

ADDRESSING THE SOCIAL ASPECTS OF URBAN TRANSPORT THROUGH A MORE EFFECTIVE FUNDING STRATEGY IN SOUTH AFRICA

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INTRODUCTION

The South African urban transport system is a dual and, in many instances, a dysfunctional one. It comprises on the one hand a car-based system in the most developed areas of the country where a “first world” way of life generously distributes houses, shopping malls, services and offices in such a way that the use of the private car is almost compulsory and, on the other, a semi-managed system in the poorer areas where people have to endure a very rudimentary and often unsafe transport system based on walking, cycling, buses, a run-down commuter rail system and an over-traded and poorly-regulated minibus taxi component.

There are various and many reasons for this state of affairs. They include an inappropriate political philosophy during the past that has led to inefficient land use arrangements, the inability to adequately manage and, particularly, to control the system and the lack of appropriate institutional arrangements at local authority level that has hindered intermodal balance and integrations of services. However, most of all, the problem has been one of a far from adequate government investment in the system during the past three or more decades.

Recognising that the provision of adequate urban transport facilities is essential to the social and economic fabric of our rapidly expanding metropolitan areas, government has recently embarked on various measures to redress the situation. An intrinsic element in this process is the putting in place of a comprehensive unified transport funding strategy.

A DYSFUNCTIONAL URBAN TRANSPORT SYSTEM

The South African urban transport system is one of contrasts. At the one end of the scale there are the “wealthy few” whose journeys are exclusively made in private cars with very low occupancy rates. At the other end there are a vast number of very poor persons who, as a result of past political philosophies, reside long distances from their work places – up to 60 kilometres or more in some cases.

Compounding this unfortunate situation is a great deal of institutional inertia and lack of capacity (both in terms of personnel resources and appropriate institutional arrangements) at provincial and local authority level in addressing the problems facing urban or commuter transport users.

Our recent history has been one of distant township and ex-homeland residential location, large rail and bus operator subsidies to transport workers from these distant residences, and an ineffectively regulated minibus taxi industry that is mired in conflict due to destructive competition within and between modes.

Various current trends are exacerbating the problems and threatening to entrench the status quo:

- new low-cost housing projects are being located far from major centres;
- commercial and industrial development is moving out of CBDs;
- bus and rail services are essentially “long-haul” commuter-based and require nearly R3 billion in subsidy each year;
- regulation of the minibus taxi industry is weak; and
- more and more people are switching to private cars for their daily transport needs.

A primary challenge facing urban transport in South Africa is one of a lack of affordable basic access for a large proportion of the population.

Thirteen percent or 2.8 million potential urban transport customers are stranded. They walk or cycle long distances for their primary trip purpose. In effect, they lack financial and/or physical access to the public transport system. The “stranded” are predicted to grow by 28% to 3.6 million by the year 2020 if nothing is done to address their needs. Forty-five percent of the “stranded” are unemployed and 42% are scholars. Even though government spent R2.8 billion in 1997 on bus and rail commuter subsidies, only 40% of “stranded” customers say they have access to a bus, and only 20% say they have access to a train, whilst 78% say they can access the unsubsidized and more expensive minibus taxi mode.

The public transport system is essentially failing its customers. For most indicators including access time, journey time, safety, security and fares, customer goals are not being met for large numbers of passengers.

Public transport supply is mostly characterised by a “one size fits all” service geared towards the lowest cost to the operator. Thirty three percent of “survival” customers (captive to the lowest mode) and 47% of “sensitive” customers (captive to public transport but more quality sensitive) are travelling longer than their door-to-door journey time goals. Public transport services are facing a spiral of decline with most operators not re-investing at even half their required levels for long-term sustainability. This results in very old vehicle fleets – the average age of existing taxis (at 9 years old) and buses (at 13 years old) puts both near to the end of their economically-useful lives. Cost coverage from fares is poor for the subsidised bus and rail modes with fare revenue covering approximately 30% of rail costs and around 50% of bus costs.

