund should not be managed by the national roads agency. In those countries where it was – as happened in the early days of the New Zealand road fund – it caused serious difficulties. Local governments suspected that the national road agency simply helped themselves to the revenues and only passed on the remaining "crumbs" to local government. As a result, virtually all road funds are now managed by an independent road fund administration which channels some funds to all parts of the road network. This, in turn, means that the road fund administration has to devise suitable methods of dividing funds between local government road agencies (where good progress has been made), together with arrangements for sharing costs with them (where little progress has been made).

Oversight Arrangements. These turned out to be the single most important design parameter. It is typically provided through a public-private board and there are now several examples of well functioning boards around. The most successful of the early boards was the (now superseded) Zambia National Roads Board (NRB). The miracle was that it functioned well, despite being set up under flimsy legal procedures. It had eleven members – seven representing private sector interests like the Chamber of Commerce, road transport industry, farmers and Chartered Institute of Transport, while four represented government departments. The chairman was elected by the board. The board won widespread public support for its work and even ran a weekly radio program, called "Our Roads," to keep the public informed about the annual road program and its financing. The secret of their success was that the private sector members were senior businessmen who could readily talk directly to the President and Prime Minister and, equally important, they built up a reputation as "Mr Clean" – they worked hard to avoid controversy and corruption. The NRB has now been replaced by a board set up under basic legislation.

A recent review of African road funds carried out in 2006, noted that there were now at least 27 new style road funds in place, although many were relatively new and had only been established after 2000. Of these 18 had been established under legislation (though often poorly drafted) and 12 had oversight boards with a private sector majority (although most had the Minister as chairman). The continuing influence and involvement of the Minister has created major problems. It undermines board independence and this, in turn, undermines the ability of the board to win the confidence of road users and hence to generate additional revenues. A study carried out by a Master's student at Birmingham University, clearly showed that boards with independent private sector chairmen develop better public relations programs (i.e., businessmen know how to market and "sell" the road program to the public) and, because of this, they are able to raise more revenues.

Without an effective chairman, the road fund cannot function properly. The best boards elect their own chairman, a large number let the Minster choose the chairman from the existing members of the board, a few permit the Minister to freely pick his/her own chairman, while too many (particularly in Africa) have the Minister as *ex officio* chairman. Ministers are reluctant to let go, even though they usually understand that it will hamper increasing the road tariff. Even when they are not *ex officio* chairmen, they

regularly interfere in their selection. One of the worst cases involved a board where the Minister appointed the chairman from the existing members of the board. Although most board members were clearly specified in the legislation, it also provided for two board members to represent the "public interest." The Minster therefore went ahead and appointed one of his cronies to represent the public interest and then appointed him as chairman.

Public Relations: The lesson learned here was that public consultation can not simply stop when the legislation had been passed. The board has to continue "selling" the road program to the public, has to show that they are producing genuine value-for-money and must repeatedly make the case for increased revenues. The key message that road funds try to get across to road users is that spending money on maintenance is highly cost effective. When roads are in poor/fair condition, each dollar spent on maintenance reduces vehicle operating costs by $2 to $3 (i.e., the road user makes a "profit" of $1 to $2 for each $1 that he pays, *provided* the money is spent on maintenance). Paying higher fuel taxes does not produce the same results, since the revenue goes into the government budget and little, if any of it, gets spent on maintenance.

The PR programs developed by road fund administrations cover a variety of activities. Most road funds publish annual reports, have web pages, issue press releases, hold public meetings, publish their budgets and/or audit reports in the press and even run radio programs (radio has turned out to be highly effective, since professional drivers listen to the radio during the working day). Road funds in Latin America have produced excellent video "spots" for use on TV. They focus on the way poor road maintenance affects different user groups (bus passengers, goods transporters and car users) and the benefits they gain from sound maintenance and why it is worth paying for.

The Road Tariff. The lesson here was quite simple. Second generation road funds treat roads like any other commercially operated publicly-owned infrastructure. Road users pay, they know that they are paying and this encourages them to demand value for money. In other words, the charging mechanism subjects the road sector to some form of market discipline. Typically, road users are charged through a two-part tariff consisting of vehicle license fees (sometimes also a heavy vehicle surcharge) and a levy added to the price of fuel. They are therefore charged in the same way as other infrastructure sectors, which charge for access to the service and for use of the service. The fuel levy is generally specified as a discrete amount per litre, or as a percentage of the ex refinery or wholesale price (to automatically adjust for changes in exchange rates), to ensure that the fuel levy can be clearly separated from the import duties, sales taxes and excise taxes paid into the government's budget.

