ROAD FUNDS: SUSTAINABLE FINANCING AND MANAGEMENT OF LATIN AMERICA'S ROADS

Gunter Zietlow*

ABSTRACT

The extensive road networks of Latin America and the Caribbean, valued at over US$ 350 billion, show alarming signs of neglect and decay. It is estimated that more than US$ 30 billion are wasted annually in the absence of adequate road maintenance. Individual countries in the region are losing 1 to 3 per cent of their annual GNP from increase in vehicle operating costs and loss of road asset values alone.

Consequently, several countries in the region have started to place road maintenance on a fee-for-service basis and are transferring road maintenance management from a government environment to a company environment. A new generation of road maintenance funds has been created in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and in the four Brazilian states of Mato Grosso, Mato Grosso do Sul, Paraná, and Goiás. This article provides an overview for creating sustainable road maintenance funds as well as a discussion of the approaches taken by the aforementioned governments, the difficulties they encountered and finally the lessons that have been learned.

Keywords: Road funds in Latin America, Road maintenance financing.

INTRODUCTION

For the last 50 years, roads have been the backbone of Latin America's freight and passenger transport system with road networks continuing to grow rapidly throughout most of this period. However, in recent years the rate of expansion has slowed and ageing of road networks has proceeded rapidly (see figure 1). Scarcity of resources, especially in the 1980s, has contributed to an ever-decreasing amount of money allocated to road maintenance. Towards the end of the decade many countries in the region spent less than 20 per cent

* *German Agency for Technical Cooperation (GTZ); e-mail: Gunter.Zietlow@gtz.de.*

of the amount necessary to maintain their road networks in serviceable condition. In the early 1990s, funding levels for the road sector improved slightly. However, the available funds were mostly being used for road rehabilitation.[1] Only a small portion was being spent on the more cost-effective routine and periodic maintenance[2] activities. This situation remains unchanged in most of the countries of the region.

Figure 1. Examples of poor construction and maintenance of roads

Raising funds for road rehabilitation is much easier than for road maintenance. Loans to finance rehabilitation are more readily available from international donors, while road maintenance must compete with a myriad of domestic spending priorities. Generally, 2-3 per cent of the new investment value of a road network is required for its routine and periodic maintenance. Countries in the region spend only 20 to 50 per cent of this amount. In addition, the available funds are often used inefficiently.

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[1] *Rehabilitation of paved roads is defined as selective repair and strengthening of the pavement or shoulder after partial demolition of the existing structure.*

[2] *Periodic maintenance is defined as surface treatment or surface renewal including regravelling.*

Road conditions in the region vary from country to country. However, generally only one third of the paved main road network is in good condition, one third in regular and one third in poor condition. The condition of unpaved roads is even worse. These conditions have not changed much over the last 10 years despite recent large-scale investment in road rehabilitation.

Past efforts to increase financing levels for road maintenance either failed or were not sustained. Equally unsuccessful were most of the efforts to improve the performance of the public road administrations in the region, which were mainly financed by multilateral or bilateral donors.

The main lessons learned are clear. An appropriate institutional arrangement for adequate financing and management of road maintenance can make a substantial improvement in road conditions. It is necessary to address the two main underlying causes related to financing mechanisms and institutional arrangements for road maintenance.

Cause number 1:

Experiences from nearly all developing and most developed countries reveal that it is impossible to secure an adequate and stable flow of funds for road maintenance through the general government budgetary allocation procedure, especially if the allocation depends on annual political budget debates.

Road maintenance is less politically attractive than new road construction, road rehabilitation, and social programmes which are more "visible" and therefore carry more political mileage. In addition, the lack of understanding regarding the economic consequences of poor maintenance, even by those administering the road network, further complicates efforts to raise sufficient maintenance funds. Globally very few countries, with Japan and some European countries as notable exceptions, have been able to assign sufficient resources to road maintenance on a sustainable basis.

Some countries in Latin America used to finance road construction, rehabilitation and maintenance through earmarked taxes, especially on fuels used by motor vehicles. However, none of these funds could be sustained in the long run. The main problem was that Governments began utilizing these funds for other purposes. This was especially true in times of crisis. As many of these crises were never resolved, dedicated road maintenance funds have effectively been permanently reallocated.

Cause number 2:

Rules and regulations of the public administration system do not allow for efficient management of road maintenance in spite of the good intentions of public employees responsible for road maintenance.

In Latin America and the Caribbean, government departments carry out the management of road infrastructure. While most of the construction, rehabilitation and some maintenance projects are contracted out, the government departments are responsible for planning, contracting, and supervising these projects in addition to performing most of the road maintenance works. Overstaffing, lack of discipline and control, lack of incentives and corruption are common problems in many of these departments. Internal inefficiencies of government departments also act as a major hindrance to sustainable road maintenance at a reasonable cost.

I. FINANCIAL REFORM OF ROAD MAINTENANCE

Probably the best way to secure an adequate and stable flow of funds without relying on taxes is to charge road users a road maintenance fee, also called a user charge, in exchange for the services of maintaining roads. In most countries, the financing of road maintenance through taxes has never worked satisfactorily and it would be at best misleading to assume that this will change for the better in future. Road maintenance can be treated as a public service similar to water supply, telephone and electricity services, where the user pays for the services received. To be able to do so, the following conditions must be met: the road user pays in relation to road usage and should receive adequate road maintenance services while those not using the road system are not required to pay. In addition to these criteria, the collection system should be easy and inexpensive to administer, yet difficult to evade.