The one group of customers that are predominantly satisfied with their transport service are the “stubborn” – those who will only use their private car. Whilst they have been historically well served, even the “stubborn” segment could do with more choices. “Stubborn” customers are almost “forced” to use their cars through lack of alternative options and through indirect incentives which make the cost of car use relatively cheap, though recent increases in fuel prices are changing this situation. The trend is one of increasing congestion in urban areas as the car fleet is forecast to increase by 64% by 2020. The size of the “stubborn” customer segment is set to increase by 88% in size over the same period.

The potential loss of public transport customers to the private car is a major factor – of the 4.1 million “selectives” (those who can afford and/or have access to a car but are willing to use public transport), 2.6 million are currently conveyed on public transport.

Sub-optimal spatial planning is probably the biggest driver of public transport costs and the most difficult to turn around. Current land use planning is exacerbating the apartheid legacy of dormitory townships and long travel distances by locating new housing on the cheapest land, which tends to be on the urban periphery, far from urban centres as well as from the primary road and rail network. In addition, the decentralisation of office and retail development out of CBDs and into suburban locations is undermining the viability of public transport services and also causing private car congestion.

Thus, the goal of providing housing for low-income earners – as it is being currently implemented – is clashing with the goal of improving access to opportunities for all.

The combination of the legacy of apartheid spatial distortions with current dispersion trends undermines the ability of all forms of non-motorised and public transport to meet the mobility needs of customers, and results in high average commute distances when compared to international benchmarks. For example, the commute distance for urban customer segments ranges from an average 17km for the “stubborn” car-using segment up to 20km for the survival low-cost public transport user. This compares unfavourably with most European and Latin American cities where the average trip distance is well under 10km.

Long distances, dispersed settlements, almost no in-fill development on major routes and highly-peaked demand combine to produce a devastating impact on public transport vehicle utilisation rates and hence, on costs and overall industry sustainability. The average number of passengers carried on a South African bus per day is approximately 200 (around 100 for a minibus taxi) and that bus or minibus averages nearly 200 route kms per day. This performance is dismal when compared to Latin American and Asian urban bus services that carry 4 to 8 times (3 times for minibuses) more passengers per day whilst doing roughly similar route kms (ranges between 200 to 300 route kms per day).

This unfortunate situation cannot be allowed to continue and the strategic framework for transport in South Africa during the next one to two decades embraces proposals to address the problem that has been formulated.

The key strategic actions include the following:

- halting dispersion;
- diversification of transport carriers;
- the optimal deployment of modes to meet customer service requirements;
- corridor supportive infrastructure investment; and
- improving performance and productivity of both operators and authorities.

These strategic actions, however, will only be successful provided sustainability of the system can be improved through wise investment approaches since, at present, none of the modes are re-investing sufficient financial resources to cover the necessary re-investment costs.

Commuter rail spends only 20% of its subsidy on capital investment, its rolling stock is 25 years old on average and at least R350 million a year is required to halt rising maintenance costs and improve operational safety. The average age of the bus fleet is 13 years, having risen from 10 in 1991. Ridership has declined and the subsidy per passenger trip has increased by up to 50% in the 1990s. The average age of the minibus fleet is close to the end of its useful life. Low profit margins due to destructive competition, rising vehicle replacement costs and stagnant fare revenue are some of the crisis conditions currently facing taxi operators.

To turn this around over time, the proposed strategy supports innovative public-private partnerships in the form of concession contracts for commuter rail and competitive tendering for bus and taxi operators. These contracts for commuter rail will have to creatively deal with the re-investment crisis, especially in terms of setting standards for infrastructure, rolling stock and vehicle fleets that balance additional cost with customer needs.

Subsidies in the system need to be re-targeted in order to improve sustainability. Currently, subsidies are still caught up in the objectives of the apartheid era that prioritised long distance CBD bound commuters. The strategy aims to re-target subsidies to focus on the “stranded” and “survival” customer segments as the most in need. Subsidies, in general, will support the use of the optimal mode on a corridor and encourage feeder services to it. There is also a need to begin to switch subsidies from operations to capital investment in order to improve service and reduce operating costs.

