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Road Funds:
Lessons Learned From Overseas Experience

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Abstrak

Generasi pertama dari Road Funds diperkenalkan pada tahun-tahun 1960-an dan 1970-an di Afrika, Asia, and Amerika Latin. Karakteristik dari generasi pertama ini adalah antara lain lemahnya kerangka hukum, ketergantungan pada anggaran pemerintah yang di-"earmarked", dikelola oleh departemen teknis pemerintah, dan tidak memiliki semacam badan pengawas. Generasi kedua dari Road Fund muncul pada sekitar awal tahun 1990-an bersaman dengan lahirnya pemikiran baru untuk mengelola jalan secara lebih profesional dan komersial. Berbeda dengan generasi pertama, Road Funds yang baru ini mendapatkan sumber dananya dari pajak pengguna jalan (Road User Charge), dikelola oleh badan diluar pemerintahan, memiliki dasar hukum yang kuat, dan dikontrol oleh sebuah badan pengawas independent yang terdiri dari wakil-wakil pemerintah dan swasta. Tulisan ini membahas keberadaan Road Fund, melihat keuntungan dan kerugiannya, serta melihat relevansinya dengan kondisi Indonesia.

Abstract

The first generation of Road Funds were set up during the 1960's and 1970's in Africa, Asia, and Latin America. They were characterized by weak legal basis, relied on earmarked revenues, typically managed by national road agency, and have no oversight board. The second generation road fund was born in early 1990's with the introduction of new thought of commercial management of road. They were distinct from the first generation by having revenues generated from charges related to road use, managed through a separate administration, supported by sound legislation, and by having a public-private oversight board made up of nominees of organizations with a strong vested interest in well-managed roads. This paper discusses the history of Road Funds, examines their advantages and disadvantages, and studies their impacts on the road management.

1. Introduction

In spite of their importance, most roads in many countries (including Indonesia), are managed and financed by bureacratic road departments in the same way that social services are managed and financed. But road departments are now seriously short of funds for road maintenance and investment and requests for additional resources from government's budget to overcome the problem have so far been unsuccessful. Traffic congestion has become pandemic and there is a huge backlog of deferred maintenance. In the 85 countries that had received Wold Bank road assistance during the 1980s, maintenance had been so low that nearly 15 percent of the capital invested in the main roads - roughly $ 43 billion- had been eroded [1]. Indonesia, for example, requires a state development budget of Rp.6 to 7 trillion per year to keep the roads in a maintainable condition, but has recently allocated only Rp. 3.5 trillion for roads. The result is clear : in 2000, only 19 percent of more than 291,000 km road network are in good and stable condition, and 63 percent of more than 213,000 km Kabupaten roads are in poor and bad condition.

The time of heavy dependence on state general budget seems to be over as roads have grown too large to be fully financed through general tax revenues. Alternative road funding outside of general budget has now become necessary and Road Funds have been considered as a way to overcome funding insufficiency.

Evidently road fund concepts have been successfully applied in many other countries, but this does not necessarily mean they are suited to Indonesia. While the principles underlying them are clearly worth pursuing, this must be done in recognition of Indonesia's own circumstances. These include the current decentralization process and its embryonic arrangements for regional autonomy; the size, condition and division of responsibilities for the road network; the way road works are currently planned, financed and implemented; and the potential sources of revenue that could contribute to a system of cost recovery. Current legal frameworks in Indonesia are also not sufficient to support the implementation of Road Funds, let alone the institutional structure to carry out road development in a commercial, transparent and accountable manners. The appropriateness of Road Funds in Indonesia has been recently studied by the Office of Ministry of Settlements and Regional Infrastructures with the assistance of the World Bank (Dikun and Lee, 2001).

2. Overseas Experience

2.1 Types of Road Fund

Road funds have been of very many different kinds: trust funds as in post-war Japan and the US, used mostly to finance new road development; funds designed to protect road budgets from the claims of competing sectors, as in much of Africa during the 1960s and 1970s; funds established in the former Soviet Union in response to a general lack of budget resources; funds financed from general tax revenues established in conjunction with autonomous or semi-autonomous road agencies, as in the UK; and funds, financed at least in part from user charges, managed on an agency basis, as in New Zealand, Sweden, Zambia and Malawi. Most funds have been set up under special legislation (the most common option), or under ministerial or presidential decrees (in West Africa, Mozambique, Yemen). A few (e.g. Lesotho, Tanzania, Zambia) have relied on taxation powers under an existing finance act. Separate legislation offers the strongest degree of protection from raids and improper use – an important concern in Indonesia – but can be inflexible if drafted without adequate foresight (as in Romania, where cost sharing and the fuel levy rate cannot easily be changed).

