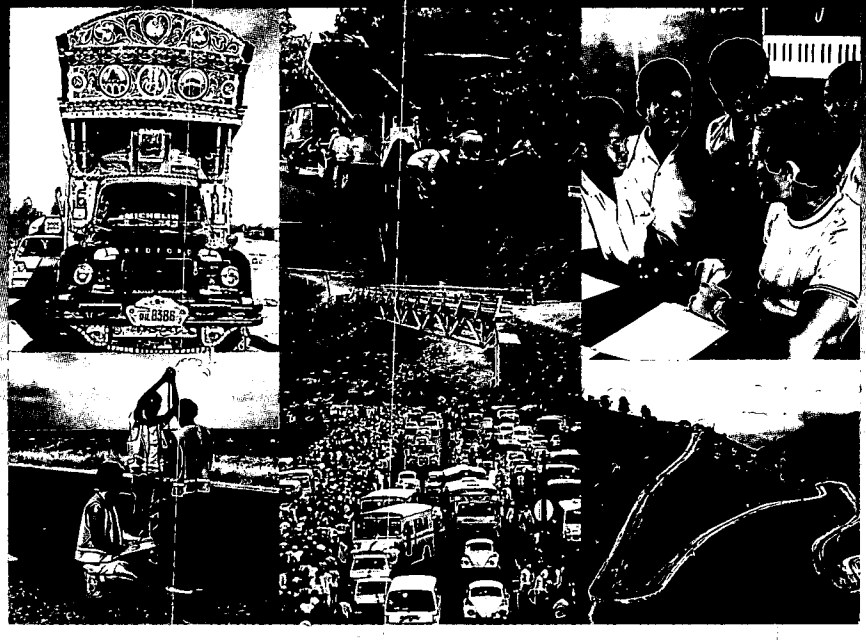

The initial effects of introducing commuter omnibus services in Harare, Zimbabwe

by D A C Maunder (TRL)
and T C Mbara (University of Zimbabwe)

An executive agency of THE DEPARTMENT OF TRANSPORT

TRL Report 123

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THE INITIAL EFFECTS OF INTRODUCING COMMUTER OMNIBUS SERVICES IN HARARE, ZIMBABWE

By D A C Maunder (TRL)
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Main Subject Area: Urbanisation/Transport

Theme: Urban Transport

Project title: Public Transport

Project reference: ODA R6014

This document is an output from an ODA-funded research project, carried out for the benefit of developing countries.

Overseas Centre, TRL, 1995
ISSN 0968-4107

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EXECUTIVE SUMMARY

Over recent years, a major topic of discussion within the bus industry in both the developed and developing worlds has been the desirability or otherwise of regulating the supply and provision of stage bus services. Proponents of deregulation, or free competition, seek the complete relaxation of controls arguing that this induces an increase in and diversity of the provision of market orientated services best suited to meet demand characteristics. Opponents of deregulation seek varying levels of control and government involvement, believing market forces may lead to increasing imperfection and imbalances in the provision of services. In addition, opponents of deregulation believe that this leads to a wasteful use of scarce resources with environmental disbenefits.

This report contributes to the debate by examining the effects of the Government of Zimbabwe's decision in August 1993 to liberalise the urban public transport sector by allowing the introduction of privately operated 'commuter omnibuses' to compete with the existing stage bus operator. Prior to 1993 the stage bus operator, the Zimbabwe United Passenger Company (ZUPCO) enjoyed a monopoly in Harare, the capital of Zimbabwe.

Clearly it is too soon to make a definitive assessment, that is only possible after a much longer time period has evolved. However, an initial assessment has been made by comparing factors and case study material 'pre' and 'post' August 1993.

Historically, the provision of conventional stage bus services in Harare can be divided into four distinct phases: (a) pre-1980; (b) 1980 to mid-1988; (c) mid-1988 to mid-1993; (d) post mid-1993.

Prior to 1980, services were provided under a franchise agreement by a subsidiary of the UK United Transport Overseas Services Company. After independence in 1980, the Government of Zimbabwe regarded urban public transport services as a key sector of the economy, and acquired a 51 percent shareholding in ZUPCO during 1988.

Following Government participation, operational performance and service levels improved. However, the financial viability of ZUPCO's Harare Division deteriorated, constraining its ability to renew or expand its fleet during 1992/93 to keep abreast of demand. Finally, in August 1993, Government liberalised the sector by allowing privately operated commuter omnibuses to compete with ZUPCO.

Eighteen months after the introduction of commuter omnibuses, it is evident that the supply of vehicles and hence the passenger carrying capacity of the public transport sector has substantially increased throughout the city, leading to improved service levels and greater choice for passengers. Additional capacity has been provided on heavily trafficked routes and new routes provided in a number of areas. In addition, the deployment of emergency taxis on shorter routes as well as on intra-suburban routes has meant that these services now penetrate areas which previously were not supplied with a good quality service.

Despite the competitiveness of the sector, fares have not decreased (as might have been expected) but have actually increased during peak operational periods when demand is in excess of supply. Other potential disbenefits include increased congestion, pollution and accidents.

The sector will probably take a few years to settle down and only then will the long term effects of the liberalisation of the sector be evident. In the meantime, passengers have clearly benefited following the introduction of privately operated commuter omnibuses in Harare.

THE INITIAL EFFECTS OF INTRODUCING COMMUTER OMNIBUS SERVICES IN HARARE, ZIMBABWE

ABSTRACT

Over recent years, a major topic of discussion within the bus industry in both the developed and developing worlds has been the desirability or otherwise of regulating the supply and provision of stage bus services. Proponents of deregulation or free competition seek the complete relaxation of controls, arguing that this induces an increase in, and diversity of, the provision of market orientated services best suited to meet demand characteristics. Opponents of deregulation seek varying levels of control and government involvement, believing market forces may lead to increasing imperfection and imbalances in the provision of services. In addition, opponents of deregulation believe that this leads to a wasteful use of scarce resources with environmental disbenefits.

This report adds to the debate by examining the effects of the Government of Zimbabwe's decision in August 1993 to partially deregulate the sector by allowing the introduction of privately operated commuter omnibuses to compete with the existing stage bus operator. Prior to 1993 the stage bus operator, the Zimbabwe United Passenger Company (ZUPCO) enjoyed a monopoly in Harare, the capital of Zimbabwe.

Clearly it is too soon to make a definitive assessment, that is only possible after a much longer time period has evolved. However, an initial assessment has been made by comparing factors and case study material 'pre' and 'post' August 1993.

1. INTRODUCTION

1.1 BACKGROUND

There is continuing debate in both the developed and developing world on the role of government in the ownership and regulation of stage bus services.

A wide spectrum of ownership exists in cities throughout the world, ranging from completely nationalised public sector companies (parastatals), to the private sector with various permutations in between. In major Third World cities international aid agencies such as the World Bank have for some time, encouraged and supported the provision of urban stage bus services by private operators within a less regulated environment (World Bank 1986). Increasingly, the trend has been of a gradual move to the private sector from state ownership. Recently this trend has accelerated throughout the developing world as governments have implemented Economic Structural Adjustment Programmes (ESAP) with assistance from the International Monetary Fund and the World Bank.

The World Bank in its World Development Report for 1994 on Infrastructure for Development (World Bank 1994) suggests that market forces and competition can improve the production and delivery of infrastructure services. It cites the example of urban transport in Sri Lanka, where in the Bank's view, deregulation "permitted the profitable operation of smaller vehicles by small scale entrepreneurs, substantially improving service availability".

The United Kingdom, Chile and Sri Lanka are frequently cited by proponents and opponents of deregulation since the urban bus sector was deregulated by their governments in 1985/6, 1979 and 1979 respectively. Benefits of the deregulation process cited by the World Bank (1994) Gomez-Ibanez and Meyer (1990) and Gwilliam (1989) using the UK and Sri Lanka as examples include:

- a reduction in operational costs
- an increase in productivity
- an increase in market orientated services

The latter, it is suggested leads to an expansion of passenger carrying capability, increased services, and frequency and hence increased comfort for passengers. As in Sri Lanka and Chile, minibus operations have flourished in the UK following deregulation (Watts et al 1990, White et al 1992) in 1985/6. In Kuala Lumpur where minibuses were introduced in 1976, Walters (1979) suggested that the Malaysian Government hoped to expand fleet capacity and reduce congestion by inducing motorists to leave their cars at home. In Chile, however, Darbera (1993) notes that 10 years after deregulation in Santiago "the impact has been exactly the opposite of what was expected: fares have risen and the diversity of services reduced". Fernandez and de Cea (1985) however, argued that the Chilean experience produced a wider range of services than before and increased the participation of small vehicles but that operational costs had increased by 20 percent and not decreased. Darbera (1993) suggests that the deregulation process has "led to an unstable market with wide overcapacity, a tripling of fares and a decline in passenger numbers". In addition, the expansion of the fleet has "led to environmental disbenefits, traffic congestion and air pollution". Fernandez and de Cea (1989) also noted that road congestion had increased due to the expansion in the bus fleet.

Meyer and Gomez-Ibanez (1993) are 'unclear' as to whether "privatization may have intensified the road safety problem and traffic congestion in the developing world".

White (1989) analysed the UK sector following deregulation and observed an unexpected decline in bus patronage despite improved service levels.

Dickson (1994) argues that deregulation in South Africa "has resulted in the deterioration of urban transit to levels that are nothing short of chaos" - i.e. a reduction in bus and train commuter frequencies, cessation of evening and weekend services and the closure of services in some areas. Dickson also suggests that minibuses, which constitute 3.5 percent of the total vehicle fleet, account for 13 percent of the annual fatal accidents costing the country $70 million annually.

