

## **MAKING PUBLIC TRANSPORT IN LUSAKA CITY MORE EFFICIENT AND EFFECTIVE**

*Based on the ZIPAR Working Paper "Trip Modelling and Cost Analysis for Public Road Transport System"  
By ROM Engineering*

The increase in the use of private motor vehicles for routine travel within the city of Lusaka suggests weakness in the Public Transport (PT) system. Regrettably, the majority of the city travellers have to accept an ineffective and inefficient PT system or walk/cycle whereas those who can afford turn to private motoring. The current PT fares are too high and must be lowered in order to provide more affordable service and to encourage PT usage. It is evident that the less privileged travellers of the City are the most affected by the current PT system. Investment in transport infrastructure such as ring roads, filter lanes and traffic lights will substantially tackle a lot of the emerging local travel problems, but the need to examine the current travel demand management and its effectiveness in promotion of public transport usage is equally important. The report highlights some of the encumbrances of the current PT system and suggests measures to make it more efficient and effective.

Public Transport (PT) operation in Zambia is in private hands and is liberalised. The liberalisation of PT brought about a rise in the number of bus operators as well as buses of all kinds. Public bus transportation in Lusaka is provided primarily by small 12-seater buses. There are a few medium sized 24-seater buses and large buses which are only operated for intercity transport. Buses are registered, and stop at designated bus stops and stations to pick up and drop off passengers. However, a small presence of informal operators is also evident within the system.

The source report for this brief analyses PT operations and financial structure for Lusaka City and presents several options for fare reduction. The analysis is based on a survey of Lusaka urban bus services, covering approximately 50 bus routes and over 1,700 passengers. The analysis considered fuel consumption, revenue, average trip costs, driver expenses, operator expenses and bus revenue allocation. Finally, a package of scenarios was presented and was developed. The report also proposes a full action plan for short and mid-term implementation for fare reduction.

### **Major Bus Fare Related Issues**

Bus fares in Lusaka have risen five-fold over the past eight years, with an annual increase of 22 percent on average. They range between ZMW 4.20 and ZMW 5.20 (USD 0.80-1.00) for a single intra-urban trip. This marks the Lusaka PT system among the most expensive in the world, with a daily fare to daily per capita GDP slightly less than 0.5. A large portion of Lusaka's population can't afford the high fares, and those who use bus services, do so at the expense of important necessities such as education, healthcare and food. Lower income families spend up to 40 percent of their income on transportation, far above the average (26 percent) for Lusaka which is by itself twice as high as the international benchmark. High bus fares such as these have serious income redistribution effects, increase the cost of doing business for the public and are unsustainable.

The study shows that bus fares in Lusaka could be reduced by as much as 50 percent. An examination of the fare distribution based on daily revenue show some encumbrances that could be eliminated or optimised.

Component	Amount/day (ZMW)
Driver's Salary	200
Operator Total (expenses/financing/profit)	177
Fuel	167
Other Salaries (Conductor/call boys)	74
Other (wash, parking, missing "fees")	91

■ Driver Salary  
 ■ Operator Revenue  
 ■ Fuel  
 ■ Other Salaries  
 ■ Other Expenses

### **Bus Ridership**

The report shows that a bus in Lusaka carries 176 passengers on 4.02 round-trips and collects revenue amounting to ZMW 705 per day on average. Overall, there are 453,000 passenger trips per day on over 10,000 vehicle trips with over 45 passengers per trip. This represents low bus ridership for a city with a population estimate of over 1.7 million. The average monthly expenditure on PT is as high as ZMW 450 which is nearly a third of the median household salary. This average means that five trips per day are taken by passengers on average, which translates into too many transfers. The average distance covered by a bus in a day is 72km, which is significantly lower than the international benchmark, 200-300 km. In here, also are some of the efficiency issues that could be addressed to make public transport more affordable and reliable.

### **Some Issues about Bus Service Quality**

There is no official definition of what constitutes a route in Lusaka. The study used GPS data to list major destinations from the four main stations in the city centre. The study shows that about 17 percent of the buses are unofficial do not operate from the station.

The current public transport system is largely unregulated. Currently, authorities have bus registration and operating fees regulations. However, operations and level of service are heavily dependent on the wits of drivers who decide where and when they wish to go, with minimal regulation and enforcement. Passenger dissatisfaction with the level of service is considerably high.

Public transport operates on an on-demand basis, meaning that buses only leave the origin when there are a sufficient number of passengers on board. This implies long wait times at the terminal stations. When buses leave the terminal partially empty, they will stop at specified locations in order to ensure that the buses are filled up before they reach their final terminal.

Buses can be added to the system based on willingness to supply service, with no limits. Currently, there are approximately 2,600 buses that are officially registered by RTSA. Unfortunately this has led to over-capacity and in-route competition, which lowers the number of trips per driver. Buses on average make only four runs per day.

Most of the buses are more than 13 years old and are fuel inefficient. Most of these buses lack air-conditioning and afford little space for comfort and manoeuvring. By their design, most of them are inaccessible to the disabled people since that is not a requirement for passenger service vehicle registration.

There is no official fare structure for the facilitation of transfers. Bus fares are uniform, with no official discounts for disadvantaged population groups and pupils and students.

## **Five Measures for Improving Public Transport in Lusaka**

The five (5) measures for making public transport in Lusaka City more affordable and reliable are suggested below in their order of priority.