The tariff is adjusted from time to time, usually through the regular budgetary process. After consultation with road users, the board recommends tariff changes to the Ministry of Finance. The Ministry reviews the proposed changes in the context of other tax changes and then includes them in the annual budget statement. The revenues raised may be collected by the Ministry of Finance (or the Revenue Administration), by the road fund administration itself (usually confined to license fees and international transit fees),

or may be collected under contract by a third party (e.g., in New Zealand, all road user charges are collected under contract).

Under the above procedure, the revenue continues to pass through the government's budget. This causes numerous problems, as it did for the first generation road funds. It takes a long time for the revenue to reach the road fund (usually several months) and the Ministry of Finance often withholds funds during periods of fiscal crisis. As a result, there is growing pressure to find ways of depositing the money directly into the road fund bank account. Most Finance Acts specify that all earmarked funds must be paid into the government's budget account (the consolidated fund) before being allocated to individual sectors and agencies. However, Ministries of Finance often get around this procedure by treating payment into the government budget account as a paper transaction, while the cash itself is paid directly into the road fund's bank account (i.e., the fuel levy is collected from the oil companies, is recorded as a deposit into the budget account, but is simultaneously transferred to the road fund bank account). New Zealand uses a slightly different procedure. Their revenues are paid into an interest bearing Treasury account to show that they belong to the road fund and not to the government's budget.

So far, Namibia is the only country which has set up its road fund administration as a *de facto* commercially operated publicly-owned enterprise (see Box 4). Under the legislation, the board sets its own road tariff, following consultation with the concerned Minister (i.e., the Minister does not "approve" the tariff, but simply issues a "no objection"). This means that the revenues are no longer collected under the government's tax-making powers (i.e., they are not earmarked) and do not have to be deposited into the government's budget. The legislation defines the road user charges as a tariff, paid in return for services rendered. It is too early to say how well this procedure will work, although early indications are that it is working quite well. However, although there is only one functioning commercially operated publicly-owned enterprise, the legislation passed on new road funds is getting increasingly flexible with more powers being delegated to the board. For example, the Malawi National Road Authority Act, 1997, gives the board powers to raise, "such road user charges as the Minister may, from time to time, on the recommendation of the Board and in consultation with the Minister responsible for finance, determine by order published in the *Gazette*." The government has not yet implemented this clause.

Box 4: Excerpts From the Namibia Road Fund Administration Act, 1999

18. (1) Subject to section 19 [which deals with the annual expenditure program], the Administration may from time to time after consultation with the Minister and such parties as the Minister may direct, by notice in the *Gazette*, and in accordance with such principles as may be prescribed, impose any one or more of the following road user charges for the achievement of the objects of this Act, namely:

(a) a charge on any motor vehicle, whether registered in Namibia or not, in respect of the travelling distance in the course of on-road use, and which may be based on the mass, length, width or height of the vehicle or its loading, or the number of axles of such vehicle, or any combination of such factors;
(b) an entry fee in respect of motor vehicles not registered in Namibia that temporarily enter Namibia;
(c) registration and annual license fees in respect of motor vehicles registered in Namibia; or
(d) subject to subsection (4)(f) [this subsection deals with exemptions] , a levy on every litre of petrol and every litre of diesel sold by any undertaking at any point in Namibia and which is to be included in any determination of the selling price of petrol or diesel, as the case may be, under any law relating to petroleum products.

Qualifying Expenditures. It was clear from the start that road users were mainly concerned about maintenance. That is why they agreed to pay an additional surcharge added to the price of fuel (i.e., the fuel levy). Indeed, concern was so strong that several of the new roads funds – particularly those in Latin America – were set up as road conservation funds (i.e., they could *only* spend money on maintenance). As a result, maintenance of public roads is usually the *first charge* on the road fund, followed by the costs of administration (often subject to a limit) and selected road safety projects. Several road funds also finance some rehabilitation works and minor upgrading, but only after all maintenance requirements have been met. Spending on rehabilitation and upgrading is often also subject to a limit (e.g., 10-20 percent of overall revenues).