In the medium to long term, sustainability across all modes should be greatly enhanced by the move to a corridor-based system with optimised modal deployment and improved utilisation levels. Improved utilisation of public transport fixed assets is the key to increasing revenue, reducing subsidy and improving service levels. Preliminary estimates indicate that modal optimisation on corridors could save up to 25% in costs.

Most of the actions to improve performance (e.g. planning, monitoring, enforcement, re-investment incentives, taxi formalisation incentives etc.) require a short-term funding injection into the system as well as a redirection of current funds and anticipated savings.

This short-term increase in funds should be viewed as an investment in that it creates the conditions for long-term financial sustainability through lower systems, particularly in the optimal corridor mode.

With the proposed full devolution of implementation to the local level, there is a need to ensure that stable sources and flows of funding follow. This requires stable allocations over an extended budgetary period to cater for the longer-term nature of certain transport investments.

A COMPREHENSIVE UNIFIED TRANSPORT FUNDING STRATEGY

Whilst adequate funding is essential for an effective public transport system, there are many other demands made on the total transport budget.

Unfortunately, the current South African transport system and infrastructure is in a state of rapid decline – for various reasons, but primarily because of systematic under-investment during the past decade or more. Estimated capital spending by the government as a percentage of long term capital requirements varies between 20% and 70% for the separate elements of the transport system. These deficits, or gaps, severely threaten the sustainability of our transport system. They include an annual R3.3 billion road under-funding, a national vehicle fleet which is operating at above 80% of its useful economic life, and systematic cross-subsidation within some entities that perpetuates poor operating practices in otherwise money-losing operations.

Taken together, the various gaps in the transport system suggest a severe inability on the part of the system to meet the needs imposed upon it in the coming years unless something is done to address the issue. In addition, there are indications of resource constraints, or an inappropriate system that costs too much, or both. Amongst others, certain factors stand out as a cause of the sustainability problem. These include:

- (i) insufficient funding;
- (ii) low levels of capacity to address the problem; and
- (iii) weak or absent mechanisms to enable the transport system in a co-ordinated fashion to anticipate changes in demand, or to respond to changes in national goals and customer needs. Institutional fragmentation in transport which has led to a multiplicity of authorities tasked with one or other element of the total transport system, as well as the disparate levels of authority within the system, detract significantly from the creation of an effective and optimum transport system with all elements working in unison.

Whilst there are many problems facing the transport industry, and a multitude of issues that require to be resolved, a significant step forward would be a unification of government investment in transport so that cohesion in the development of the individual sectors will assist in optimising the system in relation to the desperate demands imposed on the system.

All of transport infrastructure should be seen as part of an integrated chain to a greater or lesser degree. Any attempt at increasing passenger densities through a corridor approach should be complemented by adequate facilities at the nodes or end points. It would, for example, be pointless in increasing port capacities without ensuring adequate land side infrastructure to handle increased road or rail freight flows. There must be a strategic integration of total infrastructure investment.

If our transport system is to meet the needs of the country and its people into the future, it must be financially sustainable – if the system cannot support itself, all of the social and economic benefits of an efficient transport system will not be realised. There are many reasons why sustainability matters.

First and foremost, it is important for meeting customer needs for lowest transport costs, adequate levels of service, sufficient capacity and modal choice. Secondly, sustainability is a necessary condition for upgrading and maintenance of the system though it is not sufficient in itself. Thirdly, transport is a long-term facility – especially re-investment in infrastructure – that requires advance planning and certainty of funding availability. And fourthly, loss of one section could destabilise other parts of the system, creating undesirable effects on customers, system costs and service levels. At the heart of the problem lies the issue of adequate and secure funding within a unified budgetary approach.

