

Urban Public Transport Regulation in Pakistan

Ghulam Abbas Anjum
B Sc. CRP (Gold Medalist), M Sc. CRP

Thesis Submitted for the Degree of Doctor of Philosophy

**Heriot-Watt University
School of Planning and Housing at
Edinburgh College of Art**

May 1998

This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that the copyright rests with its author and that no quotation from the thesis and no information derived from it may be published without the prior written consent of the author or the University (as may be appropriate)

CONTENTS

Page

List of Figures

vii

List of Tables

viii

List of Plates

x

Acknowledgements

xi

Abstract

xiii

Acronyms

xiv

Chapter 1 Introduction

1.1 Urban Public Transport Problems in Less Developed Countries

1

1.2 Aims and Objectives of the Research

5

1.3 The Research Approach

6

1.4 Structure of the Thesis

8

Chapter 2 Methodology

2.1 Introduction

10

2.2 Literature Review

10

2.3 Case Study Approach and the Selection of Case Study Cities

11

2.4 Methods Employed for Data Collection

13

2.4.1 Collection and collation of secondary data

13

2.4.2 Direct observations

13

2.4.3 In-depth interviews

15

2.4.4 Correspondence

17

2.4.5 The household surveys

18

2.4.6 Passenger surveys

20

2.5 Analysis

21

Chapter 3 Urban Public Transport Policies And Regulation: Literature Review

3.1 Introduction

24

3.2 Urban Public Transport Policies

24

3.2.1 State intervention and public ownership

24

3.2.2 Subsidies and grants

28

3.2.3 Financial incentives to private operators

31

3.3	Regulation of Urban Public Transport	32
3.3.1	Origin of regulation	32
3.3.2	Basis of regulation	32
3.4	Regulatory regimes	35
3.4.1	Entry controls	35
3.4.2	Fare regulations	37
3.4.3	Quality controls	40
3.4.4	On-street regulation and traffic management	45
3.5	Enforcement of regulation	53
3.6	Urban Public Transport Regulation in India	55
3.7	Deregulation of Urban Public Transport	59
3.7.1	Deregulation in developed countries	61
3.7.2	Deregulation of the bus industry in Britain	63
3.7.3	Deregulation in less developed countries	69
3.8	Alternative Forms of Competition	74
3.8.1	The system management contract	75
3.8.2	The service supply contract	76
3.8.3	Unbundling and sub-contract	78
3.8.4	Mixed system	78
3.9	Models of Good Regulatory Practice	79
3.9.1	Public transport regulation in Hong Kong	79
3.9.2	Competitive tendering in London	81
3.10	Conclusions	83

Chapter 4 Urban Public Transport In Pakistan

4.1	Introduction	86
4.2	General Presentation	86
4.2.1	Location	86
4.2.2	Population	87
4.2.3	Development of economy	89
4.2.4	Summary history of urban public transport	90
4.3	Role of Governments	
4.3.1	Role of Federal Government	91
4.3.2	Role of Provincial Governments	94
4.4	Subsidies and Grants	95
4.4.1	Federal Government subsidies	96
4.4.2	Provincial Government subsidies	97
4.5	Taxation Policies	98
4.5.1	Federal Government taxes	99
4.5.2	Provincial Government taxes	101
4.5.3	Local council charges	102
4.6	Regulation of Urban Public Transport	
4.6.1	Legal framework	104

4.6.2	Objectives of regulation	104
4.6.3	Regulatory agencies	105
4.6.4	Regulatory instruments	110
4.7	Urban Public Transport Initiatives in Pakistan	
4.7.1	The National Transport Research Centre	115
4.7.2	Prime Minister Public Transport Scheme	118
4.7.3	National Mass Transit Authority	119
4.7.4	The Awami train project	120
4.7.5	Overseas aid	123
4.7.6	Recent initiatives	126
4.8	Conclusions	
4.8.1	Lack of articulated transport policy	127
4.8.2	Lack of political will	128
4.8.3	Poor administration	129
4.8.4	Lack of financial incentives	129
4.8.5	Undue regulation	130