The system that best suits these criteria is an electronic tolling system covering the whole road network. Each vehicle can thus be charged individually according to its usage of any particular road. Unfortunately, this kind of system is still in its infancy and is not expected to be in existence on a comprehensive scale in most of the developing countries in the near future. For the time being, a shadow toll system[3] may be considered, which mainly uses the consumption

[3] *This should not be confused with the shadow toll system used in the United Kingdom of Great Britain and Northern Ireland where the Government pays a fee to a concessionaire for the construction, operation and maintenance of a road.*

of motor fuels on roads as a "service meter" and reflects the usage of roads fairly well.[4] This implies that a service charge or road maintenance fee can be levied and collected together with the sale of motor fuels. The only disadvantage of collecting the fee in this manner is psychological, as most people consider fees added to motor fuels to be another tax[5] to finance general expenses of the government and not necessarily to provide road maintenance services. Therefore, it is extremely important to identify and clearly mark this charge as road maintenance fee and to collect the receipts in a separate fund, independent of any government, departmental or municipal funds, and make sure that the proceeds are used only for road maintenance.

The pump price of motor fuel may also contain a tax element to finance general government budget expenses, one of which can include construction and rehabilitation of roads. The pump price may also include a road maintenance fee which is to be deposited in a separate fund earmarked for road maintenance expenses (see figure 2).

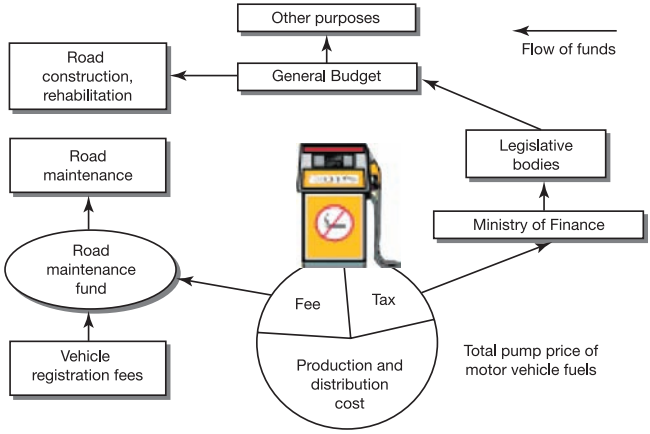

Figure 2. Use of funds collected from road users

[4] *Only heavy vehicles are an exception and require an additional charge to compensate for the greater usage of roads due to relatively higher axle loads. In New Zealand and in some of the States of the United States of America weight-distance charges are applied to heavy vehicles. These charges are not recommended for use in developing countries, since they are difficult to administer and fairly easy to evade in the absence of a strict control system.*

[5] *Officials from the Ministry of Finance often argue that this is an earmarking of taxes. There is a very clear cut distinction between taxes and service charges. Taxes are defined by law, do not bear a direct relationship between source and destination of funds, and are collected by governments. Service charges are directly related to the services provided, cover their cost, and are collected by the entity that provides the services. Principally, taxes serve to finance public services that do not generate sufficient income to finance themselves, like basic education and health services, public administration or defense. In contrast, road maintenance services can easily be financed through user charges.*

Because motor fuels are consumed on all roads, all roads should receive funds from the road maintenance funds including interurban, urban and rural roads. To what extent maintenance costs should be reimbursed by the fund remains a central question. This issue is especially relevant for roads with very low traffic, as the road maintenance fee "collected" for these roads would be far below the funds required for maintaining them. Most likely, the road maintenance fund will have to contribute more than collected from the motor fuels consumed on these roads. The actual amounts could be tied to a number of criteria or simply to a flat rate per kilometre. Fixing these amounts could be part of the decision-making process of the fund management, in which the road users should also have a stake.

Since one of the conditions of a road maintenance fee is that only road users should pay for road maintenance services, the issue of diesel not used on roads remains to be resolved. There are several options for dealing with this problem. One possibility is to chemically differentiate between the two diesels by colouring the one not used in road vehicles. This method is being used in many developed countries and requires either a good control system or very disciplined road users. Another possibility is to rebate the amount of the road maintenance fee to those not using the diesel in road vehicles. This is fairly easy to handle in the case of power stations and others using large quantities of diesel. However, it is almost impossible to administer such a scheme for small-scale users, such as farmers. In this case, other methods of compensation could be applied, such as assigning more maintenance funds to farm roads than would be justified under normal road maintenance cost allocation systems for these roads.

Analysis of road maintenance costs in several Latin American countries suggests that US$ 0.07 to US$ 0.09 per litre of motor fuel would be required to cover the cost of maintaining a country's entire road network, assuming motor fuels were the only source of road maintenance funding and the existing roads were in a maintainable condition. For most countries this means that large sections of their road networks would require rehabilitation before they would be eligible to receive funds from the road maintenance fund. If additional road maintenance fees for heavy vehicles were applied, the fees raised from motor fuels could be reduced accordingly.

Road tolls are an alternate system for collecting fees for road maintenance. Unfortunately, the cost of operating a toll system is high. Only for roads with more than 1,500 vehicles per day do the collection costs stay within a reasonable range of 10 to 30 per cent of the tolls collected, depending on the amount of the toll and the volume of traffic. As such, this type of system

is economically viable for only a small percentage of roads, probably less than 5 per cent of all roads in Latin America. This is a clear indication that tolling systems would be a poor method for financing a country's whole road network. Tolls could augment other user fees designed to cover road maintenance costs but would result in double charging (tolls plus road maintenance fees) and therefore are not recommended for this purpose. Tolls on toll roads should preferably be used to recover construction or rehabilitation costs while maintenance costs should be reimbursed by the road maintenance fund.