Road users also showed concern for maintenance of roads in rural areas which did not form part of the classified road network. As a result, the legislation often permits the road fund administration to finance unclassified roads, tracks and trails in rural areas, or has legislation that permits them to "finance such other matters as may be decided by the board," which amounts to the same thing. Some road funds—like those in Japan, New Zealand and USA—also finance investment. However, most of the second generation road fund administrations concentrate on maintenance. Major new works continue to be financed through the government's budget. Finally, there is the question of borrowing. The legislation often prevents the road fund administration from borrowing against the road fund revenues to ensure that they do not over-borrow. The alternative is to restrict the amount of borrowing against road fund revenues (in terms of debt service and repayments) to less than 10-20 percent of current revenues.

Day-to-day Management. Setting up a team to manage the road fund proved more difficult than expected. The staff nearly always remained civil servants and this created major problems in countries where civil service salaries were well below the market wage and where the low salaries meant it was difficult to recruit qualified accountants, etc. (one road fund in the Middle East had no suitable staff and ended up appointing a bridge engineer as Head of the road fund). Some road funds nevertheless managed to innovate and either employed the required staff as consultants (until other arrangements could be

put in place), or they contracted out day-to-day management to another organization (e.g., to a firm of accountants or a bank). The road fund in Poland (now re-integrated into the government's budget) was managed for several years under a contract with their Development Bank.

The team that manages the road fund -- typically referred to as the Secretariat and consisting of accountants, planners and engineers – has a commercial structure. It has a Head (Chief Executive), normally appointed by the board (not by the Minister) and the Head then recruits and appoints the rest of the staff, subject to board approval. It doesn't take many staff to manage a road fund. Transfund New Zealand employs about 40 staff to manage a turnover of around $500 million, while Ghana has about 3-5 staff to manage a turnover of around $60 million. The staff collate the road programs prepared by the various road agencies, consolidate them into the "approved" national roads program, define the financial procedures to be followed by the various road agencies entitled to draw money from the road fund, allocate funds to support the approved programs, disburse funds to the road agencies and then audit the results *ex post*

Exemption Systems. With a low fuel levy, the road fund usually faces little opposition from non-road users (e.g., the railways, agriculture, power stations, mining industry, etc.). However, once the fuel levy reaches about $0.05 per litre, the road fund has to find ways to exempt these users to prevent their opposition damaging the road fund. This usually only applies to diesel fuel, since very little gasoline is used outside the road sector. This is not a new problem. Many countries exempted agriculture from paying taxes in diesel, or applied a lower tax on agricultural diesel. Some countries did this through exemption systems (e.g., for railways, power stations, etc.), or by colouring un-taxed diesel (used for some time in the US). However, both systems are difficult to administer and can lead to widespread abuse. Although colouring technology has improved (the colour now stains the fuel system and can be identified during safety inspections), it is still difficult to administer.

Most second generation road funds have therefore tended to focus on *ex post* compensation systems. Latvia (where the road fund was recently closed down) had a well developed system. Farmers -- one of the most difficult sectors to deal with – registered their land holdings with the municipality and then claimed back the levy paid on 100 litres of diesel fuel for each hectare of land under cultivation. Similar procedures applied to other sectors like fishing. One of the most interesting methods has been developed in Namibia. It is an *ex post* compensation system, i.e., the non-road users pay the fuel levy up front and then claim it back later. The method is summarized in Box 5.

Box 5: Fuel Levy Refunding System: Namibia

Introduction. The refunding system refunds a certain percentage of the fuel levy component of the Road User Charges (RUCs) to each qualifying sector. The following sectors qualify for refunds: (i) agriculture (livestock production and agronomic production); (ii) construction (building and civil works); (iii) marine fishing; (iv) mining; and (v) rail transport (Namrail). The percentage varies for each qualifying sector.

Fuel Types Considered. Most off-road usage pertains to diesel. Although petrol is used to a limited extent for off-road purposes, claims for refunds of the fuel levy on petrol are only considered if they are accompanied by a clearly argued submission sent in by a group of users in the sector.

Basis of Refunding. The off-road usage level for each qualifying sector is based on historical claim patterns and information gained from the various sectors. Only claims from end users are considered, not claims submitted by bulk distributors or fuel agents. Before a claim can be processed, the claimant must submit clear proof that the fuel levy payments were deposited into the Road Fund Account by a Wholesaler to whom a wholesale license has been issued under the Petroleum Products & Energy Act, 1990.