Chapter 5 Public Transport In Lahore

5.1	Introduction	131
5.2	City Characteristics	131
5.2.1	General presentation	131
5.2.2	Population growth and density	132
5.2.3	Land use and urban structure	134
5.2.4	Road network	136
5.2.5	Traffic engineering and management	140
5.2.6	Road transport	142
5.2.7	Travel patterns	143
5.2.8	Public transport services	145
5.3	Regulatory Framework	
5.3.1	Administration	147
5.3.2	Fare structures	148
5.3.3	Quality controls	149
5.3.4	Route network regulations	151
5.4	Public Sector Services	
5.4.1	General description	152
5.4.2	Regulation of services	153
5.4.3	Operational performance	153
5.4.4	Reasons for terminal decline	155
5.5	Private Sector Services	
5.5.1	Stage carriage services	156
5.5.2	Structure of private bus industry	161
5.5.3	Cooperation among operators	162
5.5.4	Contract carriage services	163

5.6	Evidence on Demand from Household Survey	165
5.6.1	Household survey in Jauhar Town	167
5.6.2	Household survey in Baghban Pura	177
5.6.3	Summary of findings	184
5.7	Resulting Public Transport Problems	
5.7.1	Inadequacy of services	186
5.7.2	Poor quality of services	187
5.7.3	Spatial and social inequalities	190
5.7.4	Environmental degradation	194
5.7.5	Traffic congestion	196
5.7.6	Road safety	201
5.8	Conclusions	204

Chapter 6 Public Transport In Faisalabad

6.1	Introduction	206
6.2	The City of Faisalabad	207
6.2.1	Socioeconomic characteristics	207
6.2.2	Land use and control	209
6.2.3	Road network and traffic situation	211
6.2.4	Travel patterns	215
6.2.5	Public transport services	216
6.3	The Faisalabad Urban Transport Society	
6.3.1	Introduction	220
6.3.2	Administration	221
6.3.3	Objects	222
6.3.4	Support staff	223
6.3.5	Sources of income	223
6.3.6	Operation	225
6.4	Regulatory Regimes	
6.4.1	Issuance of route permits	228
6.4.2	Fares structure	228
6.4.3	Route network	229
6.4.4	Safety regulations	231
6.4.5	Enforcement	231
6.5	Pattern of Ownership	233
6.5.1	Categories of vehicle owners	234
6.5.2	Vehicle owner profiles	235
6.6	Public Transport User Surveys	239
6.6.1	Suzuki passenger survey	241
6.6.2	FUTS passenger survey	248
6.6.3	Household case studies	259
6.6.4	Summary of survey findings	264
6.7	Performance of the Faisalabad Urban Transport Society's Services	

6.7.1	Operational performance	265
6.7.2	Quality of service	267
6.8	Conclusions	269

Chapter 7 Synthesis Of Analysis And Conclusions

7.1	Introduction	271
7.2	Urban Public Transport Policies	271
7.2.1	Transport policy	271
7.2.2	Ownership policy	272
7.2.3	Subsidy and grant policy	276
7.2.4	Taxation policy	276
7.3	Urban Public Transport Regulation	
7.3.1	Fare regulations	278
7.3.2	Quantity controls	281
7.3.3	Quality controls	283
7.3.4	Traffic management	286
7.4	NGO Based Urban Public Transport Regulation	290
7.4.1	Improvements in the regulation	290
7.4.2	Fares control	293
7.4.3	Improvements in service	294
7.4.4	Gradual development of regulatory measures	297
7.4.5	Information system	297
7.4.6	Improvements in traffic management	298
7.4.7	Sustainability	299
7.5	Conclusions	299

Chapter 8 Conclusions And Recommendations

8.1	Introduction	300
8.2	General conclusions	301
8.3	Recommendations and conclusions	310
8.4	Significance and Contribution of the Research	316