In Delhi, India, following the liberalisation of permits in 1988, private operators chose to operate only lucrative routes. Competition, it is alleged, led to a deterioration in drivers' behaviour with "drivers speeding to outrace other drivers, overloading of buses and jumping red lights to make as many trips as possible" (Herald Newspaper 1993). However, service frequency improved and passenger waiting times were reduced as a consequence of the liberalisation process.

Following a review of various deregulated or partially deregulated systems throughout the developing world and the UK, Khezwana and Maunder (1993) pre-empted the World Bank (1994) by suggesting the need for quality controls including fare ceilings within a deregulated market to ensure adequate service quality at affordable fares and sufficient vehicle and passenger safety levels. In addition, Khezwana and Maunder (1993) suggested the need for quantity controls, i.e. maximum vehicle numbers to be established to ensure an adequate (but not an excessive) supply of capacity, thereby minimising the wasteful use of scarce resources by service duplication. This would also have the effect of minimising the potential for traffic congestion caused by excessive provision.

Finally, Fairhurst (1992) concluded from an evaluation of the UK sector that "on-the-road competition does not guard the public interest. Its interlocking service network makes the urban bus industry a form of natural monopoly. This should be the starting point for public policy".

Proponents and opponents of deregulation can therefore select examples of possible benefits or disbenefits of the systems that have been deregulated. Despite its support for competition and a less regulated environment in the sector, the World Bank (1994) calls for "public scrutiny and regulation on passenger safety, service obligations and pollution" following "difficulties with route coordination, excessive congestion and unsafe driving practices in some instances". Armstrong-Wright (1993) expressed similar sentiments with respect to safety and the environment.

Against this backdrop of potential benefits or disbenefits of deregulation, the Government of Zimbabwe partially deregulated the sector in August 1993 allowing privately operated 'commuter omnibuses' to compete with the existing stage bus operator, the Zimbabwe United Passenger Company (ZUPCO) in which it was the majority shareholder. Previously, ZUPCO enjoyed a monopoly in the provision of stage bus services in Harare the capital and other urban centres of the country.

This report discusses the reasons and objectives of the Government of Zimbabwe's decision to liberalise the sector and hence allow competition in the provision of passenger transport services in Harare.

1.2 PURPOSE OF RESEARCH

The current research is part of an ongoing programme funded by the Overseas Development Administration (ODA) and follows earlier work in African cities, Maunder (1990) and in Harare, Maunder and Mbara (1993) where the effects of regulation and ownership were investigated. The former study concluded that the absence of strict government regulation had not strongly influenced the performance of individual public transport modes. The impact was greater on the development of the sector: a highly regulated system encouraging the use of larger vehicles on fixed routes. The latter study investigated the effects of the Government of Zimbabwe's decision to become the majority shareholder in ZUPCO in 1988. Substantial improvements in operational and service levels were effected following Government involvement but with subsequent fleet expansion and renewal, the financial performance deteriorated. This in turn led to the inability of ZUPCO to continue to invest in new vehicles during 1992/93 and hence the Government's decision to allow private sector operators to supplement ZUPCO's capacity.

The purpose of the current research has been to examine the initial effects of the introduction of commuter omnibuses in Harare by comparing changes where possible in a number of important factors both 'pre' and 'post' August 1993.

Mbara (1994) published initial findings of the present study. However additional surveys have subsequently been undertaken to make the present report more comprehensive and extensive than the earlier findings.

Short term effects such as changes in fleet size, capacity and estimates of passenger loadings are described throughout the capital and also within a representative corridor of the public transport network. In addition, along the corridor, changes in headways, passenger waiting times, average fares and opinions of service levels are established. Numbers of accidents involving commuter omnibuses are also assessed.

Long term environmental issues and effects such as pollution and traffic congestion are not the subject of this report but need to be incorporated into a long term assessment of the impact of the liberalisation of the urban transport sector in Harare.

2. CITY CHARACTERISTICS

Harare is the capital, the commercial and administrative centre and the seat of Government in Zimbabwe. Zimbabwe is located in Southern Africa and bordered by Zambia in the north, Botswana in the west and South Africa and Mozambique in the south and east respectively. Figure 1 shows the location of Zimbabwe within the continent of Africa.

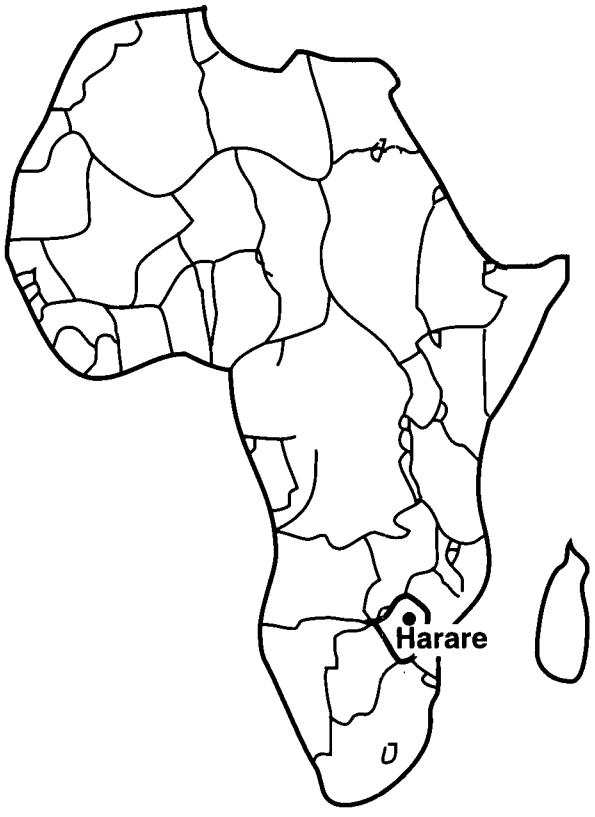

Fig. 1 The location of Zimbabwe

The city is crossed east-west by the main railway line linking Harare with Gweru and Bulawayo in the Midlands and south-west of the country respectively and Mutare in the east. The main road network is a radial system connecting the various suburbs with the central business district (CBD). Within the CBD there is a grid road network with spacious streets and pedestrianised areas. The main industrial areas are located to the southwest of the city. Figure 2 shows the structure of Harare.

The present population of Harare is estimated to be approximately 1.2 million. Greater Harare which includes the town of Chitungwiza, developed as a dormitory town for Harare during the colonial period, has an estimated population of 1.5 million. Based on these figures (which may be underestimates), the population of Greater Harare has grown at an average rate of 8.0 percent per annum since 1982.

The latest available Gross National Product per capita figure for Zimbabwe is US$570 for the year 1992 (World Development Report 1994). Whilst this is relatively high in comparison to many African countries it has declined in recent years.

3. DEVELOPMENTS IN THE PROVISION OF PUBLIC TRANSPORT IN HARARE

Historically, the provision of conventional stage bus public transport services in Harare can be divided into four distinct phases:

(a) Pre-1980

(b) 1980 to mid-1988

(c) Mid-1988 to mid-1993

(d) Post mid-1993

3.1 PRIOR TO 1980

Until 1954, the City of Salisbury (later named Harare) used to operate its own bus services within the city. From 1954, the UK based United Transport Overseas Services (UTOS), registered under the name Salisbury United Omnibus Company (SUOC), operated stage carriage services in Salisbury under a franchise. The franchise agreement, which was between the City Council and the bus operator, gave the latter the sole right to operate bus services in the franchise area (defined as a 12-kilometre radius from the General Post Office). In 1975, the franchise agreement was renegotiated and the area extended to a 26-km radius from the GPO to reflect the expansion of the City. SUOC were also guaranteed a 20 percent return on capital employed under the 1975 agreement.

3.2 1980 TO MID-1988

In April 1980, Zimbabwe (formerly Rhodesia) became an independent state. SUOC was renamed the Harare United Omnibus Company (HUOC). The Government of Zimbabwe has, since 1980, pursued a policy targeted at redressing the socio-economic imbalances which existed prior to 1980. Emphasis was placed on controlling certain key sectors of the economy which were regarded as vital. Urban stage bus services were clearly regarded as one such sector.

During this period, a number of important decisions were made, as follows:

a) the determination of fares became the responsibility of Government and not that of the Local Authority.