A FUNDING FRAMEWORK FOR TRANSPORT

The transport strategy identified sustainability as one of the key challenges facing transport authorities. Sustainability rests primarily on an adequate and appropriate funding relationship between users and the transport system. Whilst there is evidence to indicate that, overall, through various forms of charging and taxation, the user contributes adequately towards the cost of a sustainable transport system, not all the income generated by the user finds its way into the system. There is, for example, no direct relationship between the fuel tax and the allocation of funds to transport. Another problem is that within the transport system, different components of the system are optimising against their own internal objectives often at the expense of the total system objectives. There is no system level approach to investment in transport infrastructure, as is the case in New Zealand, for example, where sustainable transport funding has been accepted as a strategic issue for the nation.

Clearly, the previous “traditional” approach to securing funding is ineffectual as far as Treasury is concerned, and there is an urgent need for a new funding strategy that will have general “buy-in” from stakeholders. The current arguments are ad hoc, sometimes unco-ordinated and even inconsistent between the various interested authorities.

A rational approach should gather all transport modes into one framework, should separate funding flows in respect of infrastructure, operations and maintenance, focus on the current on-budget-based funding system, and should also consider mechanisms such as anchor grants. The strategy should, moreover, take account of expected demographic and institutional trends as well as moves towards accessing private sector capital on an evolutionary basis. It will also need to take into account ongoing shifts in the country's economic policy whereby there is an imperative for the nation to be able to compete effectively in global markets.

In terms of the evolutionary reform of government institutions, expenditures and delivery mechanisms will have to be transparent. The strategy adopted towards transport funding will be a "bottom-up" scenario approach in which the minimum funding requirements for each component of the transport system will be investigated, and the impacts on the country of spending greater or lesser amounts in each case will be described using an affordability model. In this process, progress will have to be shown by streamlining the current system and, over time, eliminating unnecessary or duplicate expenditures.

The result of this would be a five year Transport Investment Programme. It will clarify the role and responsibilities of key players, take into account the implications of recent legislation and develop an appropriate on-budget financing system for the transport sector which will include, in all probability, formulae-based grants (capital/operations), a proper performance monitoring system and mechanisms for institutional co-ordination of investments.

FRAMEWORK FOR STRATEGY

For effectiveness, a Transport Infrastructure Investment Strategy should not be complex, but robust and easy to understand and promote amongst the general population. It should not lead to unnecessary burdens being placed on the people - it must be easily and regularly monitored and it must be based on accurate and realistic data.

The basic strategy proposed for a Transport Infrastructure Funding Strategy rests on, or is supported by, a few sound pillars. These are:

1. Developing an understanding of the transport system through the collection of accurate data for a proper analysis of the characteristics of the current system, wherein demands on the system, and the current capabilities, including resources, are properly revealed.
2. Analysing a rational and appropriate total transport system, which will serve as a catalyst for achieving government's overall goals at the least costs insofar as transport is concerned.
3. Promoting efficiency within the transport system by ensuring modal balance so that some elements are not overloaded, whilst others are under-utilised. Unnecessary duplication must be eliminated.
4. Developing an appreciation of the economic impact of transport expenditure within the wider social and business fabric of the country.
5. Deriving an approach or system which facilitates lowest overall "total" costs, i.e. optimising excess user costs with the costs of provision.
6. The implementation of pertinent and effective economic analyses to determine all benefits and costs of various transport investment alternatives.

7. Ensuring an easily understood economically and financially viable and politically saleable strategy.
8. Carrying out a thorough analysis of all available and relevant sources of revenue, including possible private sector involvement.

In particular, the strategy must address institutional arrangements and personnel resources and capabilities for proper and effective delivery, as well as control and monitor procedures to ensure that cost-effective delivery does in fact take place.

FINANCING PRINCIPLES AND INVESTMENT CRITERIA

There are certain principles that influence the choice of a specific approach to a funding strategy. In essence, a Transport Infrastructure Funding Strategy must be congruent with broad government economic and fiscal policy and, most particularly, take cognizance of the “politics” of the budgetary process. It should embrace various sources of revenue (a basket approach) and support ALL components of the transport system. It must be rational, appropriate and affordable and embrace all three levels of government.