References	318
-------------------	------------

Appendices	338
-------------------	------------

List of Figures

Title	Page
Figure 1.1 The research approach	7
Figure 4.1 Map showing Pakistan and its provinces	88
Figure 4.2 Map showing divisions and districts in Punjab	107
Figure 4.3 Schematic picture of the Islamabad/Rawalpindi road network	122
Figure 5.1 Population density by zones in Lahore	133
Figure 5.2 Trend of urbanisation in Lahore	135
Figure 5.3 Land use pattern in Lahore (1990)	137
Figure 5.4 Road network in Lahore	139
Figure 5.5 Modal split of the traffic in Lahore in 1979 and 1989	142
Figure 5.6 Jauhar Town: household survey area-I	165a
Figure 5.7 Baghban Pura: household survey area-II	166a
Figure 5.8 Location of selected areas in Lahore	191
Figure 6.1 The city of Faisalabad	210
Figure 6.2 Route network served by FUTS services	230
Figure 6.3 Passenger survey points in Faisalabad in 1996	240
Figure 6.4 Location of selected households in Faisalabad in 1996	260

List of Tables

Title	Page
Table 2.1 Summary of methods employed for data collection arranged by objectives	23
Table 4.1 Average annual economic growth rates in South Asian countries (1980-87)	89
Table 4.2 Summary of the Federal Government responsibilities	93
Table 4.3 Summary of the Provincial Government responsibilities	95
Table 4.4 The financial statement of the PRTC	98
Table 4.5 Taxes of imported buses	101
Table 4.6 Charges on motor vehicles by provincial governments	102
Table 4.7 Average annual operating cost of public transport vehicles in Lahore	104
Table 4.8 Fares structure in different provinces	111
Table 4.9 Summary of quantity control regimes in Pakistan	114
Table 5.1 Modal split of trips in Lahore, 1990	144
Table 5.2 Road public transport inventory in Lahore (1996)	146
Table 5.3 Operational performance of public bus corporations in Pakistan	154
Table 5.4 Private stage carriage provision in Lahore	160
Table 5.5 Contract carriage services in Lahore	164
Table 5.6 Composition of households in Jauhar Town	168
Table 5.7 Distribution of vehicles owned by the households	168
Table 5.8 Distribution of monthly incomes	169
Table 5.9 Distribution of monthly travel expenditures	170
Table 5.10 Distribution of mode of travel of household members by their purpose	171
Table 5.11 Reasons for not travelling in public transport	172
Table 5.12 Reasons for not being satisfied with the public transport	172
Table 5.13 Inadequacy of buses	173
Table 5.14 Intention to use public transport	174
Table 5.15 Intended use of public transport	174
Table 5.16 Intention to use better quality services at higher fares	175
Table 5.17 Choice to use various types of better quality bus services	176
Table 5.18 Rank order of importance of various aspects of a transport service	176
Table 5.19 Composition of households in Baghban Pura	177
Table 5.20 Vehicle ownership by the households	178
Table 5.21 Distribution of household monthly incomes	178
Table 5.22 Distribution of household monthly travel expenditures	179
Table 5.23 Distribution of mode of travel of household members by their purpose	180
Table 5.24 Reasons for not travelling in public transport	181
Table 5.25 Intention to use public transport	181
Table 5.26 Intended use of public transport	182
Table 5.27 Willingness to increased fares for better quality services	182
Table 5.28 Choice to use different bus services	183