Several road funds are still managed by the road agency itself (e.g. Hungary, Japan, Latvia, Romania, Russia) but most have moved or are moving towards establishing a separate entity headed by a secretary or chief executive appointed by the board and supported by a small secretariat. Rarely now are road funds managed within the treasury or operated simply as a bank account. Ghana's fund, for example, was established in 1985 as a "paper" fund consisting of little more than a bank account from which three competing road agencies (responsible for highways, feeder roads and urban roads) withdrew funds. There was no formal chain of responsibility and there were delays in payments and leakage of funds. In 1997, the fund was restructured under a thirteen-member board, eight of whom are from the private sector. It now operates successfully, distributing funds to the three agencies according to agreed work programs.

Some funds, especially in Latin America, finance only road maintenance; others give priority to maintenance but allow a limited amount of rehabilitation, upgrading and new works (some countries put a cap on such expenditures); while yet others finance all road expenditures. Most funds derive their revenues from a combination of levies on fuel, vehicle licence fees, international transit fees and fines for truck overloading. For fuel-based charges, Japan, New Zealand and the US levy only transport fuels; others (e.g. Latvia, Mozambique) have arrangements to compensate non-road users of diesel. Some (Georgia, Korea, Russia, the US) include revenues from non-road-related taxes, i.e.

they involve some earmarking of general tax revenues.

There are several different approaches to setting user tariffs: (i) as part of the overall budget debate (as in the US); (ii) in the national budget on the recommendation of the oversight board (Lesotho, Yemen, Zambia); (iii) on the basis of a road plan prepared by the national road agency (Japan); (iv) on the basis of the funds required to meet a cut-off benefit/cost ratio (New Zealand); and (v) on the decision of the board itself, usually after ministerial approval (Malawi, Namibia). Georgia and Romania require an amendment to the road fund legislation; Mozambique requires a complex process of consultation and approval involving several ministries. Note that any arrangement which places responsibility on government reduces the sense of ownership by users and breaks the willingness-to-pay link between user tariffs and road expenditures.

A growing number of countries (e.g. Ghana, Malawi, New Zealand, Romania, Yemen) allow road tariffs to be deposited directly into the road fund. Some funds are simply lines of credit under a single national budget heading (Japan, US). For some (e.g. Mozambique, Tanzania), revenues are transferred from the government's consolidated fund, but this puts the fund at risk from competing budget claims. Lesotho and Sierra Leone deposit revenues directly into the road fund, but have paper transactions through the consolidated fund.

Most funds have detailed and strict regulations governing the operation of the fund, but some (usually the less successful) simply rely on government audit procedures. Increasingly, independent audits and transparent reporting arrangements are required. Table 1 below summarizes the features of a representative cross-section of them.

3. Lessons Learned

3.1 Early Attempts of Road Funds

Mostly introduced during the 1970s and 1980s, early attempts at establishing road funds tended to have the limited aim of protecting road funding from budget cuts at times of fiscal constraint. Stand-alone accounts were set up outside the normal budgetary process, funded by earmarked general tax revenues. Some of these funds financed all road expenditures, others only maintenance; some funded national/arterial roads, others regional/secondary or urban roads too. Some also funded public transport and road safety enforcement. There were also wide variations in arrangements for management and financial control.

Most of these "first generation" funds were not successful. They were typically characterized by: weak protection in law, hence an inability to secure the funds' proceeds from raids for other uses, whether authorized or not; a reliance on earmarked general tax revenues, diverting funds away from other sectors – which naturally undermined political support – and creating no clear link with road user tariffs; weak arrangements for supervision, financial control and technical and financial audit. Often no objective criteria were set to determine the distribution of fund proceeds among regions, types of road and road works. Weak financial controls and reporting arrangements allowed funds to be spent for purposes other than intended or to be diverted for political or personal benefit; unsatisfactory and ineffective day-to-day management, often by a national road agency with no incentive to minimize costs and pursue efficiency in planning and implementation.