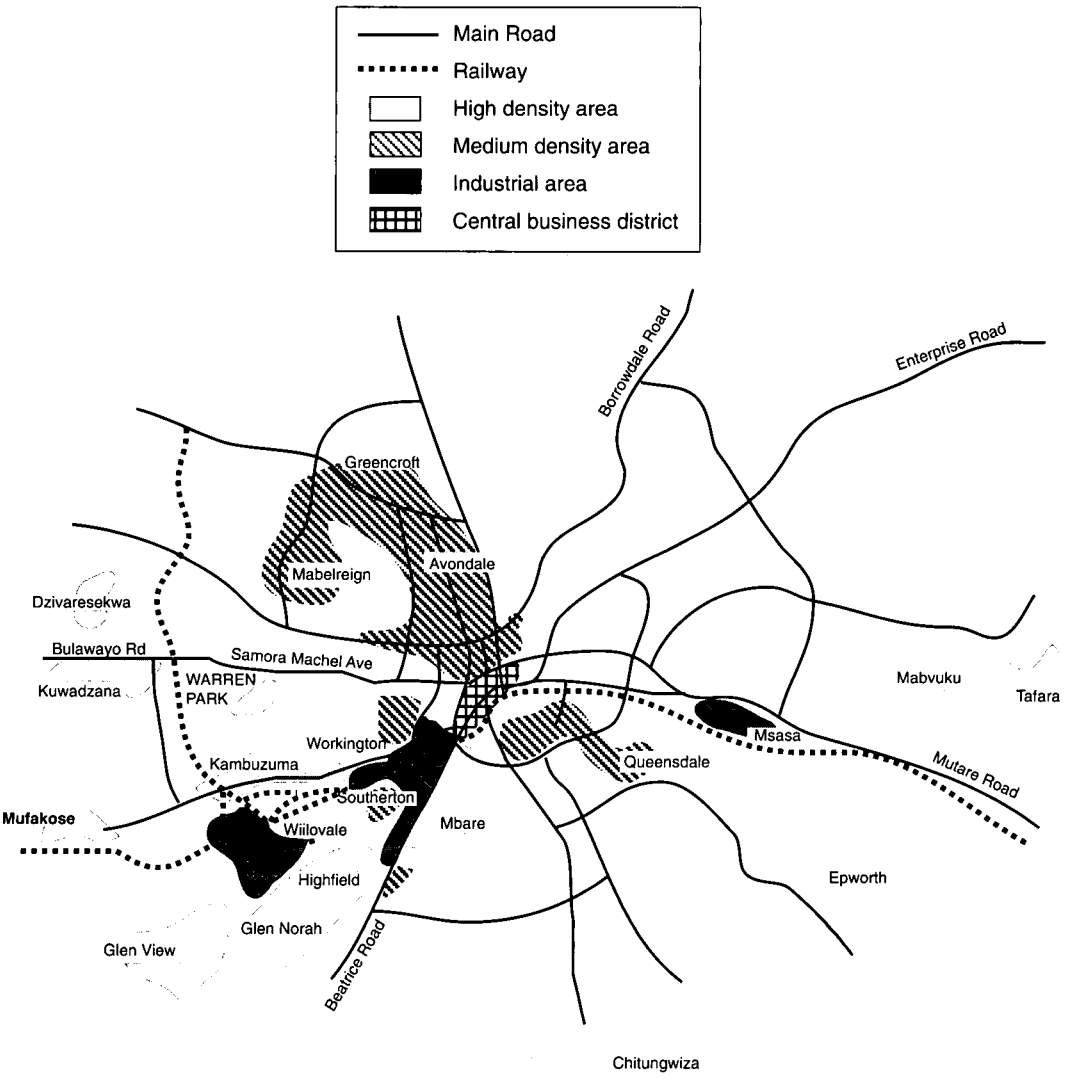

Fig. 2 Harare: Structure and Land Use (1992)

b) The removal of subsidies, but with an agreement in principle to review fares annually.

c) the temporary legalisation in 1982 of the informal sector "Emergency Taxis" as they are popularly known in Zimbabwe. The emergency taxi (see Plate 1) provides a shared taxi service on set routes; it has a legal carrying capacity of 7 passengers.

Thus, the period 1980 to mid-1988 was a time in which Government played an important role in regulating the urban public transport sector.

3.3 MID-1988 TO MID-1993

During the latter half of 1988, Government made an important policy decision to participate directly in the urban public transport sector by acquiring a 51 percent shareholding in ZUPCO, a company established by the United Transport Group (UTG) and which continues to be jointly owned by Government and UTG. Government acquired the majority shareholding through a capital subscription in the form of new buses.

As stated earlier, public transport was regarded as a key strategic sector in which Government's participation was necessary for determining future development. Following direct participation by Government in October 1988, a new franchise agreement was agreed. ZUPCO were authorised to provide services within a 30-km radius from the city centre reflecting the further rapid expansion of the capital.

Emphasis was placed on the acquisition of buses to ensure a gradual renewal of the fleet and its expansion to keep abreast of demand. Plates 2-4 illustrate the ZUPCO fleet ranging from minibuses to articulated train buses.

Despite the operational success of ZUPCO following Government involvement (Maunder and Mbara 1993) (including fleet modernisation and the introduction of minibus

Plate 1 Emergency taxi

Plate 2 A Zupco operated DAF 825

Plate 3 A Zupco minibus

Plate 4 A Zupco articulated bus

services), its finances continued to deteriorate and it was unable to renew or expand its fleet during 1992/93. As a consequence it was unable to keep abreast of demand for its services. Consequently, illegally operated (pirate) emergency taxis proliferated and pirate minibuses and microbuses called 'combis' were increasingly common along major corridors in Harare during 1993.

3.4 POST MID-1993

During August 1993 the Government enacted Statutory Instrument 247A and later 338D under the terms of the Presidential Powers (Temporary Measures) Act. The Statutory Instrument enabled the mobilisation of resources to deal with the crisis as perceived by Government in the provision of urban passenger transport services.

Owners and operators of 'commuter omnibuses' comprising vehicles with a passenger carrying capacity in excess of seven (see Plates 5-8) were temporarily legalised (for an initial 6-month period) to operate on specified routes. These were allocated by the Controller of Road Motor Transportation (RMT) within the Ministry of Transport and Energy. They could charge fares within ceilings set by Government.

During February 1994 the Government enacted, under Extraordinary Government Gazette, Statutory Instrument 35A entitled Road Motor Transportation (Emergency Commuter Omnibus) Regulations. This legalised the operation of commuter omnibuses and placed the regulation and control of them under the Controller of RMT.

Enactment of the original Statutory Instrument effectively removed ZUPCO's monopoly to provide stage bus services under the existing franchise agreement. The subsequent Statutory Instrument enabled the operators of commuter omnibuses to legally provide services on a long term basis subject to the regulations and controls as specified under the Statutory Instrument.

To complement the legalisation, the Zimbabwe Republic Police (ZRP) has strictly enforced the existing and new regulations. Hence, pirate emergency taxis, minibuses and combis have increasingly been removed from Harare's streets until owners could prove to the satisfaction of the ZRP that vehicles were being operated legally. Thus from August 1993 there has been a rapid expansion of the legally operated public transport fleet and a reduction in the illegal or pirate operated fleet.

3.5 OVERALL SYSTEM

As stated earlier, prior to 1988 the total public transport service provision in Harare was wholly in private ownership and control was fairly rigid as illustrated in Figure 3. With Government participation in ZUPCO in 1988 the sector was classified as a mixed system.

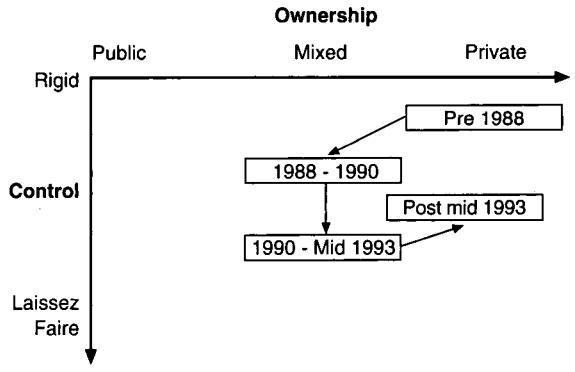

Fig 3 Ownership and control in Harare 'pre' and 'post' 1988

With the passage of time, control of the sector weakened as emergency taxis, minibuses and combis operated with impunity. However, following the legalisation of commuter omnibuses in 1993 control of the sector has strengthened and private ownership dominates.

4. THE LIBERALISATION PROCESS

In 1990, the Government of Zimbabwe embarked on an Economic Structural Adjustment Programme (ESAP). The thrust of ESAP was geared towards the liberalisation of the economy by removing certain controls and regulations inhibiting competition. A Framework for Economic Reform (1991), which sets out the objectives of ESAP, argued in respect of urban public transport: "In the absence of competition, there is no assurance of quality of service at reasonable prices".

It was against this background, coupled with an unreliable public transport system characterised by long queues and considerable passenger waiting times particularly during peak periods, that private operators entered the public transport sector to augment services hitherto provided by ZUPCO and emergency taxis.

Thus in August 1993, entry into the urban public passenger transport market was effectively liberalised by the introduction of privately operated commuter omnibuses.