Table 5.29	Rank order of importance of various aspects of a transport service	184
Table 5.30	Summary of problems in selected areas	193
Table 5.31	Density, income, and modal component in selected areas	194
Table 5.32	Vehicle involved in road accidents in Lahore in 1994	203
Table 5.33	Types of vehicle involved and person killed in Lahore in 1994	203
Table 6.1	Household monthly income in Faisalabad in 1996	208
Table 6.2	Reported use of modes in Faisalabad in 1996	215
Table 6.3	Road public transport inventory in Faisalabad in 1996	217
Table 6.4	Occupation of vehicle owners under FUTS control	233
Table 6.5	Passengers interviewed in Faisalabad in 1996	241
Table 6.6	Reported use of suzuki service	242
Table 6.7	Reported use of suzuki for specific trip	243
Table 6.8	Reasons for travelling in suzukis	243
Table 6.9	Monthly income of suzuki passengers	244
Table 6.10	Reported complaints about existing public transport	246
Table 6.11	Suggestions for improvement to public transport	247
Table 6.12	Reported use of FUTS services	248
Table 6.13	Reported use of FUTS service for specific trip	249
Table 6.14	Monthly income of FUTS passengers	250
Table 6.15	Choice of FUTS service for specific trip	251
Table 6.16	Mode of transport used prior to FUTS service	252
Table 6.17	Reported overloading on the FUTS services	254
Table 6.18	Complaints with mechanical condition of FUTS vehicles	255
Table 6.19	Passengers' views about fare levels	256
Table 6.20	Passengers' views about safety aspects	256
Table 6.21	Reported popularity of FUTS service	257
Table 6.22	Other complaints about FUTS service	258
Table 6.23	Suggestions about improvement of FUTS service	259
Table 7.1	Comparison of regulatory approaches	292
Table 7.2	Service comparison under two regulatory regimes	296

List of Plates

Title	Page
Plate 4.1 Bus used under NTRC project	117
Plate 4.2 NTRC bus train	117
Plate 5.1 A road junction improvement in Lahore	141
Plate 5.2 A newly built under pass on Jail Road in Lahore	141
Plate 5.3 A Volvo bus under the terminated PRTC operation	158
Plate 5.4 A full size bus under the LUTP operation	158
Plate 5.5 A lack of organisation for bus stops in Lahore	199
Plate 5.6 A disorganised terminal in Lahore	200
Plate 5.7 Travel in minibuses in Lahore	189
Plate 5.8 Illegal parking and turning in Lahore	200a
Plate 6.1 Dilapidated road conditions in Faisalabad	213
Plate 6.2 A mix of traffic in Faisalabad	214
Plate 6.3 A suzuki operating in Faisalabad	218
Plate 6.4 Newly built FUTS office building	224
Plate 6.5 Well organised FUTS terminal	224
Plate 6.6 A minibus under FUTS operation	227
Plate 6.7 FUTS support staff on duty	227
Plate 7.1 A bus used under pilot project in Lahore	274

ACKNOWLEDGEMENTS

This thesis would not have been completed without the assistance of the Department for International Development (DfID) which funded the link project jointly undertaken by the Centre for Environment and Human Settlements (CEHS) in School of Planning and Housing, Edinburgh College of Art and Department of City and Regional Planning (DCRP) of the University of Engineering and Technology (UET) Lahore. I would therefore like to thank the DCRP/UET for providing me with the opportunity to undertake the doctoral research by nominating me for the award and granting me a study leave. I would also like to thank the British Council for the administration of this award.

To my first supervisor, John Russell, I owe immeasurable and deep gratitude for the interest he showed in my research work and his continuing encouragement, friendly attitude, constructive criticism and guidance which not only stimulated my efforts but helped to direct me in the right direction. I would also like to record his help and moral support on various occasions in particular, during the periods when I was hospitalised. In this regard I don't have the English vocabulary to pay thanks for John's kindness.

My everlasting gratitude to John Leonard, Director CEHS, for his friendly attitude, and support during and prior to the commencement of this research. John stimulated my research potential during his visits to Pakistan under the first and second link programmes. He also commented on my various papers related to housing and land economy, and the research work at different stages.

Many thanks to Jeremy Raemaekers, my second supervisor, for the advice and constructive comments at various stages of the research. I am also thankful to Ya Ping Wang and Helena Butler for their help in connection with the use of computers and the printing of final draft. I am also grateful to Cliff Hague for the guidance he provided to shape various research initiatives when I was in Pakistan. Thanks also to the rest of the staff, in particular, Alan Prior of the School of Planning and Housing for their moral support.