Because the strategy and infrastructure investment programme, to be successful, must show early results, it will have to, at the initial stage, concentrate on current needs.

However, longer term needs cannot be neglected and will have to be analysed concurrently with the initial accent on short-term needs. In addition, short-term needs will have to be developed within the context of a longer term financial programme. For this reason, financial arrangements will have to be defined in a short, medium and long term fashion. Discussions with the Fiscal and Financial Commission and relevant government departments are essential to this process, and the strategy should be based on an integrated planning approach, both physical and financial, which involves, very closely, all three tiers of government transport activities.

Financing approaches do not necessarily have to be consistent across the whole spectrum of infrastructure and operations. Internal consistency should, however, be sought and distinction should be made between elements of “economic” infrastructure and operations which provide a measurable economic or financial return, and those which are necessary for social reasons.

The first category includes “economic” infrastructure (primary roads, railways, ports, airports, and pipelines), where the principle of user charging or cost recovery from direct users should be applied as far as possible, and which should be the direct responsibility of central government through implementation agencies. In the case of roads, user charges may take the form of licences, a fuel levy and weight-distance charges which are surrogate user charges and, where viable or appropriate, tolling which is a direct user charge. For the other elements of infrastructure, appropriate charges will be derived.

This “economic-based” category also includes all freight transport operations and financially viable passenger transport operations. These should be operated on commercial principles. There should be no government subsidy of these elements of operations. Also, government should strive to prevent any actions of the state from distorting pricing. However, if necessary to optimise infrastructure usage, government intervention is acceptable.

For those elements of infrastructure and operations which cannot or should not be paid for by the user but which provide social benefits, government has a responsibility to play a leading role in the provision of socially necessary transport facilities to provide mobility and accessibility. It should, however, contribute to the financing of services that are socially necessary in a transparent manner.

This could be in the form of appropriations, grants or subsidies to achieve an equitable distribution of resources, or as an incentive to provide services which are desirable in a broader social context, such as to promote public transport.

In the longer term, government should seek a reduction in the cost to the state of the subsidisation of transport operations, predicated on a more effective and efficient public transport system being developed.

As regards investment criteria, investment in infrastructure or transport modes should satisfy social, economic, or broad strategic investment criteria, and should be analysed in respect of economic impact within the wider picture.

It should be emphasised that transport infrastructure costs generally represent only a small proportion of total transport costs which, in addition, include the costs of operation and externalities, and this fact must be borne in mind when justifying investment in infrastructure. Investment in infrastructure should, of course, include likely future maintenance costs, based on accepted deterioration models that predict future maintenance needs. There should be targeted investment in the right places and of the right kind, which serves the needs of the society and the economy.

Given the long-term nature of investments in transport infrastructure and systems, South Africa must build a strong financial base for the creation, maintenance and upgrading of transport infrastructure. These should be taken against a set of criteria which include lifetime cost, economic, social and other returns to the country of the investment; returns to the transport system itself; and returns to the customer of the investment decision. Environmental sustainability is also a key measure in investment decisions. Investments in infrastructure that will not build economic efficiency, or where infrastructure is unsustainable, should be discouraged. Investments in infrastructure that promote energy efficiency, the least consumption of resources, and the greatest benefit/cost return should be favoured. Financial, legislative, organisational and other investment criteria should be met. Specific indicators should be associated with each, as well as information of who will make the investment, what the expected time horizon is, and sources of finance. Investments should be made after analysis of the return on such investment. Long-term investment decisions should be based on sound and explicit criteria aimed at optimising the use of scarce resources. These resources are not only financial, but also human and material resources.

FINANCIAL OBLIGATIONS OF THE VARIOUS LEVELS OF GOVERNMENT IN TRANSPORT

Very broadly, the costs inherent in a total transport system can be classified into infrastructure costs (including the maintenance thereof) and operational costs. There has been support expressed worldwide for the philosophy that central government, in its various institutional forms, should take responsibility for transport infrastructure provision and maintenance, whilst managing the operating of the system should be the responsibility of the second and third tiers of government.