Registration Procedures. Off-road fuel users claiming refunds must first register with the RFA - this applies to existing as well as new users. Only fuel users specified under the qualifying sectors can be registered. Users in the agricultural sector have to indicate what percentage of fuel is used for livestock and agronomic production, respectively, as different refund percentages are applied to these sub-sectors. Similarly, users in the construction sector have to specify what percentage of fuel is used in the civil and building sub-sectors, respectively. If the application is successful, a user registration number is assigned to the applicant. A letter is sent informing them of the outcome of the application. Registered users must indicate if their status has changed and, if so, must re-register by completing a new application form.

Submitting Claims. Only claims from registered users are considered and must be accompanied by the original purchase invoice(s), made out in the name of the claimant. Only invoices from wholesalers registered under the Petroleum Products & Energy Act are accepted. Invoices from other retailers are considered on merit. Claims supported by invoices more than 3 months old are not accepted. Only claims for fuel purchases of 200 litres or more are considered.

Processing Claims. Claims are processed once a month and payments are made directly into the claimant's bank account. A notification is sent to the claimant informing them of the outcome of the claim. An administration fee is charged.

Sectoral Percentage Refund. The percentage refund, by sector, is as follows: (i) railways, 90%; (ii) fishing industry, 95%; (iii) mining industry, 80%; (iv) livestock agriculture, 60%; (v) agronomic production, 85%; (vi) building construction, 85%; and (vii) civil construction, 60%.

Source: Based on the information supplied by the Namibia Road Fund Administration, October 2001.

Disbursing Funds. Since the funds disbursed from first generation road funds often ended up being spent on unauthorised expenditures (see Box 1), it was clear that the second generation road funds had to find a more secure was of disbursing funds. The US Federal Highway Trust Fund (FHTF) used an attractive procedure. State road administrations prepared their road programs, these were approved by the FHTF and the States then went ahead and let the contracts. Contractors were paid by the State, vouchers for reimbursement were sent to the FHTF for review and approval, claims were certified by FHTF and, after certification, the State was reimbursed for payments made. Although this procedure works well, it can only work when the road authority has its own working capital, or has access to credit. The second generation road funds therefore had to develop alternative disbursement mechanisms.

Two methods were developed for paying for the approved road works. Where governance was questionable (as it was in the early days in Zambia and Mozambique),

the mechanism usually relied on paying contractors directly. Road works were planned, the plans were approved by the road fund administration, contracts were let, the completed work was certified (usually by consultants supervising the work) and payment was then made directly to the contractor by the road fund administration. It is clearly a second best solution, since it is time consuming and costly. Where governance is acceptable or improving, the preference has usually been to set up a revolving fund. Once the road agency's annual program has been approved, funds are disbursed to the road agency on a regular basis (i.e., funds are regularly paid into their bank account). Replenishment of the revolving fund, usually on a monthly basis, is dependent on submission of satisfactorily evidence that all payments were for work forming part of the approved expenditure program, the work has been properly certified and the contractors had actually been paid. This system is used in New Zealand and Ghana.

Auditing. The audits carried out on first generation road funds were usually quite thorough and those carried out by the Auditor General's Office tended to be better than those carried out by private auditors. The problem with the audit reports was that they were not made public and there were no individuals within the governmental departmental system who could be held accountable. As a result – as is clearly shown on Box 1 – many of the first generation road funds ended up in the words of one author "as little more than a den of thieves." The second generation road funds therefore took a different approach. First, the audits were mainly done by independent auditors, either appointed by the Auditor General, or appointed from a list of firms provided by the Auditor General. The auditors report was then published in the board's Annual Report, was often tabled before parliament and also published in the press. The objective was to make the workings of the road fund transparent and, through that, to hold the board publicly accountable for results.

The auditors often turned out to be quite helpful and were even able to protect the road fund against "raids." Just before an election in Zambia, the President pressured the road fund into starting work on some roads in marginal constituencies. The work did not form part of the board's approved expenditure program. The auditors picked this up and qualified the accounts. This was very embarrassing for the government and they had to agree to convert the expenditure into a loan which was then re-paid by the Ministry of Finance.