4.1 LEGAL REQUIREMENTS

Prospective commuter omnibus operators apply to the Controller of RMT for the registration of a vehicle. For a vehicle to be registered, the following requirements are necessary:

Plate 5 A 15 seat 'combi' commuter omnibus

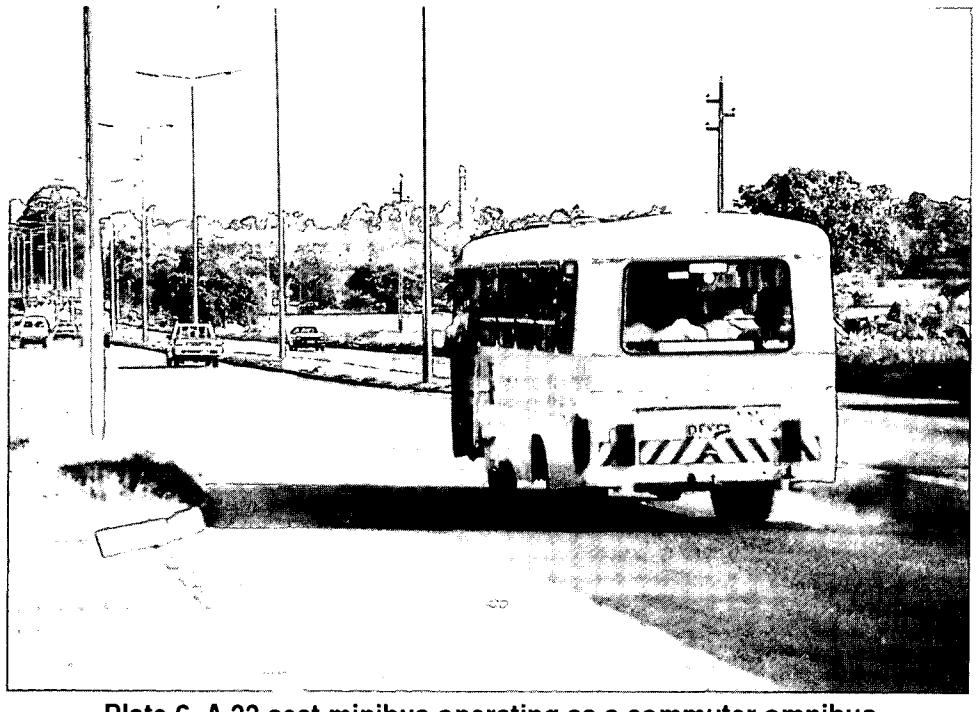

Plate 6 A 33 seat minibus operating as a commuter omnibus

Plate 7 A DAF 825 commuter omnibus

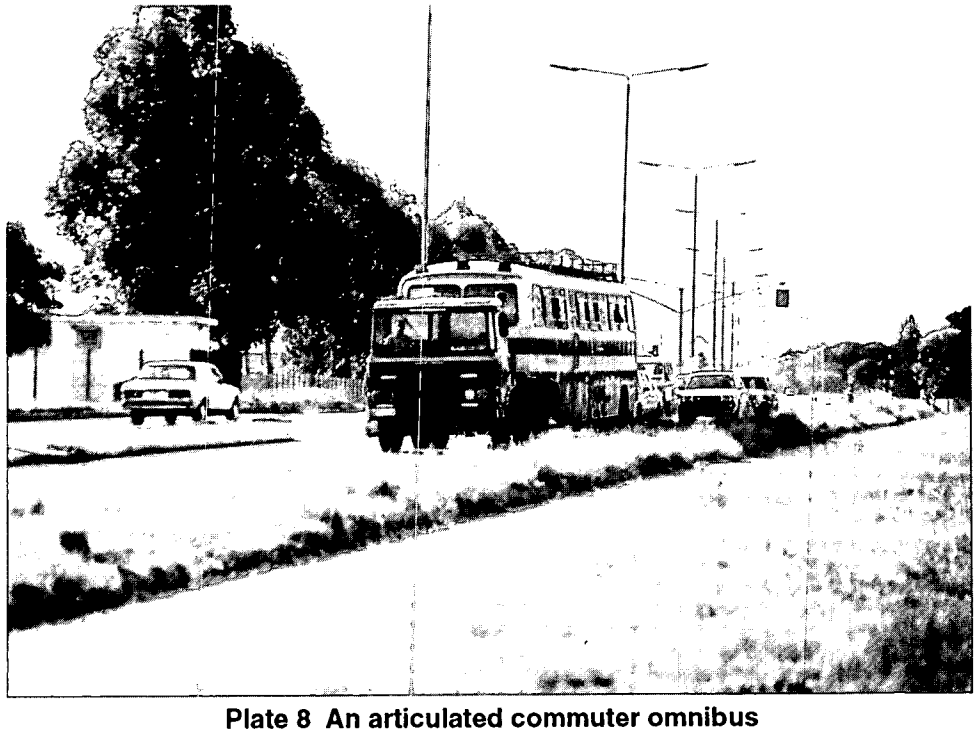

Plate 8 An articulated commuter omnibus

(a) a valid certificate of fitness ensuring that the vehicle is roadworthy.

(b) a valid certificate of insurance to cover the vehicle.

(c) a valid certificate of insurance to cover passenger liability.

(d) a certificate of registration as a trader issued under the Sales Tax Act.

The first three requirements relate to quality controls while the fourth requirement was introduced to ensure that operators contribute sales tax revenue to the Exchequer. In addition to these quality regulations, there are other requirements relating to the identification of the vehicle which must be fulfilled. These include:

(a) a sign on the exterior of the vehicle bearing the words "COMMUTER OMNIBUS" (see Plate 5).

(b) a sign at the front, inside the cab indicating the maximum number of passengers that may be carried in the commuter omnibus.

(c) a yellow band round the outside of the commuter omnibus (see Plate 5).

4.2 DETERMINATION OF ROUTES

The Ministry of Local Government Rural and Urban Development has the responsibility of identifying the routes as well as specifying the maximum number of commuter omnibuses on each of the designated routes. In practice, individual operators are directly issued with a permit by the Controller of RMT without consultation with the Ministry of Local Government, Rural and Urban Development.

Thus, the major hurdle for any potential entrant into the urban public transport market are the various quality controls. Presently, an operator fulfilling these quality requirements is allocated a permit on a route of their choice.

4.3 DETERMINATION OF FARES

The maximum fares charged by commuter omnibuses are fixed by Government. In practice, all commuter omnibuses tend to charge the same fare for similar distances irrespective of the size of vehicle. Fares tend to fluctuate by time of day and these sometimes rise beyond the permitted maximum.

5. GROWTH IN THE COMMUTER OMNIBUS FLEET

5.1 QUANTITY

Following the liberalisation of the urban public passenger transport market, there has been a rapid growth in the number of commuter omnibuses in Harare. Most of the vehicles were initially imported from South Africa and Japan either as reconditioned or new vehicles. Many operators took advantage of the exemption on customs duty, sales tax and import tax granted on new vehicles. Consequently, most of the vehicles are relatively new, although a few are relatively old converted vans and pick ups (see Plate 9).

Figure 4 shows the cumulative monthly growth in the commuter omnibus fleet from January 1994 to September 1994. The fleet has grown from 530 vehicles in January '94 to 1158 vehicles by September '94. This represents a 118 percent growth over the nine month period. By September '94, the total number of commuter omnibuses represented about 30 percent of the total public transport vehicle fleet operating in Harare.

5.2 VEHICLE TYPES

The growth in the fleet was also characterised by its diversity. A variety of vehicles came into use and currently, there are twenty three different types of vehicles being operated (Figure 5). The most common types are the Toyota, Nissan, Ford, VW, Mazda and Mitsubishi which account for approximately eighty five percent of the total commuter omnibus fleet.

5.3 VEHICLE CAPACITY

The passenger carrying capacities of these vehicles vary greatly. The smallest vehicle has a seating capacity of 8 while the largest has 88 seats but capable of transporting 118 passengers including standees. The latter is an articulated vehicle (see Plate 8) which operates mainly on the longer urban routes. The majority of the vehicles are small minibuses with a capacity of between 11 and 15 seats as illustrated in Figure 6 and Plate 5.

5.4 ROUTES OPERATED

Most of the commuter omnibuses (83 percent) operate to and from high population density areas while the remaining 17 percent operate in the medium and low density areas. The decision to operate high density area routes which have higher load factors, is clearly motivated by the need to maximise profits in the short term.

Following the introduction of commuter omnibuses, the number of routes operated has increased by approximately 10 percent. Not only have the number of routes increased but some have been extended to cover the peri-urban areas of Greater Harare. Most of the emergency taxis have been displaced and now concentrate on very short routes while some have resorted to providing intra-suburban services.

Plate 9 A modified vehicle operating as a commuter omnibus

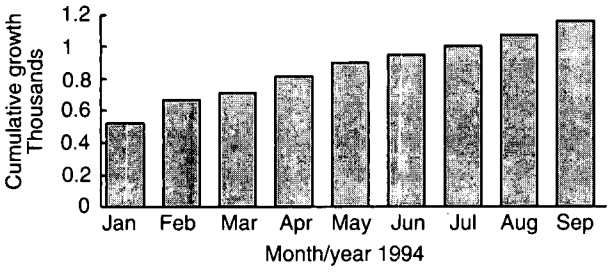

Fig 4 Monthly growth of the commuter omnibus fleet.