It is difficult to convince road users to pay an additional road maintenance fee. They would argue that the government receives enough funds from taxes on motor fuels, motor vehicle, licensing fees and other fees to cover the cost of road construction, rehabilitation and maintenance. It is potentially just as difficult to persuade governments to hand over a part of "their" taxes for regular maintenance purposes.

Resistance to paying maintenance fees stems from the lack of recognition that road users face the consequences of poor road conditions in the form of higher vehicle operating costs. It is estimated that investing one third of the additional vehicle operating costs now spent due to bad roads on road maintenance would save the road user the other two thirds (see table 1). If they knew what could be saved by paying road maintenance fees, most road users would be willing to pay, even if this would mean an increase in fuel and other vehicle related taxes. However, willingness to pay would likely be subject to credible assurances that the funds raised through fees would only be used for road maintenance. When users fees are applied to fuel, governments are frequently willing to reduce fuel taxes by a corresponding amount. In these cases, the price of fuel at the pump may not change significantly.

Table 1. Savings effected by paying road user fees in El Salvador

Cost element [a]	Passenger car (US dollars per 100 km)	Heavy truck (US dollars per 100 km)
Vehicle operating costs driving on bad roads	14	64
Vehicle operating costs driving on good roads	10.5	52
Savings in vehicle operating costs	3.5	12
Equivalent road user charges	-1.0	-3.5
Resulting savings	2.5	8.5

[a] Vehicle operating cost on asphalt concrete roads in hilly terrain (2000).

II. INSTITUTIONAL REFORM OF ROAD MAINTENANCE

A relevant question is how we can safeguard public interest by maintaining good road conditions. In most developing countries, public sector road organizations and their respective ministries are responsible for keeping road networks in good condition. They are not directly accountable to road users and do not face any real consequences for failing to ensure proper maintenance of road networks. Often, they do not even know the condition of roads under their jurisdiction, much less the asset value of the roads or whether road asset value is increasing or decreasing. Any commercial enterprise that neglects its assets, as governments often do, would go out of business.

Road users are the ones who actually have to bear the consequences of poor road maintenance. Therefore, they have a direct interest in maintaining good road conditions and should have more direct control over road maintenance spending. One way of achieving such control is to create road maintenance boards, with complete financial, administrative and technical autonomy and with active participation of road users and other stakeholders. Depending on the size of the country, there might be either subsidiary or independent local road maintenance boards for the different categories of roads and/or road administration districts. The principal functions of such road boards should include:

(a) Proposing the levels of road maintenance fees;

(b) Administering and managing the Road Maintenance Fund;

(c) Contracting the planning, execution and supervision of road maintenance;

(d) Safeguarding investments made in roads;

(e) Informing the public periodically on the effectiveness and efficiency of road maintenance spending.

Road boards exist in various countries around the world, with either executive functions, such as in New Zealand (Dunlop 1996), Zambia (Jhala 1995) and Honduras, or advisory functions, as in Japan, the United Republic of Tanzania (Heggie and Vickers 1998) and Guatemala. Based upon the positive and negative experience gained from road boards/funds worldwide, certain design criteria can be established which might help to create sustainable road maintenance boards/funds. These criteria include the following:

(a) The directors of the board should represent the relevant interest groups, especially road users;

(b) The board should be autonomous with a firm legal basis;

(c) The fees should reflect the usage of roads, should be adjustable according to needs, should be collected by the board and deposited into a road maintenance fund account, and should be used primarily for road maintenance (routine and periodic maintenance, including strengthening of pavements and regravelling).

In order to be effective, the road maintenance board/fund has to channel and control funds to other agencies, corporations or companies for planning, executing and supervising road maintenance works. Depending on the structure of road administration in a specific country, a road maintenance board can operate in a number of ways. The principal decision to be taken by an executive board is whether or not it is going to contract out work directly or whether it wants to make use of an existing road administration or agency. The more effective and efficient the existing organizations are, the more likely they are to be given a major role. If an efficient road agency or corporation exists, a performance contract between the agency and the board might be the best choice (see figure 3). In the case of an existing road administration, the board might also decide to contract out maintenance works directly, while making use of the planning and contract preparation skills of the road administration.