3.2. More Commercial Approach to Managing Roads

A new generation of funds began to be established during the 1980s and 1990s. They recognized that roads had been badly managed and under-funded largely because of weak institutional arrangements. In most cases, in contrast with first-generation funds, their aim was to "commercialize" roads and manage them as valuable assets in a more business-like way on a fee-for-service basis. They generally had the following features:

Table 1.
Characteristics of Selected Road Funds

Country	*Legal basis*	*Oversight*	*Type of entity*	*What does it finance*	*Main source of revenues*
Ghana	Decree 1985, legislation 1996	Public/private board	Separate agency	All expenditures	Fuel levy, transit fees, vehicle fees
Guatemala	Legislation 1993	Public/private board	Separate agency	Maintenance of national roads only	Fuel taxes, vehicle fees, tolls, miscellaneous
Hungary	Cabinet decree 1989, state law 1992	Road agency	Division of road agency	All expenditures on state roads plus transfers to municipalities	Fuel levy, weight-related vehicle tax, donor finance
Japan	Special account law 1954	Road council	Division in Road Bureau	All expenditures on national roads plus transfers to local governments	Gasoline tax, LPG tax, vehicle tonnage tax, general budget
Korea	Special account law 1989, amended 1994	Ministry of Construction & Transport	n.a.	All expenditures on national roads, some on expressways and provincial roads	Fuel tax, excise tax, tolls, general budget
Latvia	Cabinet decree 1994	Public/private advisory board	Division of road agency	All expenditures on state roads plus transfers to municipalities	Fuel tax, vehicle fees, general budget
New Zealand	Legislation 1953, amended 1996	Primarily private board	Separate agency	All expenditures	Weight-distance charges, fuel levy, vehicle fees
Malawi	Legislation 1997	Public/private board	Separate agency	All expenditures, maintenance priority	Fuel levy, vehicle licences, transit fees, overload fines
Romania	Legislation 1996	Ministry of Transport	Division of Ministry of Transport	All expenditures plus transfers to counties and villages	Fuel levy, vehicle sales tax
Russia	Legislation 1992	Federal Highway Department	Division in Highway Department	All road expenditures plus transfers to regions	Fuel and lubricant tax, vehicle sales tax
South Africa	Legislation 1935, plus amendments	Public/private board	Staff in director's office	All expenditures on national roads	General budget since 1986
United States	Legislation 1956	Committees of Congress	Accounting mechanism managed by Treasury	Primarily capital works on federal-aided highways	Fuel tax, vehicle sales tax, heavy-vehicle tax
Yemen	Presidential decree 1995, ratified by Parliament	Civil service board [c]	Separate agency	Maintenance only	Gasoline levy, overload fines, general budget

Source: Heggie, I.G and P.Vickers, 1998

- their revenues were primarily from road user charges – an explicit road tariff or fee-for-service – usually made up of (i) a vehicle-related component levied at the time of vehicle registration to reflect the relative pavement-damage costs caused by different sizes and configurations of vehicle and (ii) a use-related component, usually levied as a surcharge on the price of fuel;

- except where government allocations were converted into an equivalent user charge, they tended not to involve transfers from the government budget – i.e. they did not take money away from schools, hospitals etc. – but drew on *additional* tariff payments made by road users;
- these tariffs created an explicit link between what users paid for roads and the quality of roads that resulted: a form of quasi-market discipline that encouraged users to demand value for money and allowed expenditures on roads to reflect users' willingness to pay;
- the tariff revenues were deposited into a road fund managed and supervized in a fully transparent way by an independent board (supported by a small secretariat) representing the interests of users – the very people who paid the tariffs and who therefore had a vested interest in obtaining maximum value for money.

The advantages of these mostly successful arrangements stem mainly from the link between what users pay (by way of road tariffs) and what they get back (by way of better built and maintained roads). The road fund acts as purchaser of road-related services (planning, design, construction, maintenance, supervision) on behalf of users, with users' representatives closely involved in the decision-making process.