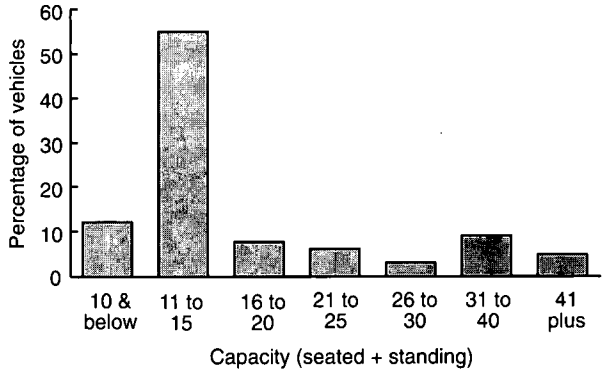

Fig 6 Commuter omnibus passenger carrying capacity

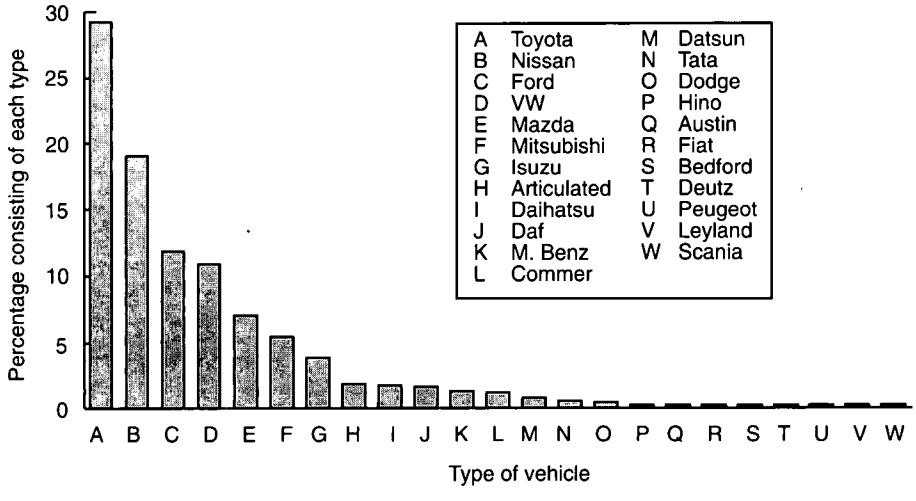

Fig 5 Types of commuter omnibus

6. CITY WIDE TRANSPORT PERSPECTIVES

In this section various trends in modal split, public transport provision and demand as obtained from surveys undertaken throughout Harare are discussed. Changes in fare levels for public transport services are compared between the 'pre' and 'post' August 1993 periods. In addition, data on accidents involving commuter omnibuses are illustrated.

6.1 PUBLIC TRANSPORT FARE LEVELS

Throughout the world, urban public transport fares are a sensitive issue and Zimbabwe is no exception. During the last 4 years, ZUPCO fares have been increased on a number of occasions to assist in the renewal and expansion of the fleet. Emergency taxi fares have also been increased but not to the same extent. When commuter omnibus services were introduced, fare ceilings were stipulated by the Government in Statutory Instruments 247A and 338D of 1993 and 35A of 1994. Public transport fare increases are sanctioned and regulated by the Senior Minister of Local Government Rural and Urban Development though under Statutory Instrument 35A, the Senior Minister acts in consultation with the Minister of Transport and Energy.

The last ZUPCO fare increase took place on May 5th 1994. Table 1 illustrates the previous fare and new fares implemented by ZUPCO by distance band. The Table also shows, for comparative purposes, the maximum ceiling fares by distance band for commuter omnibus and emergency taxi services.

The ceiling or maximum fare that commuter omnibus operators can charge are considerably higher than those allowed for by ZUPCO for similar distances. For instance, the maximum fare for a distance of 15 kilometres is 235 cents by commuter omnibus but only 150 cents by ZUPCO minibus and 120 cents by conventional bus. Although the fare ceilings are the maximum charged, commuter omnibus operators tend to charge these rates (or higher) during peak hour operations and occasionally lower during off-peak periods when demand is considerably reduced. Emergency taxi fares, which legally have been unchanged for years but which range between ZUPCO and commuter omnibus fares, are similarly flexible whereas ZUPCO fares are fixed and apply throughout the operational day.

TABLE 1

Public transport fares by mode and distance - pre and post May 5th 1994 (Zimbabwe cents*)

Distance Band (km)	Old Fare	New Fare	% increase
	ZUPCO Conventional		
0-5	70	80	14.3
5.1-10	95	100	5.3
10.1-15	115	120	4.3
15.1-20	130	140	7.6
20.1-25	160	180	12.5
25.1-30	170	200	17.6
30.1+	200	230	15.0
	Zupco Minibus		
0-10	110	120	9.1
10.1-15	140	150	7.1
15.1-20	170	200	17.6
	Commuter Omnibus		
0-15	235	235	unchanged
15.1+	290	290	
	Emergency Taxi		
0-15	legal maximum	150 - 235	unchanged
15.1+	unchanged for years but fares range from:	150 - 290	

* During May 1994 the sterling pound equated to 10 Zimbabwe dollars

6.2 MODAL SPLIT

The results of limited household surveys undertaken throughout Harare between April '88 and September '94 to assess demand for travel by mode are shown in Table 2.

According to these surveys, the demand for ZUPCO stage bus services increased considerably between 1988 and 1992, whereas emergency taxi usage stabilised during the same period. Personal car and motor cycle usage diminished over the same period due to increasing costs of owning and operating such vehicles. Cycle usage, though small, also increased. By July '93 emergency taxi use had doubled to 18 percent reflecting the substantial increase in illegal operations, whereas demand for ZUPCO bus services had declined to 23 percent of all trips. Travel on foot continued to be the major travel mode throughout the period with residents minimising travel costs wherever possible especially during the downturn in the national economy and the drought of 1992/1993.

During 1994, two surveys were undertaken, the first 5 months after the legal introduction of commuter omnibuses and the second 13 months later. During the January '94 survey commuter omnibuses had 'captured' 4 per cent of the market, emergency taxis had stabilised at 18 percent and ZUPCO had marginally increased to 25 percent. However, by September '94 commuter omnibuses had increased their share to 16 percent, the emergency taxi share had diminished by half to 9 percent and the ZUPCO share had declined to 20 percent. Clearly the growth in the commuter omnibus fleet, as discussed in the previous section, is a reflection of the growth in demand for commuter omnibus services. The modern commuter omnibus vehicles are clearly replacing the ageing emergency taxis as a principal travel mode in Harare.

6.3 PUBLIC TRANSPORT PROVISION AND CAPACITY

In order to assess the global effects of the introduction of commuter omnibus services throughout Harare, surveys were conducted on all (thirteen) major road corridors on a single midweek day (a Wednesday) during July '93 (the 'pre' or 'before' situation and January and September '94 (the 'post' or 'after' case). The surveys were conducted during 06.00 hrs. to 15.00 hrs. monitoring traffic travelling towards the city centre or central business district. All public passenger service vehicles (both legal and illegal) crossing the cordon were monitored. Individual vehicle number plates were also observed and noted to ensure that vehicles were not counted more than once throughout the city (many vehicles being operated throughout the city rather than on a particular route). As public service vehicles passed the cordon sites, the passenger carrying capacity of the vehicles was noted along with an estimate of the number of passengers being carried.

Table 3 shows the individual number of vehicles observed during the three different survey periods. For ZUPCO operated vehicles the numbers operational were stable during all three surveys. Meter taxis increased by 23 percent between July '93 and September '94 with the latter showing a decline from the peak January '94 figure of 640.

As a consequence of the introduction of commuter omnibuses and rigorous police enforcement, the number of legal emergency taxis and commuter omnibuses increased dramatically whilst the number of pirate or illegally operated vehicles decreased over the period.

The most significant change was in respect of the number of legal commuter omnibuses which increased from 0 in July '93 to 1155 by September '94. Surprisingly, in July '93 there were only 55 legally operated emergency taxis and 2042 pirate operated vehicles as compared to the respective figures in September '94 of 861 and 696. Thus, despite strong police enforcement, nearly 700 illegal vehicles were still operating. In total, there were approximately 2100 emergency taxis operational in July '93 and this total had diminished to 1557 by September '94. In contrast, commuter omnibuses had increased from 341 pirate operated in

TABLE 2

Modal split throughout Harare (Percentage)

Year	ZUPCO Stage Bus	Emergency Taxi	Commuter Omnibus	Meter Taxi	Motor Car or Cycle	Cycle	Walk	Other	Total
1988	18	7	-	0.5	30	1.5	42	1	100
1991	24	10	-	1	16	1	45	3	100
1992	31	9	-	1	17	5	36	1	100
1993	23	18	1	1	16	3	38	-	100
1994 (Jan)	25	18	4	1	14	3	35	-	100
1994 (Sept)	20	9	16	0.5	14	5.5	34	1	100

Source: Transport Research Laboratory/Department of Physical Planning Home Interview Surveys 1988-1992
University of Zimbabwe/Transport Research Laboratory Surveys 1993-1994

TABLE 3

The total number of individual public service vehicles operational in Harare along major corridors during July 1993 - September 1994

Mode	July 1993	Jan 1994	Sep 1994
ZUPCO minibus	63	83	73
ZUPCO conventional	669	669	666
Legal emergency taxi	55	933	861
Legal commuter omnibus	0	409	1155
Meter taxi	482	640	591
Pirate emergency taxi	2042	1255	696
Pirate commuter omnibus	341	70	84
Total	3652	4059	4126

July '93 to 1239 (both legal and pirate) in September '94 representing 30 percent of the total supply.

Figure 7 illustrates the total number of public service vehicles operational during the three survey periods. Between July '93 and January '94, the total increased from 3652 to 4059 and the total had marginally increased further by September '94 to 4126. Overall, the supply increased by 13 percent over the entire period monitored, whereas passenger carrying capacity as illustrated in Figure 8 and Appendix A Table A.1 increased by approximately 18 percent. The capacity increased by 12 percent between January '94 and September '94 despite only a 1.6 percent increase in provision over the period. This is explained by a considerable reduction in low capacity emergency taxis (mainly pirate) and an increase in higher capacity commuter omnibuses.