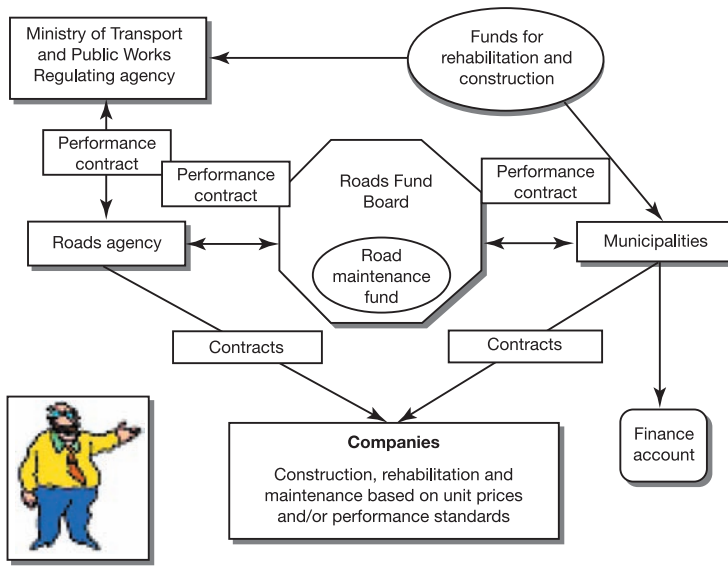

Figure 3. Road maintenance works through existing agencies

One administrative arrangement could be for the road maintenance board to contract all road maintenance to companies tasked with maintaining roads to a certain standard in a specific area on a long-term basis (see figure 4). For smaller countries, having one national road maintenance board may be sufficient; for larger countries however, creating provincial and municipal boards may be a better solution.

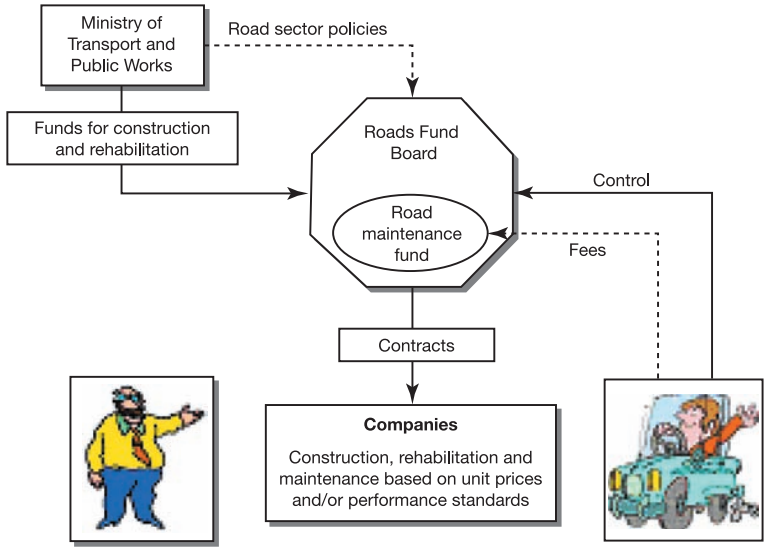

Figure 4. Outsourcing road maintenance works

One question remains: who is going to contract and pay for road construction, rehabilitation and major improvements? As long as government bodies are receiving motor fuel taxes, it seems fair that they should continue to finance these works and either contract them directly or let the road maintenance board(s) contract the work on their behalf. The second solution might have the advantage of better ensuring that the quality of road design and construction suits road maintenance needs.

III. THE REFORM PROCESS

To change the present tax-based financing of road maintenance system to a fee-for-service approach will require the broad support of road users as well as the approval of the government and politicians in control of the legislative bodies. The easiest way to convince people to accept these changes is to clearly demonstrate the advantages that they would receive from doing so.

This does not seem to be too difficult in this case as the road users will save more on vehicle operating costs than they will have to spend on additional road maintenance fee. The government and taxpayers will also benefit as they have to bear a lesser burden for future road rehabilitation.

Another important aspect in wining public support is to give road users control over where and how to spend the road user levies collected for the road maintenance fund. A few influential people might have something to lose from introducing the new charging system. These are the people who abuse the current system to favour political allies and personal friends, which would certainly be more difficult to do in a more transparent system controlled by road users. Therefore, awareness-building, orientation and organization of direct and indirect road users are essential for implementing such a reform in the road sector. Typical groups to involve in this process includes passenger and freight transport organizations; automobile associations; farmers' associations; chambers of commerce and industry and road associations.

Often the question arises as to whether or not to include the financing of road rehabilitation in such a financial scheme. This depends on whether users are willing to pay for rehabilitation in addition to maintenance. Users might argue that road rehabilitation is necessary only because the Government did not maintain the roads in the first place, and thus will be reluctant to pay in the form of user fees. As long as governments find enough funds, or are pressed by road users to do so, road users might succeed with this line of argument. However, if governments are not able to mobilize enough resources of their own, the necessary funding for rehabilitation will have to be arranged from external bilateral and multilateral donor agencies, or road users will have to allow for such costs to be covered by road maintenance fees. Since many countries are faced with a high percentage of poorly maintained roads, rehabilitation must be completed before regular maintenance can take place. Therefore, it might be necessary for some Governments to temporarily fund road rehabilitation through this financing mechanism as well. This, of course, will be reflected in the fee levels, which for inflationary reasons should rise gradually.

The concept developed by the Economic Commission for Latin America and the Caribbean (ECLAC) was instrumental for road maintenance reform to take shape in Latin America and the Caribbean. The dissemination of this concept throughout the region, as well as a favourable reform climate in the 1990s, encouraged many countries to consider and adopt such reforms. In 1993, the International Road Federation, ECLAC, the World Bank and the Pan American Institute of Highways joined forces in organizing a series of regional

Box 1. Membership and characteristics of some road fund boards in Latin America

Road Maintenance Fund of Honduras

- The Board has executive functions and consists of seven members: three ministers or vice ministers (Transport and Public Works, Finance, and Economy), the Director of Roads of the Ministry of Transport and Public Works, one representative of the Association of Municipalities, and three from the private sector (Chamber of Commerce, Association of Transport Enterprises, and College of Engineers).
- The Minister of Transport and Public Works is the chairman of the Board and appoints the representatives of the private sector upon nomination by organizations.
- The Board contracts out all execution and supervision of road maintenance to the private sector and uses the Ministry of Transport and Works for planning purposes.