My sincere thanks to the various persons from the UET who persuaded and supported me to pursue higher studies. In particular, Dr I.H Dar (late), the former Vice Chancellor; Sardar Hamid Latif, Mian Mohammed Iqbal, former Chairmen of the DCRP; Abdul Sattar Sikendar, the former Dean Faculty of the Architecture and Planning; and Dr Shaheen Akhter, the Pro Vice Chancellor.

The research would not have been possible without the help of a number of individuals in Pakistan who spared their time to be interviewed and to respond to my letters. These include: government officials, public transport operators and drivers, passengers and households who discussed public transport issues and responded to the questionnaires. I am most grateful to the FUTS officials for letting me see their office records and sending me information from time to time. Particularly I am thankful to Tasneem M Noorani, the former Divisional Commissioner who introduced FUTS in Faisalabad; for devoting his time to be interviewed, even with his busy

assignment as the Secretary Education. My unending gratitude to G.M Sikendar the Secretary for the Services and General Administration of the Government of the Punjab for his continuous encouragement and assistance in the procurement of data from various government offices.

My appreciation to Fida Hussain, the research officer at Ayub Agriculture Research Institute in Faisalabad, who arranged research assistants to undertake passenger surveys in Faisalabad, and who mailed me the required information on a continuing basis. I would also like to thank Ijaz Ahmad, Dr Abdul Ghaffar, Dr S.S.H Zaidi, Dr I.U Bajwa, Ch. Mohammed Akram, Muhammad Tahir, Salahudin, Major Aslam, Mushtaq, Umar Khanzada and Mrs Aysha Turab who sent information from Lahore, Karachi and Peshawar. The support of Rizwan Hameed, in particular, sending me secondary data at the initial stage of the research is also appreciated.

My special thanks to a number of researchers and practitioners who assisted me in various regards including, Geoff Lawson from the WS/Atkins Planning Consultants who provided project reports on India and commented on draft chapters on Faisalabad and Lahore; David Maunder from the TRL who provided research reports and commented on earlier draft chapters; Haleem Cheema for mailing the literature on public transport in Hong Kong; and Ken Gwilliam who very kindly provided the latest World Bank publications.

I would like to thank a number of colleagues and friends who supported me more generally through the course of this research, including Reza, Maryam, Eman, Muhammad, Yaser, Qamar, Waleed, Wael, Hatem, Ali and Cathy, PhD candidates, Heriot-Watt University, and Dr Peter Aspinall, Dr Lucy, Dr Sharif Matwef and Dr Fouzi. The help of the administrative staff of the School of Planning and Housing including Alison, Pamela, Doreen, Susan, and Lexi is highly acknowledged.

I would like to express sincere gratitude to my parents, parents in law, and wife, daughter and son who have supported me in ways that are hard to evaluate. My indebtedness to them is probably far greater than I can realise.

Finally, I want to acknowledge that it would have been extremely impossible to complete this thesis if Michael Suddlow, the consultant at the Royal Infirmary of Edinburgh, had not given the appropriate and timely treatment for my illness. It was he who managed medication and treatment during the second field visit to Pakistan. The dedication of Dr Suddlow in this regard is highly appreciated.

URBAN PUBLIC TRANSPORT REGULATION IN PAKISTAN

ABSTRACT

The regulation of urban public transport in Pakistan is the responsibility of provincial governments. As in many other Less Developed Countries government regulation has generally been inappropriate, misdirected, and often corrupt. As a consequence poorly administered public transport, provides inefficient, unreliable and low quality services, which contributes to the choice of alternative modes of travel. In turn this adds to a worsening of congestion, inequalities of access, and other urban transport problems. Attempts at improvement have often been short lived and ultimately unsuccessful because they have failed to escape from the net of the established but ineffectual regulatory bureaucracies.