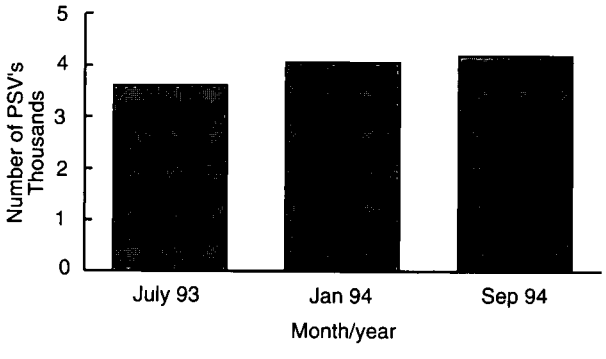

Fig 7 Public transport provision along major corridors in Harare

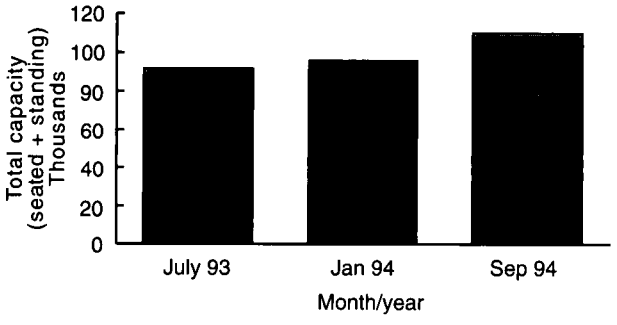

Fig 8 Public transport passenger capacity along major corridors in Harare

The rapid growth in the fleet of commuter omnibuses led inevitably to these vehicles increasing their share of the total passenger carrying capacity to 24 percent of the total monitored capacity (see Appendix A Table A.1) within 13 months of their introduction. Meanwhile the emergency taxi share of capacity declined from 16 to 10 percent and ZUPCO's capacity from 75 to 63 percent between July '93 and September '94.

6.4 PUBLIC TRANSPORT DEMAND

As part of the monitoring exercise of the number of public transport service vehicles throughout Harare, an estimate was also obtained of the number of passengers transported by the various modes towards the city centre. Table 4 shows the demand estimates by mode for the survey period 06.00hrs - 15.00hrs.

Reflecting the above observations, the number of passengers travelling by legally operated emergency taxis and commuter omnibuses increased substantially, whilst demand for pirate operated vehicles decreased significantly. For example, passengers travelling by pirate operated commuter omnibuses fell by 95 percent between July '93 and

TABLE 4

Estimates of the number of public transport passengers travelling along major corridors in Harare during July 1993 -September 1994 by vehicle mode (towards city)

Mode	July 1993	Jan 1994	Sep 1994
Zupco minibus	10065	15703	11497
Zupco conventional	90963	100727	96602
Legal emergency taxi	2795	27182	18058
Legal commuter omnibus	0	28525	63835
Meter taxi	1009	1468	1153
Pirate emergency taxi	40638	21733	6141
Pirate commuter omnibus	23843	1927	1082
Total	169313	197265	198368

September '94 whilst those travelling legally increased from zero to an estimated 63,835 during the same period.

Patronage of illegally operated emergency taxis fell by 85 percent over the same period with just 6141 passengers being counted as travelling by the mode in September '94. Legally operated emergency taxi passengers however increased from 2795 in July '93 to 27182 in January '94 but then decreased to 18058 in September '94. This reflects an increase overall, but also a substantial decline between January '94 and September '94. The decline during the latter period is probably a reflection of the reduction in the number of legally operated emergency taxis and hence capacity (as illustrated earlier in Table 3 and Appendix A, Table A.1) as the introduction of commuter omnibuses continued. Thus by September '94, the number of passengers travelling by both legal and pirate operated emergency taxis had declined from 26 percent (of the estimated total public transport demand) in July 93 to just 12 percent, whilst those travelling by commuter omnibuses increased from 14 percent (totally pirate) to 33 percent during the same period. Meanwhile, ZUPCO accounted for 60 percent of all passengers in July '93 and 54 percent in September '94. Clearly the majority of commuter omnibus passengers had transferred from the emergency taxi rather than from ZUPCO's services.

Figure 9 illustrates the total demand for all modes during the three survey periods. Demand increased substantially between July '93 and January '94 rising by 16 percent. However, between January '94 and September '94 (despite a considerable increase in capacity), demand increased by only an additional 0.6 percent. This small increase in demand matches almost exactly the increase in operational vehicles. Thus, although the actual travel demand has increased by approximately 17 percent between July '93 and September '94 the continued growth in capacity, especially between January '94 and September '94 is in excess of this.

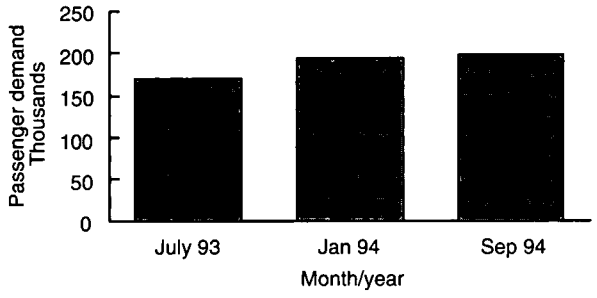

Fig 9 Estimates of demand for public transport services along major corridors in Harare

6.5 COMMUTER OMNIBUS ACCIDENT RATES

Due to the high kilometrage operated, public transport service vehicles are frequently involved in road accidents. However due to traffic conditions within the central business district, traffic speeds within Harare are generally low and hence fatalities involving public transport passenger vehicles are minimal.

Data on accidents involving commuter omnibuses reported to the Zimbabwe Republic Police (ZRP) were collated by the Traffic Police section for the period January - September '94 and are shown in Table 5.

The total number of accidents involving commuter omnibuses reported to the ZRP ranged by month from 18 to 40 and comprised 2.6 to 5.5 percent of all reported accidents. However, it is generally felt by the authorities that some of the reported accidents involved vehicles attempting to avoid commuter omnibuses but in doing so collided with other vehicles. The commuter omnibus though being perhaps the initial cause of the accident was not counted as actually being involved. Thus the above will undoubtedly

TABLE 5

The total number of accidents reported to the Zimbabwe Republic Police and the number involving commuter omnibuses between January and September 1994

Month	Total number of accidents reported to the ZRP	Number of commuter omnibus accidents reported	Involvement of commuter omnibuses as percentage of total reported accidents
January	692	18	2.6
February	658	28	4.2
March	652	36	5.5
April	607	27	4.4
May	648	28	4.3
June	759	40	5.3
July	774	31	4.0
August	789	36	4.5
September	821	29	3.5
Total	6400	273	av: 4.3

Source: Zimbabwe Republic Police (ZRP)

be an underestimate of the impact of commuter omnibuses on accidents in the capital. In addition to the reported accidents, many 'slight' collisions or involving fellow commuter omnibuses are likely to have gone unreported.

According to the Traffic Police the major causes of why commuter omnibuses were involved in accidents was due to the following:-

- driving without due care and attention
- driver fatigue due to long operational hours worked
- excessive speeding between the city centre and residential areas
- following too close to traffic ahead
- overtaking error
- failing to give way

Where a mechanical fault is assumed to have been a contributory or major factor in the cause of the accident, vehicles are referred to the Ministry of Transport and Energy's Vehicle Inspection Department (VID) for a vehicle assessment . Table 6 shows the number of commuter omnibuses and emergency taxis referred to the VID on a monthly basis during January - September 1994.

Of the 1440 vehicle referrals to the VID between January - September 1994, sixty five (4.5 percent) were commuter omnibuses and 36 (2.5 percent) were emergency taxis. The figures are consistent except for commuter omnibuses in April/May and emergency taxis in March when higher numbers of vehicles than normal were referred to the VID. Despite the fact that most emergency taxis are generally old vehicles and commuter omnibuses generally new or relatively new, the latter have significantly higher number of referrals to the VID. Table 3 showed there were more legally operated commuter omnibuses than emergency taxis in September. As the legally operated commuter omnibus fleet increases and the emergency taxi fleet decreases the trend in referrals to the VID is likely to continue.

7. CORRIDOR FINDINGS

In order to assess the precise impact on users of the introduction of commuter omnibus services in Harare, a detailed study was undertaken along a single corridor. As with the earlier surveys, observations were undertaken over three periods. The first phase (July 1993) represents the "before" commuter omnibus period while the other two phases (January 1994 and September 1994) represent the "after" period.

The corridor chosen was Mufakose/Kambuzuma to city. Mufakose and Kambuzuma are two high population density residential areas adjacent to each other, located to the south western side of the Harare CBD and are 14 kilometres and 11.5 kilometres from the city centre respectively (see Figure 2). The two high density residential areas have a combined population (Central Statistical Office 1992) of

TABLE 6

The number of commuter omnibuses and emergency taxis referred to the Vehicle Inspection Department between January - September 1994

Month	Total number of vehicles referred to the VID	Number of commuter omnibuses referred to the VID	Commuter omnibuses as a percentage of the total vehicles referred to the VID	Number of emergency taxis referred to the VID	Emergency taxis as a percentage of the total vehicles referred to the VID
Jan	141	5	3.5	5	3.5
Feb	108	3	2.8	3	2.8
Mar	139	5	3.6	11	7.9
Apr	176	12	6.8	4	2.3
May	157	13	8.3	6	3.8
Jun	219	8	3.7	2	0.9
July	150	5	3.3	2	1.3
Aug	177	6	3.4	2	1.1
Sept	173	8	4.6	1	0.6
Total	1440	65	av: 4.5	36	Av: 2.5

Source: Vehicle Inspection Department, (VID) Ministry of Transport and Energy

102,400 and the route corridor is typical of most operated in Harare.

7.1 CORRIDOR SURVEYS

Surveys were carried out to assess trends in public transport vehicle supply, average passenger waiting times and fares and passengers' perception of services and service levels.

Supply levels were determined by monitoring the number of all public transport vehicles from 06.00 hours to 10.00 hours in the city centre direction. All three surveys were conducted on the same day of the week during three survey periods.