Users are able to influence the costs and quality of these services (through competitive tendering) as well as the overall level of road funding (through decisions about the level of tariffs they are willing to pay). They are more likely to be willing to pay road tariffs if they can see that they directly result in lower user costs and that the funds are managed responsibly and transparently in their interests. This enhanced sense of ownership puts pressure on the road agencies, whether national, provincial or local, to improve the efficiency and quality of the road-related services they supply. The significant assets that roads represent are thereby managed in the interests of users' fundamental objective: *to minimize the total costs of the road system for any given level of demand.*

Table 2 summarizes the advantages and disadvantages of different types of fund, feature by feature. In general, the more successful funds are those that (i) are an integral part of a wider process of road sector reform and (ii) have won the confidence of road users through transparent and responsible management. Ideally, a road fund (or system of road funds) should :

- not simply be a means of avoiding strict budget discipline by moving road funding off-budget. The fund's management and operation should strengthen, not weaken, control over the efficient allocation of resources. Priorities should be based on rational criteria, as with the current IIRMS. Decision-making should be subject to independent review and audit.
- establish a clear link between the tariffs users pay and the expenditures made from the fund. A sense of *ownership* by road users should be engendered, so that decisions about the level of road tariffs and distribution of the fund's proceeds reflect a willingness to pay for better roads.
- take the form of an agency that acts as purchaser, not provider, of road maintenance and development services. There should be a clear distinction between the function of managing the fund and that of building and maintaining roads. The fund should be managed in accordance with sound business practices and with management held fully accountable for the quality and performance of the network, using output/performance indicators that reflect the aim of minimising total network costs, including user costs.
- use the incentives of competition to put pressure on costs and quality. This should certainly apply to planning, design, construction, maintenance and supervision services, but could even be extended to selected management functions for the fund itself, which could be outsourced under competitive contract.

Table 2:
Advantages and Disadvantages of Different Road Fund Features

Characte -ristic	*Options*	*Examples*	*Advantages*	*Disadvantages*	*Comments*
Type of fund	Finance only national roads	South Africa, US, Guatemala	Administrative simplicity; no complications involving regional governments	Inappropriate where user charges (e.g. fuel levy) relate to use of the whole network Can result in only part of the network being well financed	The funds can financing national, provincial and kabupaten/kota roads
	Finance national roads; support maintenance of local government roads through grants	Korea, Latvia, Russia	Road fund supports all roads Grant contributions confined to what the fund can afford after needs of national roads are met Supports decentralized responsibility for roads	Relies on revenue-raising powers and technical capabilities of local governments	Latvia permits regional municipalities to establish their own road funds to administer the grants – possible option for Indonesia
	Finance all roads, but finance local roads on a cost-sharing basis with local governments	Ghana, New Zealand, Zambia	Best accommodates a needs-based approach to road funding Supports system of decentralized responsibility for roads Facilitates standardisation of needs-assessment and planning procedures	Requires priority-setting criteria and fund-management arrangements to be agreed with local governments Relies on revenue-raising powers and technical capabilities of local governments	Possible option for Indonesia, linked to system of special grants to regions
Legal basis	Finance act Ministerial or presidential decree	Latvia, Yemen, Ghana (pre 1996), Korea and Japan (special account laws)	Simple, uses existing powers	Can be revoked or amended relatively easily; easy to relax controls Provides only temporary basis for the road fund Requires revenues to be paid into the consolidated fund, introducing delays and increasing the risks of diversion	Offers little advantage over existing budgeting arrangements because of the need to pay central and regional revenues into consolidated funds
	Special-purpose legislation	Ghana, Guatemala, Hungary, N. Zealand, Malawi, Romania, Russia, South Africa, US	Provides strongest basis for the road fund: allows controls over management and uses of the fund to be specified clearly and strongly Minimizes risk of abuse (if legislation carefully drafted)	Needs high-level support and more time for consultations Difficult to change	Usually required for road funds established at arms-length from gov't and involving private-sector or out-sourced management
Over-sight arrange-ments	Government supervision	Hungary, Japan, Korea, Romania, Russia, US, Yemen	Government control over fund management	Decisions do not necessarily represent the views of users; breaks the willing-to-pay link between tariffs and expenditures	Suitable only where there is confidence in government institutions
	Public/private advisory board	Latvia	Views of users are taken into account in decisions about fund management	Advisory board might have little practical influence over decision-making	Advisory role likely to be ineffective in Indonesia