In Pakistan there is a growing concern over regulatory issues. In some cities in Punjab province, the regulation of urban public transport is being channelled through Non-Governmental Organisations (NGOs) formed specifically for this purpose. In Faisalabad an NGO introduced improved stage carriage services in 1994, and assumed delegated responsibilities for the quantity, quality and fares regulation of services under its control. Following the successful experience in Faisalabad, public transport services in Lahore under the NGO control commenced in June 1997. In both cities, some public transport services are still being regulated directly by the government.

An analysis is presented of public transport operation under both government regulation and policies, and under the new form of NGO regulation, through case studies from the cities of Faisalabad and Lahore. The methods employed include a literature review, collection and collation of secondary data sources, direct observation, correspondence, in-depth interviews conducted with key officials and public transport operators, household surveys and passenger surveys.

An evaluation of the effectiveness of the new form of regulation is made, covering the performance and the quality of services offered under both regulatory regimes. It is argued that government regulations and policies have reduced the quantity and quality of public transport services whereas services under NGO regulation are a measurable success, providing substantial improvements and commanding wide acceptance both by passengers and by private operators. The key factors involved in this success are realistic fares, the involvement of private operators in decision making, freedom from the constraints of government bureaucracy, and strict enforcement of service standards. The Faisalabad experience has acted as a learning process, raising awareness and understanding about public transport issues, a process of vital importance given the absence of expertise. It has also demonstrated that there is a market for better quality services at higher fares in Pakistan.

Conclusions drawn include that the NGO has provided an effective 'arms length' mechanism for decision making, which has circumvented problems associated with government bureaucracies. In the absence of more radical reforms this mechanism offers the best prospects for further improvements to public transport services in Pakistan in the medium term. In other Less Developed Countries, with similar regulatory problems and similarly deficient bureaucracies, it may also be possible to emulate this success. Recommendations are made for further research.

ACRONYMS

BOTS	Build Operate Transfer Scheme
BPS	Basic Pay Scale
CDA	Capital Development Authority
DCs	Developed Countries
DCRP	Department of City and Regional Planning
FDA	Faisalabad Development Authority
FG	Federal Government
FMC	Faisalabad Municipal Corporation
FUTS	Faisalabad Urban Transport Society
FYP	Five Year Plan
GoP	Government of Pakistan
GTS	Government Transport Service
ITA	Islamabad Transport Authority
JICA	Japan International Cooperation Agency
km	Kilo Meter
KTC	Karachi Transport Corporation
LDA	Lahore Development Authority
LDCs	Less Developed Countries
LGO	Local Government Ordinance
LTS	Lahore Transport System
LUTP	Lahore Urban Transport Project
MCL	Metropolitan Corporation Lahore
MVE	Motor Vehicle Examiner
MVO	Motor Vehicle Ordinance
NGO	Non-Governmental Organisation
NTRC	National Transport Research Centre
NWFP	North West Frontier Province
PG	Provincial Government
PMPTS	Prime Minister Public Transport Scheme
PRTC	Punjab Road Transport Corporation
PSV	Public Service Vehicle
PTA	Provincial Transport Authority
PTRC	Planning Transport Research Computation
Rs	Rupees (1£ = Rs 72.3 in May 1998)
RTA	Regional Transport Authority
sqft	Square Feet
TEPA	Traffic Engineering and Transport Planning Agency
TEB	Traffic Engineering Bureau
TRL	Transport Research Laboratory
UNDP	United Nation Development Programme

Chapter 1 Introduction

1.1 Urban Public Transport Problems in Less Developed Countries

Public transport problems are significant in urban areas due to the fact that around half of the world's population lives in these areas. The number of large cities is increasing rapidly. Tolley and Turton (1995) reported that in 1950 there were only 5 cities with more than 5 million residents, but by the year 2000 this number is projected to over 50, with some 40 of these cities in the developing world. According to the World Bank estimates, on average urban populations in developing countries are growing at about 6 percent per annum. The total urban population in these countries was estimated at 800 million in 1980 and was expected to have more than doubled to 2000 million by the year 2000 (World Bank, 1986).