Passenger waiting times and service headways were observed at the major terminal points at both the city centre and within the residential areas of Mufakose and Kambuzuma. The same terminal points were monitored for the three survey periods. In all, a total of 2000 passenger waiting times were monitored. The method used was by direct observation of passenger arrival and departure times.

Information on passenger perception of public transport services was obtained by conducting a household survey in both residential areas. A sample of 150 households (75 in Mufakose and 75 in Kambuzuma) were interviewed to determine their attitudes and opinion on the level of service "pre" and "post" the introduction of commuter omnibuses. For comparative purposes, the same households were interviewed in all the three surveys.

Finally, data on fares paid was obtained by requesting details of all journeys undertaken during a previous day as well as the fare paid for each trip. All household surveys were conducted on a Saturday and Sunday but information on trips was obtained in respect to the previous Thursday.

7.2 PUBLIC TRANSPORT SUPPLY, CAPACITY AND DEMAND

The total number of public transport vehicles observed during the three survey periods are shown in Table 7 overleaf.

The number of ZUPCO buses decreased by 21 percent over the period July '93 to September '94. The reduction was probably due to ZUPCO rationalizing its services as a result of the competition posed by commuter omnibuses.

Emergency taxis increased from 123 to 240 between July '93 and January '94 and then fell to 98 by September '94. As already stated in paragraph 5.4, some emergency taxis have redeployed to operate short routes while others have started operating intra-suburban services following the introduction of commuter omnibuses.

Some operators have retired their old and ageing emergency taxis in preference for larger commuter omnibuses.

TABLE 7

Trends in vehicle supply within the Kambuzuma/Mufakose-city corridor

Vehicle type	July 1993	January 1994	September 1994
Zupco buses	82	71	65
Emergency taxis	123	240	98
Commuter omnibuses	22*	71	161
Total	227	382	324

* pirating and not officially recognised as legal.

In July '93, there were 22 pirate commuter omnibuses observed operating along the case study corridor. By January '94 the number of commuter omnibuses had increased to 71 and by September '94 had risen to 161. While ZUPCO buses and emergency taxis have decreased in number over the survey period, commuter omnibuses registered a significant increase.

Overall, total public transport supply on the route corridor increased from 227 vehicles (July '93) to 382 vehicles (January '94) but then decreased to 324 (September '94). However, despite the decrease in the total number of operational public transport vehicles along the corridor between the last two surveys, the passenger carrying capacity (seated plus standing) increased as illustrated by Table 8 below.

Whilst the total passenger carrying capacities of ZUPCO buses and emergency taxis decreased over the period, there was a substantial increase in capacity of commuter omnibuses. Hence, the total passenger carrying capacity (all vehicles) increased from 8673 (July '93) to 10266 (September '94). Figures 10 and 11 illustrate the total public transport vehicle supply and capacity within the corridor for the three survey periods.

TABLE 8

Trends in passenger carrying capacity within the Kambuzuma/Mufakose-city corridor

Vehicle type	July 1993	January 1994	September 1994
Zupco buses	7262	6490	6360
Emergency taxis	861	1680	686
Commuter omnibuses	550	1775	3220
Total	8673	9945	10266

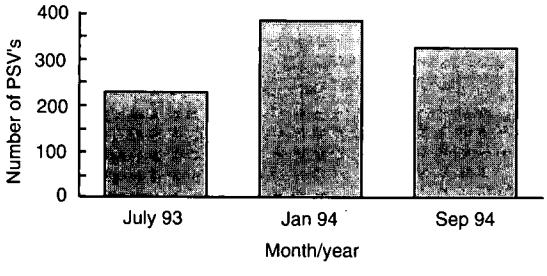

Fig 10 Public transport provision within the Kambuzuma/Mufakose - city corridor

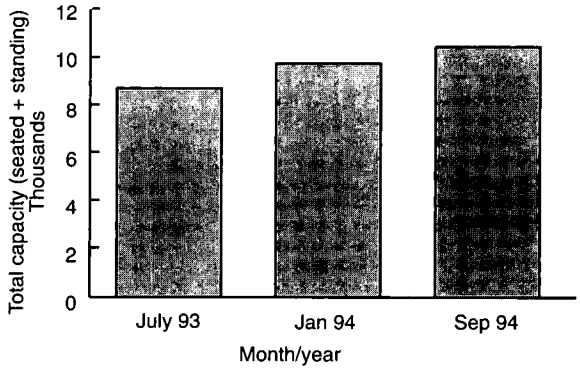

Fig 11 Public transport passenger capacity within the Kambuzuma/Mufakose - city corridor

Total demand stayed more or less constant over the period increasing marginally from 8765 to 8916 between July '93 and January '94 and falling slightly to 8886 in September '94. The estimated ratio of demand to capacity was 1.01 in July 1993 and this had decreased to 0.87 by September 1994.

These ratios indicate that overloading was prevalent before the introduction of commuter omnibuses resulting in passenger discomfort during the peak periods. Clearly, the introduction of commuter omnibuses has increased the passenger carrying capacity and enhanced comfort by reducing overloading.

7.3 PASSENGER WAITING TIMES

A key measure of service quality is the average time a passenger has to wait before boarding a bus. Actual observed passenger waiting times were used to compare the changes in the level of service before and after the introduction of commuter omnibuses. Figure I2 shows trends in average passenger waiting times and headways observed during the three survey periods.

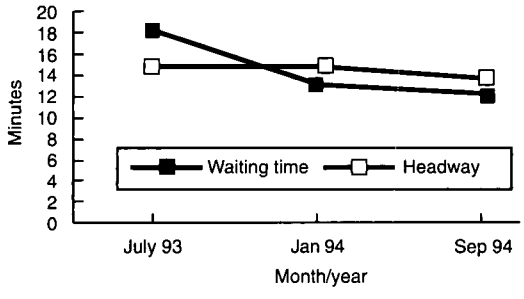

Fig 12 Average waiting time and headway in both directions along the Kambuzuma/Mufakose-city corridor

It is evident from Figure I2 that there has been a general decrease in the average waiting time for all public transport modes from 18 minutes (July '93) to 12 minutes (September '94), a reduction of 33 per cent. During the same period, the average service headway marginally decreased from 15.0 minutes (July '93) to 13.7 minutes (September '94).

Passengers travelling by commuter omnibuses and emergency taxis waited for an average 4 minutes in September '94 whilst for ZUPCO bus services the average was 20 minutes. Passengers have clearly benefited from the increased quality of service which has resulted from the fleet expansion and increased passenger carrying capacity.

7.4 PASSENGER FARES

The household surveys revealed that passengers paid an average all-mode trip fare of 163 cents in July '93. The fare increased marginally to 164 cents in January '94 and in September '94 increased further to 175 cents.

The increase in average fares in September '94 is partly due to the authorised increase in ZUPCO fares during May 1994. In addition, during the various surveys it was observed that some commuter omnibus drivers charged in excess of the authorised fare levels during the peak demand periods, obviously taking advantage of a situation when demand is in excess of supply. Thirdly, it was also noted that some drivers travelling to Mufakose from city, cut the route into two i.e. city-Kambuzuma and then Kambuzuma-Mufakose resulting in passengers having to pay two fares for the single journey.

Thus, despite Government control of fares, operators are able to circumvent the fare ceilings and charge what the market will tolerate at certain times of the day when demand is heavy.

7.5 PASSENGER PERCEPTION OF SERVICE LEVELS

The corridor residents interviewed in the household surveys were asked to rate the bus service under the categories of "very good", "good" "average" "poor" and "very poor". Figure 13 shows the trend in responses of the households during the three study periods.

Prior to the introduction of commuter omnibuses 31 percent of respondents classified the service as 'poor' and 23 percent as 'average'. By January '94 the 'poor' percentage was approximately similar at 29 percent but 'average' had increased to 31 percent. Thirteen months after the introduction of commuter omnibuses 'poor' had declined to 22 percent and 'average' had increased to 37 percent. In addition, those classifying the service as 'good' had increased from 8 percent to 24 percent. Clearly, most residents were of the opinion that the service had substantially improved following the Government decision to liberalise the urban public transport sector.

In response to a direct question as to whether the level of public transport had improved as a result of the introduction of commuter omnibuses, 78 percent of residents interviewed in January '94, answered 'yes' while 22 percent thought the service was unchanged. In the September '94 study, 81 percent were affirmative.

From these results, it is evident that residents do acknowledge improvements in service quality resulting from the introduction of commuter omnibuses. Their opinions confirm the results of the service level study which showed service improvements when commuter omnibuses were introduced.