Road Maintenance Fund of Guatemala

- The Board has some executive functions and consists of six members: two ministers or vice ministers (Transport/Public Works and Finance), the Director of Roads of the Ministry of Transport and Public Works, one representative from the Road Transport Association, one representative of the Chamber of the Construction Industry, and one representative of the Chamber of Agriculture.
- The Minister of Transport and Public Works is the chairman of the Board and appoints the representatives of the private sector upon nomination by the organizations they represent.
- The Board contracts out all execution and supervision of road maintenance to the private sector.

Road Maintenance Fund of the state of Paraná (Brazil)

- The Board has executive functions and consists of 16 members: three Secretaries of State (Transport/Infrastructure, Industry/Commerce, and Agriculture), the Director-General of Public Works, one representative from Parliament, one representative from the municipalities, and

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10 representatives from the private sector (Agricultural Federation, Federation of Industries, Federation of Freight Transport Enterprises, Federation of Passenger Transport Enterprises, Chamber of Commerce, Transport Syndicate, Syndicate of Transport Related Services, Federation of Agricultural Workers, Syndicate of Freight Transport Enterprises, and a representative for road users selected by the Consumer Protection Agency).

- The Chairman of the Board is the Secretary of Transport.
- The Board contracts out all execution and supervision of road maintenance to the private sector.

and national seminars on improving the highway system in Latin America and the Caribbean under the name PROVIAL. The financial and institutional reform of road maintenance was the main theme of these seminars. After several countries expressed interest in such reforms, the International Road Federation and the German Agency for Technical Cooperation (GTZ) initiated a project in 1994 to assist the countries in creating their road maintenance funds and contracting out road maintenance by performance standards.

IV. CASE STUDIES ON ROAD FUNDS IN LATIN AMERICA AND THE CARIBBEAN

So far, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and four states in Brazil have created road maintenance boards to oversee road maintenance funds. Each country is faced with a unique set of challenges and therefore must shape its policy accordingly. All of the countries are able to do this while more or less adhering to the principles of the reforn measures. Table 2 summarizes the characteristics of road funds in Latin America.

Honduras

In Honduras, legislation to create the road maintenance fund was passed in 1993. A Board consisting of four representatives from the central Government, one representative from the municipalities and three representatives of direct and indirect road users are supervising the fund. The principal financial source of the fund is a levy on motor vehicle fuels in the form of a dedicated tax. The road maintenance fund is used for the routine and

Table 2. Characteristics of road funds in Latin America (2001)

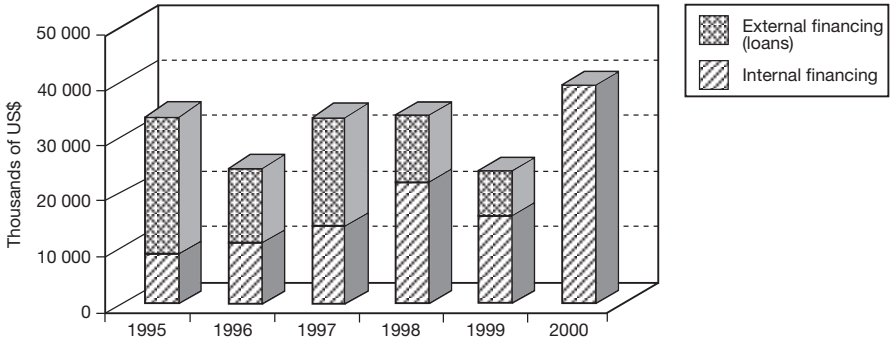
Country and date of creation		Main sources of income	Fuel levy in US cents per litre of gasoline-diesel	Percentage of fuel levy of total income	Composition of Board (public-parliamentary-private)
Costa Rica April 1998		Fuel levy	7.5-4.3 25 per cent for local road fund	95	4-0-3
Guatemala February 1997		Fuel levy	3.1-3.1	100	3-0-3
Honduras January 1999		Fuel levy	8.2-2.6	100	4-0-3
Nicaragua June 2000		Federal budget	–	–	3-0-3
El Salvador November 2000		Fuel levy	5.3-5.3	100	2-0-5
Brazil	State of Mato Grosso do Sul August 1999	Fuel levy and taxes on agricultural goods	0.4-0.8	50	5-1-2
	State of Mato Grosso March 2000	Fuel levy and taxes on agricultural goods	1.5-1.5	17	7-0-0
	State of Paraná December 2000	Fuel levy	0.4-0.8	100	6-1-9
	State of Goiás January 2001	Vehicle licensing fee	–	–	3-1-6

periodic maintenance of the official road network, excluding urban and municipal roads. Up to 10 per cent of the fund can be disbursed for road rehabilitation works. All works as well as services have to be contracted out to the private sector. In addition, to avoid creating another bureaucracy, the administrative cost of the fund has been restricted to 2.5 per cent of its annual budget. Currently, the Road Maintenance Fund has 38 staff members including the supporting staff.

Unfortunately, a law that was originally created by an outgoing government stipulated that all proceeds from taxes related to road transport, such as fuel taxes, import duties on motor vehicles and licensing fees, would form the income of the Road Maintenance Fund.