This urban population growth has resulted in a large number of trips and massive increases in transport demand. Armstrong-Wright (1993) anticipated that there is a greater likelihood that public transport will be used in preference to walking or cycling, especially with the increased distances involved as a city grows. He argued that most LDC cities are characterised by low car ownership, and personal motorised transport is still beyond the reach of the large majority. Moreover, any general increases in real incomes are likely to encourage greater use of public transport, as well as higher car ownership levels, since the urban poor often cannot even afford public transport. Other factors contributing to the growth in public transport demand are the locational patterns of the urban poor and longer distance journeys (Maunder, 1984), changing life styles such as growing number of women in labour force, and the youthful age structure of society (Fouracre and Maunder, 1987). As a result, it is to be expected that there would be enormous potential increase in the demand for urban public transport in rapidly expanding LDC cities.

Most trips in LDCs are made in some form of public transport or on foot/bicycle. Public transport in LDC cities is characterised by a wide range of vehicles in use and services on offer. These include; full size buses and minibuses at different levels of technology; paratransit vehicles such as shared taxis, converted pickups, vans, autorickshaws (motorcycle

engine powered 3-wheel vehicles), animal drawn carts and pedal rickshaws. In most cities taxis are available for individual use. In a few large cities, a form of rail mass transit also exists or is under construction (Armstrong-Wright, 1993).

In most LDC cities public transport is road based, with a variety of vehicle types employed in one of two main ways: either providing bus-like services with fixed routes and fares, or taxi-like services (White, 1990). As Jacobs et al (1986) pointed out many of these cities will still be relying exclusively for many years to come on road based systems. This view point was supported by a TRRL study of urban rail transit development in LDCs. The study indicated that such projects could only be sensibly justified in economic terms for very high flow corridors (more than 70,000 passenger trips per day), associated with other factors for success such as high and sustained growth in population and wealth. Only a few corridors in a few cities will be able to meet this criteria (Fouracre and Gardner, 1992). The World Bank considered that the major drawback of rail transit projects is their massive construction and operating costs which may prove excessively burdensome on city Budgets (World Bank, 1986).

Bayliss (1981) confidently predicted that *"the bus will become an even more important carrier in large cities, because the expansion of car ownership and rail facilities will be unable to keep pace with growing demand."* To date there is nothing to discredit this view point in LDCs.

There were considerable increases in bus fleets, routes operated and passengers carried during the 1970s in LDC cities (Barat, 1985; Jacobs et al, 1986). In many cities buses provide the main means of transport for a significant share of journeys. In Kingston, Jamaica, it has been estimated that 43 percent of all work trips (Heraty, 1980), in Kuala Lumpur 34 percent (Eastman and Pickering, 1981) and in Indian cities an average 38 percent (Fouracre et al, 1981) were by bus, with dependence on this mode being higher for the lower income groups (Hilling, 1996). A World Bank estimate put the number of daily bus trips at 600 million in third world cities in 1980, with that number expected to double by the year 2000 (World Bank, 1986). More recent evidence suggests no change in these general trends. In the African cities of Abidjan, Nairobi and Kinshasa, for example, bus passengers increased at average

rates of between 6 to 10 percent per annum during 1980-90 (Transurb Consult-Inrets, 1991). Notwithstanding such increases many studies reported that both the quantity and the quality of public transport services was inadequate. In many cities the services were overcrowded, were of low quality, and were insufficient in spatial coverage (World Bank, 1986; Affan, 1986; Bolade, 1987; Camara and Banister, 1993). In consequence, the number of paratransit services had been growing (World Bank, 1986; Hilling, 1996).

Armstrong-Wright (1993) considered the reasons for the inadequacy of road based urban public transport. First, there was a lack of investment in new vehicles and spares due to the imposition of low fares and restricted access to funds. Second, traffic congestion and/or poorly paved roads caused slow journey speeds and breakdowns leading to high operating costs. In addition, operators were confronted with severe congestion as a result of the growing volumes of cars. Finally, there were inappropriate government regulations and restrictions on the choice of vehicles.