Characte -ristic	*Options*	*Examples*	*Advantages*	*Disadvantages*	*Comments*
	Public/private executive board	Ghana, Guatemala, N.Zealand, Malawi, South Africa	Views of users (representatives of those who pay the tariffs) have primary influence over fund management	Government might perceive a risk of loss of control Need for strict management and financial controls	Most successful funds in developing countries involve this type of oversight arrangement
Relation-ship with network manage ment	Same entity manages road fund and road network	Sierra Leone, South Africa	Simplicity; best where the whole network is managed by a single agency (not the case in Indonesia)	Conflicts of interest arise when the fund finances more than the road agency's responsibilities – it will tend to give priority to its own part of the network	Should only be used if one agency manages the entire network – not the case in Indonesia
	Separate entities manage road fund and road network	Ghana, Lesotho, New Zealand, Malawi, Zambia	Eliminates conflict of interest; fund able to act as purchaser of road-related services Even-handedness in distribution of funds	Risk of empire-building, but this can be controlled	Likely to be best option for Indonesia, but probably not suited to district level of government
Expendit ure planning and priority setting	Formula-based	Latvia, Mozambiqu e, Romania, Zambia, Hungary – usually in conjunction with need indicators	Predictability of funding at each level Accommodates variations in planning procedures and criteria Each agency is perceived to get its "fair share" of funds (once the formula has been agreed)	Funding proportions need to be reviewed regularly, otherwise sharing formula will not reflect true needs Share process can be dominated by stronger agencies	Unnecessary in Indonesia if IIRMS can continue to be used
	Needs-based	New Zealand	Revenues are allocated rationally on basis of road conditions and traffic Funds can be allocated to maximise economic returns	Requires agreement between agencies on planning approach (e.g. in Indonesia, regional agencies would need to agree on the use of IIRMS)	Indonesia's IIRMS lends itself well to this approach
Qualify-ing expendit ures	Routine and periodic maintenance	Most Latin American funds, Yemen	Simplicity; focuses simply on maintaining existing assets Little political contention; no connotation of a "project"; leaves road development to be addressed through the normal budget process	More difficult to fund rehabilitation/re-construction and new road development	Offers advantages for Indonesia
	Rehabilitation and reconstruction	Most other funds	Allows catch-up repairs to be funded on a stable basis	Higher user tariffs – users have to pay for past government neglect of maintenance.	Could include later, after maintenance-based fund is operational
	New construction		Provides a reliable source of funds for new road development	Yet higher user tariffs, often with no direct link with new construction (users in one area pay for new roads in another) Imposes a political role on the fund's managers	Political dimension of new projects will detract from the arguments in favour of the fund

Characte -ristic	*Options*	*Examples*	*Advantages*	*Disadvantages*	*Comments*
Sources of revenue	Fuel-based levy	Almost all funds	Revenues closely related to vehicle-kms of travel, hence costs that vary with road use	Drivers do not necessarily perceive the link between a fuel levy and road-related costs	In combination, these two tariff instruments can be used to make users contribute to their fair share of the road costs incurred
	Vehicle-based levy	Almost all funds	If tariffs are based on axle loads, revenues are related to potential road damage, hence road maintenance costs that vary with laden axle weight	Unless explicitly identified as such, vehicle owners rarely perceive the link between the annual vehicle tax and road-related costs	
	International transit fees	Ghana, Malawi	Allows foreign users of roads to contribute to the costs they cause to be incurred		Not relevant to Indonesia; no international transit traffic
	Overloading fines	Malawi, Yemen	Can be used to make truck users face the costs of overloading (but fines to deter overloading would need to be higher than marginal road damage costs)	Risk of informal collections; unreliable as a source of road funding	Difficult to police in Indonesia
	Other (general budget provision, excise tax, vehicle sales tax, etc.)	South Africa, Honduras and Japan, Russia and US, Georgia	Taps additional sources of funds, resulting in lower user charges	Akin to earmarking; likely resistance from non-road sectors Additional funding sources are at risk from claims from competing sectors	Likely to be resisted in Indonesia
	Recovery of externalities	Singa-pore	The costs of externalities like noise, air pollution, congestion delays could be recovered by location-specific user charges (e.g. electronic road pricing), but these are difficult and expensive to implement. Better to allow urban areas to establish their own location-specific measures to control externalities.		Indonesian cities are probably not ready for this
Collect-ing and deposit-ing the revenues	Via consolidated fund	Japan, US, Lesotho and Sierra Leone, Mozam-bique, Tanzania	Government control over expenditures through the fund	Funding at risk from corruption and competing claims from other sectors	
	Directly to the road fund	Ghana, Malawi, New Zealand, Romania, Yemen, Lesotho, Sierra Leone	Stability and reliability of funding Allows better financial controls Allows participation of users in management decisions Minimises risk of raids for other authorised or unauthorised uses Facilitates revenue collection under contract	Might be perceived as involving loss of government control Requires strong audit arrangements	Most successful funds use this option; others are moving towards it