However, this was not acceptable to the new government. In addition, the proceeds from all these sources would have provided twice the funds needed for road maintenance. This issue was solved in 1999 through an amendment to the law stipulating that only a specific portion of the fuel tax would be dedicated to the Road Maintenance Fund.

The actual operation of the Road Maintenance Fund started in January 2000. Since then, the level of financing has remained stable and road maintenance is done almost exclusively through resources from the Road Maintenance Fund (see figure 5). The projected income of the fund for 2009 is US$ 84 million (using the exchange rate for 2000). The coverage of the road network maintained by the Road Maintenance Fund will increase from 34 per cent in 2001 to 100 per cent of the whole road network of 14,602 km in 2009. These projections are based on the assumption that the Government will assign 100 per cent of the dedicated taxes to the Road Maintenance Fund. Until now, the Government was withholding between 22 and 45 per cent of the dedicated fuel tax, citing urgent needs for other services. This again clearly underlines the need to make the financing of the Road Maintenance Funds completely independent from government interference.



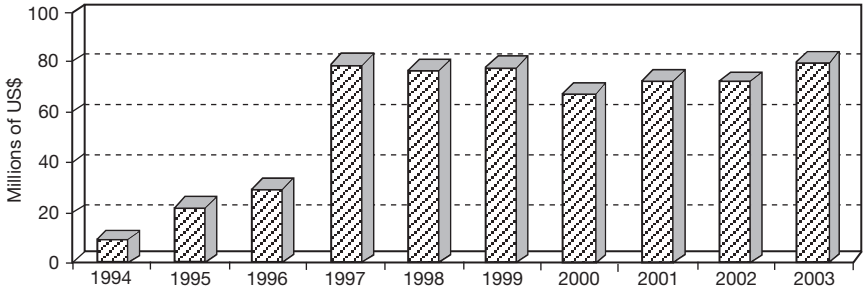
Source: Road Maintenance Fund, Honduras.

Figure 5. Flow of funds for road maintenance in Honduras

Guatemala

Guatemala passed a law in 1996 increasing the taxes on motor fuel and dedicating this increase and part of the existing fuel taxes to a special fund to be disbursed exclusively for road maintenance and improvement. The body governing this fund was created by a government decree in early 1997. Three members of its Board are government officials and three members are from the private sector. As in the case of Honduras, all works and services have to be contracted out to the private sector. The administrative cost of the Fund has been limited to 2 per cent of its annual turnover. The original intent by the Minister of Transport to create an autonomous Road Maintenance Fund had to be abandoned, as its approval required a two-thirds majority in the parliament, which the Government was unable to secure.

With the introduction of the Road Maintenance Fund (COVIAL), funds spent on road maintenance jumped from US$ 29.5 million in 1996 to US$ 72.6 million in 2002 (see figure 6).

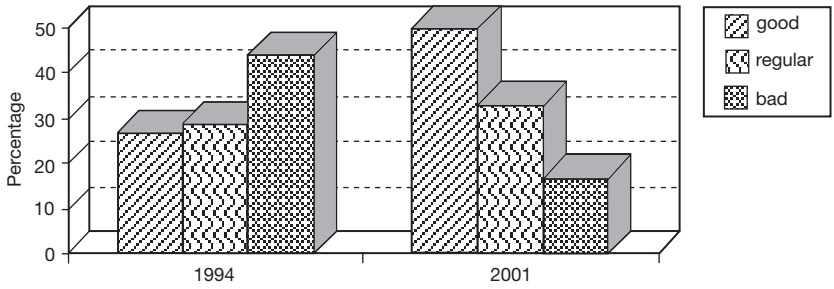


Source: COVIAL.

Figure 6. Financial resources spent on road maintenance in Guatemala

While in 1994 only 11 per cent of the 11,100 km road network received maintenance services, that figure had increased to 49 per cent of 14,340 km by 1999. Priority was given to paved roads, which received almost 100 per cent coverage. The condition of the paved roads has improved substantially since 1997 (see figure 7). However, this was partly due to road rehabilitation projects funded by government and external lending agencies, and not from the Road Maintenance Fund.

Until the end of 1999, the Road Maintenance Fund worked very effectively, creating a very favourable perception among the general public. The



Source: COVIAL.

Figure 7. Road conditions of the paved roads in Guatemala in 1994 and 2001

most notable improvement was the disappearance of potholes, which had annoyed road users. In 2000, a new Government assumed power and the performance of the Fund dropped considerably. Political influence and frequent changes of the director of COVIAL made effective and efficient operation of the Road Maintenance Fund difficult.

Illegal procurement procedures initiated by politically appointed members were rejected by the board members from the private sector. Consequently, there was an attempt to reassign the funds dedicated to COVIAL to another fund, which the Government had more control over. This attempt was abandoned due to intervention by the World Bank, the Inter-American Bank and GTZ.

Costa Rica

Costa Rica created its National Road Fund in 1998. The Fund's main source of income is a fuel levy. The fund takes care of the maintenance, rehabilitation and improvement of the national road network. Priority in funding is given to routine and periodic maintenance. The Board has three members from the central Government (all from the Ministry of Public Works and Transport), one member representing the municipalities and three members from the private sector. The private sector representatives are nominated by their respective organizations. As in the cases of Honduras and Guatemala, the Fund is obliged to contract out all works and services to the private sector. Unfortunately, the fund has to abide by government rules concerning wages and letting of contracts, which may have negative effects on its efficiency.