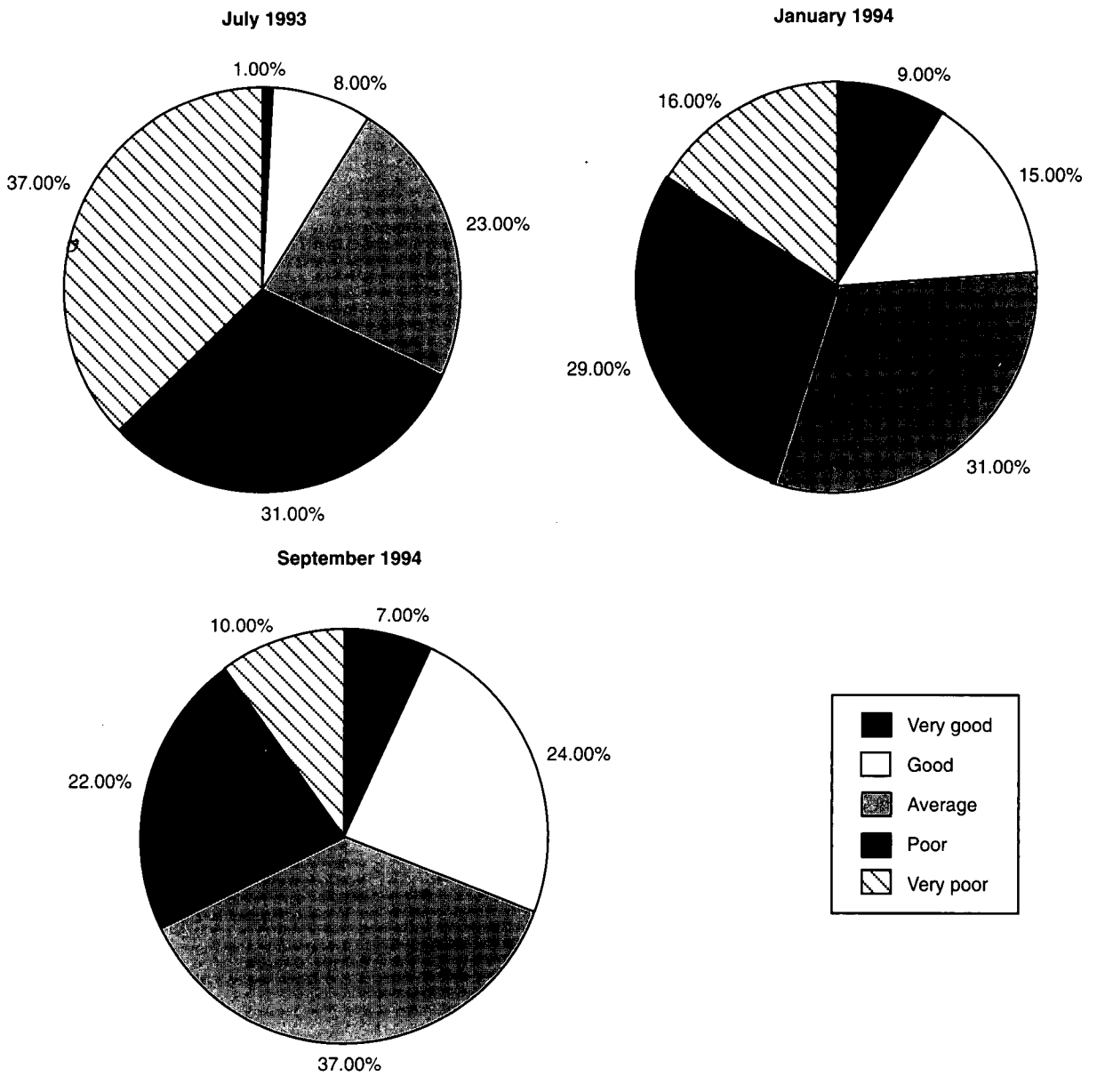

Fig 13 Trends in passenger opinion of service levels. July 1993 - September 1994

8. DISCUSSION AND CONCLUSIONS

The introduction of commuter omnibuses in Harare was undertaken to liberalise the sector rather than to totally deregulate the market environment. Operators cannot legally compete on fares as these are officially determined and controlled by Government. However, at the moment, the system is flexible and due to a lack of enforcement, commuter omnibus fares have tended to rise at certain times of the day when demand is high. Thus increased competition has not led to a reduction in fares as many proponents of deregulation have suggested.

Secondly, although operators have generally been granted routes of their choice, the present regulations stipulate that these should be designated by the Minister of Local Government, Rural and Urban Development. Plans are already underway, however, for Local Authorities to undertake the responsibility to determine the absolute number of commuter omnibuses as well as the routes to be operated. Currently, the Local Authority is concerned that as the commuter omnibus fleet increases so a build-up in traffic congestion (see Plate 10) will ensue, which will be exacerbated by a lack of off-street parking facilities for commuter omnibuses in the city centre. As a consequence, the Local Authority may well try to limit the future growth of commuter omnibuses in the capital. If the Local Authority

achieves its objective, this will create a restrictive barrier to entry into the urban public transport market diminishing the competitive environment.

Notwithstanding the point that the market has not been completely deregulated, but liberalised, it is evident from the study that the introduction of commuter omnibuses has improved the level of service in Harare. The fleet expansion and increase in passenger carrying capacity has ensured that passenger waiting times have decreased, and the expansion of routes has benefited passengers who previously were not provided with a service. The redeployment of emergency taxis on shorter routes as well as on intra-suburban routes has meant that these services now penetrate areas which previously were not supplied with a good quality service.

At present, it is difficult to determine the likely effects that commuter omnibuses have had on the conventional bus services provided by ZUPCO. Neither revenue or patronage data could be obtained from ZUPCO during the present study. However, taking the scenario of a continued marginal growth in the commuter omnibus fleet, it is likely that the future expansion of the ZUPCO conventional bus fleet and services will be curtailed. This has happened in other cities such as Nairobi where the unprecedented growth in the Matatu fleet has captured at least 50 percent of the urban stage bus market and so constrained the growth and level of service provided by the conventional bus fleet. It is likely that ZUPCO may operate a smaller route network than present, allowing them to operate a higher service frequency on the reduced network. With the fare advantage and constrained growth in personal incomes, ZUPCO will continue to have a substantial market for the foreseeable future. In addition, ZUPCO are likely to provide additional services such as private and company hires to maximise its fleet utilisation throughout the day.

The actual growth of commuter omnibuses has shown that the majority of vehicles operating in Harare are small minibuses with 11 to 15 seats. Despite an improvement in the level of service attributed to commuter omnibuses, it can also be argued that the mushrooming of smaller vehicles results in an overall inefficient use of resources; smaller vehicles being less efficient in terms of cost per passenger carrying capacity than conventional buses. As the city of Harare continues to expand, the future public transport system cannot be sustained by small capacity vehicles alone. Conventional buses as operated by ZUPCO will continue to play a significant role.

Commuter omnibuses in Harare operate in a different manner to ZUPCO conventional buses. They provide 'a hail and ride service' and do not operate to a schedule. The combination of these two factors has enabled commuter omnibuses to offer a frequent and convenient service to its patrons.

Environmental issues are a subject of concern worldwide. The growth of commuter omnibuses in Harare has contributed to the growth in congestion within the city centre. As there are no official areas for the vehicles to load with passengers, certain roads are frequently blocked with commuter omnibuses waiting to load with passengers (see Plate 11). Clearly, off-street parking sites need to be provided by the Local Authority at key locations within the city centre for the loading and unloading of commuter omnibus passengers.

The attractiveness of some parts of the city and the general aesthetic have been adversely affected. Current evidence also shows that commuter omnibuses are more prone to accidents than emergency taxis. In short, the growth of commuter omnibuses may have already had negative impacts on the environment which is likely to deteriorate still further, as the number of commuter omnibuses continue to increase. Hence the present moves by the Local Authority to try to regulate both routes and the fleet growth in the future.

Although eighteen months from their introduction is not sufficient to make any definitive conclusions on the commuter omnibuses, results indicate that:

1. The introduction of commuter omnibuses increased both the supply and capacity of the public transport system in Harare.

2. The level of service improved as shown by the reduction in passenger waiting times.

3. Generally, passengers perceive the introduction of commuter omnibuses positively and acknowledge the improvement in public transport services which has ensued.

4. The additional routes which were opened have considerably expanded the network.

On the negative side;

5. Following the introduction of commuter omnibuses, fares have tended to rise especially during the busiest times of the day.

6. Along certain corridors conventional services provided by ZUPCO have diminished thereby constraining modal choice and leaving passengers increasingly dependent on commuter omnibus services.

7. Congestion at major boarding locations in the city centre appears to have increased, thus adversely affecting other road users and the environment in general.

Plate 10 Traffic congestion caused by commuter omnibuses loading and unloading passengers on urban streets in Harare

Plate 11 Passengers waiting to board commuter omnibuses on a busy city centre street in Harare

It is evident from the study that passengers have benefited from changes that have resulted in an improved service. In the long term, however, the continued increase of commuter omnibuses if allowed, is likely to erode ZUPCO's revenue and increase congestion and pollution on the urban environment to the detriment of all Harare's residents. Clearly, in the future, a balance will be required on the need to improve the level of public transport service and hence its sustainability on the one hand and the wider community costs on the other.

9. ACKNOWLEDGEMENTS

The work presented in this Report forms part of the research programme of the Overseas Centre (Programme Director: J Rolt) of the Transport Research Laboratory. The findings are part of a programme of work undertaken by the University of Zimbabwe and the Transport Research Laboratory. The authors gratefully acknowledge the assistance provided by students of the University's Department of Rural and Urban Planning during survey periods.

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APPENDIX A: PUBLIC TRANSPORT CAPACITY

TABLE A.1

Estimates of public transport passenger capacity along major corridors in Harare during July 1993 - September 1994 by vehicle type

Mode	July 1993	Jan 1994	Sep 1994
ZUPCO minibus	2079	2739	2409
ZUPCO conventional	67569	67569	67266
Legal emergency taxi	385	6531	6027
Legal commuter omnibus	0	8406	25220
Meter taxi	1928	2560	2364
Pirate emergency taxi	14294	8785	4872
Pirate commuter omnibus	6930	1037	1480
Total	93185	97627	109638

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