### ***1. Supply/Service Management***

This requires assignment of each bus vehicle to a specific route to match supply to demand. A demand analysis must therefore be in place. Regulatory capacities issues at Lusaka City Council and RTSA will need to be addressed in order to adequately manage the supply and service with respect to demand. The service level on the route could be determined and an operational plan set. This results in more efficient resources utilisation, operational cost savings and more reliable and frequent service provision. This alone could help reduce the fares by as much as 21 percent and would enjoy public support. However, this would render excess supply redundant and limit employment opportunities. Because of the likely redundancies, stronger enforcement mechanisms are required. Further supply in peak hours may be adversely constrained. Therefore some resistance from risk disinclined drivers is expected.

### ***2. Introduce High Occupancy Buses (12 m long)***

This alternative requires engaging bus service operators to introduce large buses on designated routes through passenger service contracts. The Great East Road has been identified as one of the possible routes to pilot high occupancy bus services. With potential ridership of 75,000-85,000 passengers daily, the route may require only 110 high occupancy buses. This implies phasing-out the current inefficient buses and service. Implementation may require designation of a pilot corridor on which only large buses can operate at reduced fare and then extend it once, lessons have been learned and enough experience has been gathered. This alternative promises overall service improvement, congestion reduction, savings on operational cost, pollution reduction and improved safety. This measure by itself could bring about at least a 15 percent reduction in the bus fare. Since this measure is associated with redundancies of the smaller buses it is expected to receive tough opposition from current bus owners and driver unions.

### ***3. Common Ticketing for Free Transfers***

This measure would enable passengers to switch between buses free of charge providing a relief for those customers who do not terminate their trips in the city centre. It involves introduction of route tickets, ticket vendors and setting up a common clearing mechanism for tickets. This would result into passenger travel cost savings and increase mobility for suburban residents. The potential fare reduction expected from this alternative is at least nine percent. However, this alternative has higher technical requirements to reduce the risk of fraud. The elimination of chances for drivers to handle cash will mean driver revenue loss and this will need compensation in a different way.

### ***4. Reduce Daily Cost of Vehicle Leasing***

This measure would require setting a maximum fare for vehicle leasing at a level lower than currently obtaining. This requires a mechanism for monitoring agreement between owners and drivers for enforcement. It could be initiated by a state owned enterprise or NGO leasing buses to drivers at reasonable prices in return drivers lowering bus fares. This would cause fluctuations in the market prices until they stabilize at lower fares. The benefit of this measure is in the social justice of revenue distribution between operator and employees. This move would enjoy the support of the bus drivers. It has potential to reduce bus fares by as much as four percent. However, the measure has little impact on passengers and may be difficult to enforce. If bus operators felt uncomfortable with the cap, they could exit in search of alternative markets which promise more profitability. Bus operators are therefore likely to strongly oppose this measure.

### ***5. Subsidize Fuel Costs and Driver Salaries***

This requires commitment by Government to subsidize PT by offering subsidized fuel for PT operators, reduce

levies and taxes, or other mechanisms to subsidize fares for marginalized populations. This measure does not directly affect any particular population group and would easily obtain public support. World over, government treasury support to public transport has enjoyed public support because of the positive social benefit it renders. Subsidies are fairly easy to implement with defined methods. However, the potential fair reduction from this measure is the lowest of all considered. The challenge of implementing this alternative lies in the requirement for statutory amendments and for political acceptance. Further, the differential fuel prices might lead to a fuel black market and the loss of local tax revenue and additional national budget spending may reduce its appeal to Government.

### *The Combined Measure*

The five (5) measures above were considered each independent of the other. It is however possible to implement these measures together and obtain higher reduction in bus fares. In this case, three (3) measures, that is, vehicle supply and service management (21 percent), introduction of high occupancy buses (15 percent) and common ticketing to facilitate free transfers (9 percent) are recommended for implementation as a single package with potential for at least 45 percent fares reduction.

### Comparison of the Financial Models

The report summarises the current PT system's financial model and compares it to the financial model based on the combined implementation of measures on a vehicle by vehicle basis. The report assumes that buses will make six trips daily based on the recommendation for supply and service management. Fares will be reduced by over 45 percent from ZMW 4 to ZMW 2. The large buses to be purchased will be relatively new vehicles, costing approximately ZMW 100,000 per unit. The table below shows that the bus fleet operator will still enjoy a sound financial model and good return on investment under the combined measure.

Attribute	Current Small Busses	Large (High Occupancy) Busses
Daily revenue (ZMW)	706	1,510
Operation & Maintenance Cost (ZMW)	110	200
Fuel (ZMW)	170	385
Salaries (drivers, conductor) (ZMW)	250	400
Depreciation & interest (ZMW)	20	167
Margins (ZMW)	156	398
% of revenue	22%	26%
Annual profit (ZMW)	46,000	120,000
Years to return investment	1.5	3.5

### Conclusion

The current PT system in Lusaka fails to sufficiently meet the routine travel requirements of the majority. The fares are very high and services are very irregular and uncomfortable. This is largely as a result of the highly unregulated nature of the system. However, with a desire to serve the public and restore order in our public transport system bearing in mind that Lusaka is the capital city of Zambia; PT system reorganization is in order. The report proposes five measures that must be considered to improve our public transport system. These measures may involve social, legal and institutional reforms. In its current state the public transport system in Lusaka cannot any longer circumvent major reforms. Overlooking the need for the reorganisation of the PT system in the City would deprive the public of the due welfare gains. Moving forward, there is need to officially designate bus routes and conduct service demand analysis for all the major routes.



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