In its first two years of operation, the National Road Fund did not receive the full amount of funding it was supposed to under the road fund law, with more than 30 per cent of its funding being withheld until the year 2000. This underlines once more the necessity of depositing funds directly into a road fund account instead of channelling them through the government.

In order to improve the financial base of the National Road Fund, the Government dedicated funds to a municipal road fund and passed a new law in July 2001 assigning 30 per cent of fuel taxes to the road sector, out of which 75 per cent goes to national roads and 25 per cent to municipal roads. For 2003, the total amount to be collected for the two road funds was estimated to be equivalent to US$ 130 million. The municipalities were receiving funds on the basis of a formula that included the length of their road network among other factors and were required to have matching funds from their own sources.

Nicaragua

In June 2000, Nicaragua passed a law creating its Road Maintenance Fund, an autonomous body governed by a board. The board has two members representing the national Government, one representing local governments, and three representing direct and indirect road users. The Road Maintenance Fund is responsible for the periodic and routine maintenance of the national road network, which includes a major part of the rural roads in Nicaragua. In addition, up to 10 per cent of the Fund's annual budget can be spent on minor rehabilitation works.

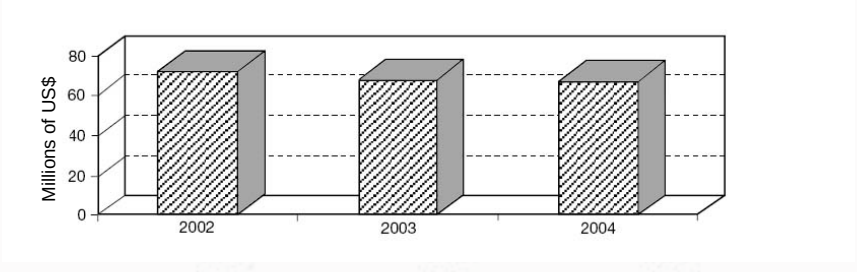
As in the three countries mentioned above, all works and services must be contracted out to the private sector. Besides having internal audits, the Fund is audited annually by an independent auditor. In addition, it is planned to regularly inform road users about the Fund's performance.

In order to win public support, the Government initiated an extensive public awareness campaign prior to creating the Road Maintenance Fund and decided not to increase fuel prices in the initial stage of creating the Fund. To provide the initial funding, it was proposed that a part of the existing fuel taxes would be converted to a dedicated fuel tax. Ultimately this measure was not approved due to objections raised by the Ministry of Finance. This left the financing of the Road Maintenance Fund to the Government's normal budgetary process. The Road Maintenance Fund continues to be financed through the general budget. This has left it under-financed and unable to maintain the national road network to high standards.

El Salvador

El Salvador created its Road Maintenance Fund in November 2000. It is an autonomous body supervised by a board having two members from the central Government, three members representing indirect road users, and two members representing direct road users.

The Road Maintenance Fund (FOVIAL) is responsible for maintaining the national road network. A fuel levy of US$ 0.20 per litre was written into law in November 2001. FOVIAL has enjoyed a stable budget since then (see figure 8).



Source: FOVIAL.

Figure 8. Income of FOVIAL

FOVIAL has received 100 per cent of the dedicated fuel taxes, making it an exception among Central America's road maintenance funds. FOVIAL seems to be the most effective and efficient Road Maintenance Fund in Central America, covering 100 per cent of the paved national road network and 96 per cent of unpaved national roads, totalling 5,390 km in 2003.

FOVIAL is managed by a small staff of 29 persons (see figure 9) tasked with contracting all works and services to the private sector.

An excellent public relations programme is another impressive achievement of FOVIAL. Besides using the Internet to inform road users on the condition of the roads and the works being undertaken, there are daily news releases as well as daily advertisements in the major newspapers informing the public on the road works undertaken by FOVIAL and the benefit of such works.

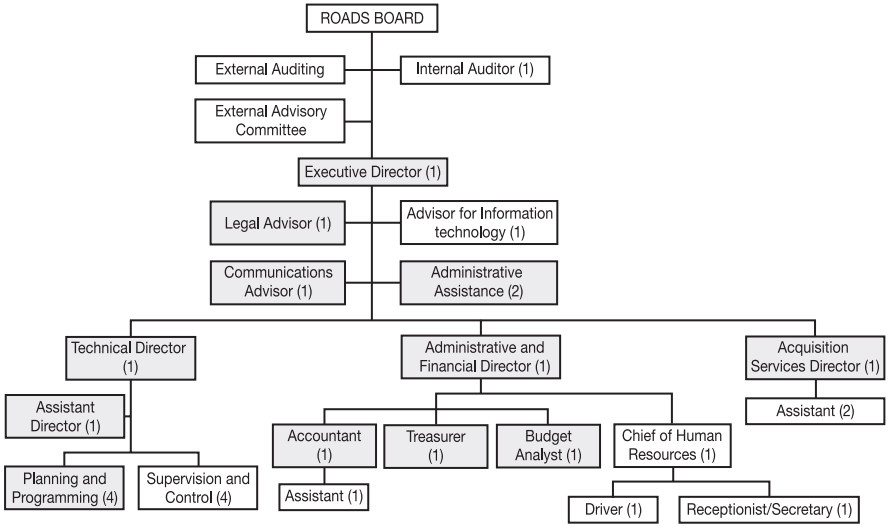


Figure 9. Organization chart of FOVIAL

Brazil

Four Brazilian states have created autonomous road funds – Mato Grosso in June 1999, Mato Grosso do Sul in March 2000, Paraná in December 2000 and Goiás in January 2001.