Legislation. Weak, or non existent legislation, caused many of the failures with first generation road funds (see Box 6). The preference, with second generation road funds, is thus to have legislation which is short and enabling, accompanied by published financial rules and regulations specifying how the road fund should be managed. This provides more flexibility, since it enables the regulations to be revised from time to time without the need for further legislation. The best examples of emerging good practice for basic legislation are Malawi, Ghana, Namibia and Nepal. Lesotho has the best financial rules and regulations supporting a road fund set up under the Finance Act. Both the Malawi legislation and the Lesotho financial regulations have been turned into templates and several countries have based their legislation on these templates (e.g., Nepal, Pakistan and Laos). In many respects, the legislation in some of these countries is one step ahead

of New Zealand. The most innovative draft legislation – unfortunately not passed by Parliament – comes from Nigeria. The draft legislation proposed to effectively set up the road fund administration as if it was a limited liability company with all shares held by the public. Each year, the board was required to call an open public meeting at which it had to explain to the public – as shareholders – what they had done with their money.

Box 6: The Need for Sound Legislation

Most first generation road funds were set up under the Finance Act – which often allows the government to open a "special account" for a designated purpose – or under a Ministerial or Cabinet Decree. In one case, the road fund was simply set up on the basis of a telephone call between the President and the head of the Central Bank. These arrangements provide a weak basis for the road fund.

Weak legal arrangements invariably lead to challenges. There are three main challenges. First, the Ministry of Finance often collects the earmarked funds, but refuses to deposit them into the road fund. Without a firm legal basis, the road fund (or road ministry) cannot do much about this. Second, weak legal arrangements are nearly always accompanied by lack of clear financial rules and regulations governing management of the road fund. As a result, the road fund often deteriorates into a "slush fund." Money gets spent on hotel bills, purchase of computers and fax machines, vehicles, etc. In one case, the entire allocation to a district council was spent on entertaining friends at the main hotel in the capital city. Third, road funds frequently get raided. Government – and officials – simply use the road fund as a contingency and regularly draw on it to finance other urgent programs.

On the other hand, sound legislation does not solve all problems. You still need a strong oversight board. Furthermore, as the Zambia National Roads Board showed, a strong board can work effectively without sound legislation, although lack of consistent legislation makes life more difficult.

Conclusions

Since the mid-1990s, a number of countries have restructured the way they finance their road networks. Most progress has been made in developing and transition countries which have moved ahead faster than industrialized countries. There are now notable examples of emerging second generation road funds in several developing countries, including Cameroon, Ghana, Guatemala, Honduras, Malawi, Namibia, Nepal and Zambia. Brazil also has three State level road funds. None are perfect, but many contain features that qualify as examples of emerging "good practice." Indeed, in many respects, it is the developing countries that invented the concept of financing the road sector as if it was a commercially operated publicly-owned enterprise. The idea of giving the board of the road fund administration the power to set its own tariff level, subject only to a Ministerial "no objection," was likewise pioneered in the Malawi legislation (though not implemented) and then carried through into the legislation for Namibia. Several other countries are now proposing to follow suit.

In a recent paper, an IMF staff member has argued that road financing mechanisms can be grouped into three broad classes. At one extreme, they place the New Zealand model where the road sector has *de facto* been privatised and where road users know clearly what they are paying for roads. At the other extreme, they place conventional budget financing (the main mechanism used by industrialized countries). In between, the paper places the second generation road funds. These funds are seen to represent a distinct move towards a private sector paradigm – bring roads into the market place, put them on

a fee-for-service basis and manage them like a business. The paper then asks an interesting question. Are the second generation road funds a temporary phenomenon and, if so, when will countries using them move to reintegrate road maintenance into their conventional budget systems? The paper suggests "that the movement would more likely be in the other direction ….. it is the industrialized countries who will [likely] make a move toward the New Zealand practice." In other words, it will be the industrialized countries that are likely to "make the change in the direction of the developing," rather than vice versa.

Second generation road funds nevertheless still face problems. This is not surprising, since they represent a seismic change in the way we think about roads and the way we finance them. Outstanding problems include: (i) the role of the Minister (the unwillingness to let go and allow the road fund administration to act independently); (ii) the reluctance of Ministries of Finance to support legislation that would turn the road sector into a *de facto* public enterprise with power to set its own (regulated) tariff; (iii) the difficulty in moving towards direct deposit of revenues into the road fund administration's bank account; and (iv) the slow pace at which road funds have tried to introduce cost sharing arrangements with local government road agencies. However, major policy reforms take time – often a very long time – and this means you have to be patient, very patient.

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