Infrastructure costs would be financed through a basket of sources, including the Treasury (for the more socially orientated infrastructure such as rural access roads), and user charges such as tolls, licence fees and usage charges (for rail operations) for the more economic development orientated

elements of infrastructure, whilst operating costs would be paid for by direct charges such as bus and train fares, freight haulage charges etc.

The provision of the necessary infrastructure could be through a variety of institutional arrangements, including government agencies such as roads agencies, or a rail track authority, the airport company and a port authority. Included in the financial arrangements could be a system of capital grants that could be geared by private sector funding, or supplementary funding by other relevant institutions, on both the horizontal and vertical levels of government.

The costs of the provision of this infrastructure could preferably be reflected on the annual budget of the Department who would, together with the Treasury, have a mounting role to ensure cost efficiency and accountability on investment.

The costs of operating the system, e.g. providing bus services, providing commuter rail services, providing rail freight movement services, etc. would be paid for by direct charges or fares paid by the user and would be, as far as possible, recovered from the user. In certain instances, such as commuter transport services, where subsidisation of costs is appropriate because personal incomes cannot cover the necessary costs, the subsidisation of such services should be managed by second and third tier government and should be transparent.

This classification of cost responsibilities would be a logical one and one which, whilst levelling the playing fields between the various modes, would enable central government to ensure that unnecessary and inefficient duplication of infrastructure, as currently occurs in some instances, is eliminated. It would, in this way, improve the efficiency of the total system (and also enable government to more effectively manage the system). Issues and problems related to operating the system would be dealt with closer to the operating environment where they belong.

CONCLUSION

The problems and actions necessary to remedy these problems, as presented above, present a daunting task for our transport authorities, and perceptive and effective administration will be required. Should they succeed in the future, urban transport customers will be able to participate fully in the various activities of city life by using a public transport network that provides as much city-wide coverage as possible and which is affordable, safe, secure, fast and frequent.

The core of the public transport system will be a network of high volume, high frequency corridors in which public transport will be the priority. Customers' need for improved access and short trip times will be met by having regular feeder services to the high volume corridors, user-friendly transfer facilities, short wait times due to high corridor frequencies and the possibility of differentiated services for customers with specific needs.

Mainstream urban public transport operations will meet the needs of currently marginalised users, including the "stranded" and "survival" customer segments, scholars, users with disabilities, prioritised tourist customers and transferring long distance passengers.

Over time, as active measures to restrain private car use become effective, viable public transport alternatives will be targeted at the more affluent customer segment who are willing to use improved public transport. This will necessitate more, better and different types of public transport services.

In order to meet these goals, the public transport system will attract sufficient customers per vehicle per day to ensure that fares are affordable, operations are sustainable, and the system as a whole is able to generate adequate funds for the upgrading of both infrastructure and vehicles.

To achieve this vision, public transport provision must be planned and regulated at the local level, with local control over stable funding sources for both operations and infrastructure, detailed research into local customer needs and close co-operation with local land use planning and other relevant local functions.

REFERENCES

1. Green Paper on National Transport Policy, Department of Transport, Pretoria, March 1996
2. Mitchell, M F. Evidence on the state of the Commuter Transport System in South Africa to the Goldstone Commission of Enquiry into Violence in the Taxi Industry. December 1992
3. Moving South Africa. Towards a Transport Strategy for 2020, Department of Transport, Pretoria, September 1998
4. Preparation of a Transport Funding Strategy. Draft Report. Transportek, CSIR and Department of Transport, Pretoria, March 2001
5. de Saint Laurent B. Overview of Urban Transport in South Africa: Lessons from Europe and Proposed Approach Proceedings, CODATU VIII, Cape Town, 1998

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I am presently employed as a Policy Advisor in the National Department of Transport dealing with:

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