Characte -ristic	Options	Examples	Advantages	Disadvantages	Comments
Adjusting the tariffs	Under government tax powers	Most road funds	Government has final say in decisions about road tariffs; decisions can reflect perceived political considerations	Breaks willingness-to-pay principle (link between users' willingness to pay and the resulting quality of roads)	Government will almost certainly insist on this option
	Board sets rates	Malawi, Namibia	Maintains strong link between users' willingness to pay and the resulting quality of roads Facilitates management accountability and user involvement in road management	Government might perceive a loss of control	This option maximises accountability and efficiency incentives.
Disburse -ment arrange ments	Regular disbursement with ex post auditing	New Zealand	Encourages road agencies to establish effective systems and procedures (subject to audit by the fund)	Requires good governance, competent road agencies and highly decentralised system of road management	Possibly not suited to decentralized arrangements in Indonesia
	Approval and payment on completion	US	Mandatory certification (by road agency) of works completed gives greater control Road agencies maintain an important role in project supervision and certification	Possibility of collusion between contractor and road agency	
	Direct payment to contractor	Benin, Mozambique, Zambia	Greater oversight by road fund; payment is made directly to contractor upon certification by road agency or supervising consultant Limits risk of corruption	Reduces the role of the road agency	Best option when strict controls are needed to reduce corruption
Management of the fund	Accounting and management procedures	All road funds have formal procedures to ensure financial and management control Most use existing tax collecting agencies to collect revenues; some contract out these functions	The most effective way of securing the integrity of the fund and minimise raids for other purposes is to specify controls over management and financial operations in the enabling legislation		
	Agreements with revenue collection and road management agencies		Irrespective of who collects road user tariffs initially, the option should be retained to contract out these functions in the future. If government agencies are used, the procedures should be formalised in a management agreement. Management agreements with road agencies would also help clarify responsibilities, procedures and performance measures.		
	Loans, banking and payments		Some funds are permitted to borrow to manage cash flow efficiently. Limits on borrowing should be clearly stated in the legislation. If regulations permit, the fund's proceeds should be deposited in a commercial bank account. Banks should be encouraged to compete in offering banking services. Controls over temporary purchases of securities and other instruments should be specified in the legislation. Cash flow should be carefully managed to minimise excessive balances.		
	Preventing unauthorized expenditures		Most unsuccessful funds fail because their proceeds are raided for other uses. Strict controls should be established in the legislation.		

- be subject to strong planning and financial management systems and associated controls. Rational planning procedures, such as those incorporated in the IIRMS, should be maintained and strengthened, with greater transparency in their application. Reporting arrangements should provide all necessary information to allow independent review of operations and decision-making. Independent technical and financial audits should be mandated.
- keep the task of fund management independent of government decision-making, at least as far as road maintenance is concerned (decisions about road development – new links and expanded capacity – should rightly involve the relevant level of government). A board should be established to manage the fund with majority private-sector participation and with restrictions on the ability of ministers or regional agency heads to appoint individual members.
- use as its principal source of revenue a clearly-identified system of road tariffs that reflects the contributions made by different types of vehicle to road costs. Contributions to the fund should constitute the major part of any system of road cost recovery. Earmarking a share of general taxation revenues should be avoided.
- be protected by legislation, so that its claim over road tariffs is clear, as are its responsibilities and functions, management arrangements, systems of technical, management and financial controls, permitted use of proceeds and reporting arrangements. The legislation should protect the fund from unauthorized uses.