The road funds in the Mato Grosso and Mato Grosso do Sul have similar characteristics. Both states have boards with a majority of members coming from the public sector and finance the fund through a levy on motor vehicle fuels and agricultural goods. The boards are responsible for construction, rehabilitation and maintenance of roads. Since both states were predominantly agricultural and needed to expand their road networks, it was deemed necessary to include road construction and rehabilitation as well. In order to meet the additional financial requirements for road construction and rehabilitation, the financial base of the road fund was broadened through levies on agricultural goods.

The road fund in Paraná is a more traditional road maintenance fund. Funding is provided exclusively by a levy on motor vehicle fuels. The board consists of 2 representatives of the state government, 1 representative of the parliament, 1 representative of the municipalities, and 10 representatives of direct and indirect road users. In Goiás, the Road Fund is financed through vehicle licensing fees. The board concentrates on road maintenance, and the majority of its members are from the private sector.

Several other states in Brazil are in the process of creating similar Road Funds. At the federal level, the parliament amended the constitution in December 2001 to permit the dedication of some of the fuel taxes for transport purposes. The corresponding law was passed at the same time but has not yet taken effect. The major portion of the approximately US$ 3 billion in dedicated fuel taxes would most likely go to the road sector. As a preliminary measure, US$ 120 million was assigned to the federal states for road maintenance in January 2004. Since then, the amount assigned by the Government to the federal states has increased substantially.

Other countries, such as Ecuador and Mexico, are discussing the creation of road maintenance funds but are still far from reaching a consensus. In Peru and Colombia, the initial progress towards establishing road maintenance funds has suffered major setbacks as Governments and their priorities have changed. Nevertheless, the urgency of reforming the inefficient financing mechanism and management of the road maintenance system in these countries is increasing.

In June 2003, the Committee of Transport Ministers of Central America formed a Subcommittee on Road Funds. This should enhance the exchange of information between the road funds in Central America and is expected to contribute to the stability and long-term survival of these funds. A similar initiative is being planned for the road funds in Brazil.

V. LESSONS LEARNED

Since Latin America's road maintenance funds have started operating fairly recently, it is too early to judge their performance or long-term sustainability. Nevertheless, some lessons can be drawn from the process of creating these funds.

A broad consensus among all stakeholders is an essential prerequisite for creating a road maintenance fund. In order to arrive at such a consensus, it is necessary:

(a) To create a forum for discussion by holding a series of seminars with officials at different levels of government; political parties and organizations representing direct and indirect road users, such as trucking associations, bus operators' associations, automobile associations, farmers' associations, and chambers of commerce and industry;

(b) To clearly demonstrate the economic consequences of poor road maintenance to all concerned parties. Generally, neither government nor road users are aware of the enormous economic consequences they face due to lack of proper road maintenance;

(c) To present government and road users with an attractive concept for reforming the finance and management of road maintenance. In order to obtain the agreement of road users, who will have to foot the bill, it is essential to give them some control over the funds to make sure that the money will be spent effectively and efficiently;

(d) To keep the public informed by means of a media campaign, including television and radio spots as well as newspaper articles. The public relations campaign needs to be maintained not only prior to creating a road maintenance fund but also during its operation.

It seems to be easier and faster to create road maintenance funds in smaller countries with poor road conditions than in larger countries with better roads. While the smaller countries in Central America were fairly quick to create such funds, larger countries such as Brazil, Colombia or Peru faced much greater difficulties in coming to a consensus.

Reliance on dedicated fuel taxes to finance road maintenance can put the sustainability of the dedicated fund at risk, especially if funds are to be channelled through the Government. In 1998, the Government of Guatemala had to fight off an initiative of the parliamentary opposition to divert the dedicated fuel tax to education. Since taxes form part of the general budget, governments and legislators often consider them to be resources that can be easily reassigned for other purposes. This situation changes if road user charges are legally defined as user fees. In addition, if proceeds are channelled through the Government, there is always a danger that funds will be diverted, even if this is against the law, as happened in Costa Rica and Honduras.

The creation of an autonomous road fund and the establishment of a fuel levy may require passing new laws. However, governments and parliaments are often reluctant to do so, especially close to upcoming elections. The best strategy seems to be to enact the new law(s) during the early days of a new administration, provided a broad consensus among all major stakeholders was reached during the preceding period, as was the case in Guatemala, Costa Rica and El Salvador.

As raising fuel prices are always a politically sensitive issue, increases in fuel levies should be gradual and in line with savings in vehicle operating costs gained from improved road conditions. This would also help to limit inflationary effects on economy. To ease the burden on road users at the beginning, consideration can be made to transform a portion of any existing fuel taxes into a fuel levy for road maintenance, as was the case in Guatemala. Road users often argue that they already pay enough fuel taxes and that the government should dedicate at least a portion of those taxes to road maintenance on a permanent basis.

Whether the road maintenance funds that had been established or are in the process of being established in Latin America will survive in the long run remains to be seen. The more a road maintenance fund follows the principles that help to make it sustainable, the greater the chances of its survival. But the funds are also very much dependent on the environment in which they operate. The political, economic and social stability of a country, as well as a well-established culture of citizen participation in public policy are essential for their long-term survival. It is the operating environment in many countries in Latin America that seems to pose the greatest challenge to existing and future road maintenance funds.

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