4. The Indonesia Context

4.1. The Earmarking Issue

Road funds are sometimes criticized in the belief that they constitute a form of tax earmarking (assigning a fixed portion of general tax revenues for a particular purpose). The valid objection to earmarking is that it imposes unnecessary rigidity on the government's expenditure allocations; the earmarked revenues could possibly be used for other purposes offering higher economic or social returns.

Earlier road funds often did involve earmarking. Their revenues were a specified proportion of general tax revenues, taking funds away from other social and economic sectors (which was naturally resisted). But more recent funds, aimed at commercialising road sector management, generally do not involve earmarking. Their revenues are derived only from road user tariffs, not from general taxes, and are used only for road works. The tariff levels are adjusted regularly to reflect what users are willing to pay for better roads. The arrangement constitutes a surrogate market, with the managers of the road fund accountable to its customers (road users) for the quality and efficiency of road-related services. Road management systems, like the Indonesia Integrated Road Management System (IIRMS), are increasingly used to help ensure that the funds are allocated to maximise economic returns. And, by giving priority to road maintenance, the funds are assured of achieving very high returns on their expenditures.

4.2 Decentralization Issue

With the passage of Laws 22 and 25 in 1999 regarding the decentralization, Indonesia embarked on a dramatic and far-reaching change in its system of government administration. Law 22 transferred authority to the regions – with district (*kabupaten/kota*) governments being the primary focus – for all government responsibilities except foreign policy, defence, justice, fiscal and monetary affairs, religious affairs and strategic national planning. The transfer is to be accompanied by corresponding budgets, infrastructures, and staff to establish the capacity to take on these responsibilities. Law 25 states in very broad terms how the new regional government responsibilities are to be funded.

The two laws took effect from the start of 2001. They mark a fundamental shift away from the earlier highly centralized system. Central government's role is now markedly reduced. District governments now determine their own socio-economic and political priorities. They are no longer responsible to provincial and national administrations but are fully accountable to their elected regional assembly (DPRD). Their primary sources of funds are: (i) local taxes, charges and fees (PAD); (ii) a specified share of revenues from property (PBB) and property transfer (BPHTB) taxes; (iii) a specified share of revenues from exploitation of natural resources; and (iv) a system of general (DAU) and special (DAK) grants from national tax revenues.. At the risk of national economic and political unity •(and fiscal inefficiency), decentralization will strengthen, both financially and legally, lower levels of government, the activities of which will be largely outside the control of central authorities.

This raises important concerns. While decentralization seems essential to the reform process (which also embraces more open democracy, deregulation and greater public accountability), it is questionable whether governments at the district level have the skills to manage their new responsibilities. Certainly local problems will receive better attention, but this may be at the risk of duplication, inefficiency, fiscal irresponsi-bility and policies that are not in line with national priorities.

Most road responsibilities are being decentralized – indeed many already have been. Planning, financing, and executing the rehabilitation, maintenance, and development of provincial and district roads will be carried out by autonomous governments with or without the assistance of central government. Road funding will be decentralized, not least because vehicle registration taxes (PKB), vehicle ownership transfer fees (BBN-KB) and regional fuel taxes (PBB-KB) are collected directly by regions for their own purposes. Under the decentralization agenda, even if there is support for the general concepts underlying road funds, there is a risk that their implementation might vary significantly among regions.

4.3. Road Sector Reform

Roads in Indonesia are still managed by a bureaucratic government department and financed through general budget allocation. A full scale implementation of Road Funds requires an independent road agency (Road Board) with minimum or no intervention from government. This is because Road Fund is financed by road users and operates under a specific law and regulation. Road Fund, therefore, acts as an entry point for road sector reforms from a traditional road management run by government agency to a professional and accountable management run by professional, independent road agency. To ensure a smooth transformation, however, the staging implementation of Road Fund in Indonesia, should be pursued instead. Besides, Road Fund should firstly focus on the road maintenance and rehabilitation only while government budget could be allocated for road development programs.

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