Traffic congestion occurs in all cities of both LDCs and DCs. Cities in LDCs confront all the traffic problems found in DCs, such as insufficient capacity of roads, on-street parking and vehicle loading, conflicting traffic movements, and heavy through traffic (Affan, 1986). However, in LDCs congestion is often worse despite the low rate of motorised vehicles per capita, because of narrow streets, multiple street uses and high population densities (Armstrong-Wright, 1993). In addition the LDC cities, have to contend with on-street trade activities, many hand-drawn and animal-drawn carts, poor road surface conditions, streets clogged with stationary and broken down vehicles, bad traffic management and a lack of traffic regulations. According to Proudlove and Turner (1990), activities of living, sleeping, working and trading take place in the street, and increasing motor vehicle traffic is causing more and more congestion in third world cities. Although delays apply to all vehicles, buses are particularly susceptible. Jacobs et al (1991) reported a reputation of poor bus productivity and long journey times in LDCs due to traffic congestion.

In general, many of the problems of urban public transport are associated with government regulations and policies formulated for its planning and operation. These regulations cover three aspects of provision; fares, quality and quantity controls; as well as on-street regulation.

In most LDCs, fares are controlled by governments. It is rare for fares to be regulated on the basis of reliable financial or economic analysis, with operators under pressure to keep fares low despite rising costs (Briggs, 1989; Armstrong-Wright, 1993). Quantity controls, being the restrictive market entry for various type and size of vehicles, have also had detrimental effects on the efficiency and effectiveness of public transport. The enforcement of quality standards and on-street regulation is weak, which is reflected in reckless driving practices and inadequate route networks and service frequencies (Armstrong-Wright and Thiriez, 1987). World Bank studies have pointed out that over regulation of urban transport services is often evident (World Bank, 1975; World Bank, 1986). It can be argued that government regulation has failed to achieve its aim to protect the public.

Gwilliam and Van de Velde (1990) explain the need for regulatory reforms resulting from market failures.

"Market regulation typically arises when government feels itself unable to achieve its objectives while the market is free. So it sets up political, administrative and regulatory structures to achieve those objectives. Economic agents adapt their behaviour to the regulation, and economic performance is the outcome. The longer a regulatory regime is in place, the greater is the possibility of regulatory failures associated with distorted inducements and regulatory capture. Demand for regulatory reforms thus tends to arise from the changes from the perceived balance between the opposing dangers of market and regulatory failure" (Gwilliam and Van de Velde, 1990:333).

To overcome the problems attributable to public transport regulation, various regulatory reforms have been implemented in both DCs and LDCs; for instance in Britain, Chile and Sri Lanka. The policy reforms employed in these countries vary from partial to full quantity and fares deregulation (White, 1995; Fernandez, 1994; Roth and Diandas, 1995). The outcomes of the regulatory reforms also vary from country to country (see chapter 3 for details). It can be argued that the balance of advantages and disadvantages from regulatory reforms will depend on local circumstances and the nature of regulatory regimes which apply at that time (Russell and Anjum, 1997). Gwilliam and Van de Velde also suggested that *"regulation can be best judged in terms of the specific objectives of government and history of the regulatory environment"* (Gwilliam and Van de Velde, 1990:333).

In Pakistan, urban public transport has been and in most places still is subject to extensive regulation. As a consequence of inappropriate regulation and government policies, the quantity and quality of public transport services do not meet the travel demands of a rapidly growing urban population. As a result, potential passengers choose alternative modes of travel. In order to address this problem, in some cities the regulation of urban public transport is now channelled through Non-Governmental Organizations (NGOs) formed specifically for this purpose. The NGOs have assumed delegated responsibilities for the quantity, quality and fares regulation of services, innovation of potential interests and wider application elsewhere.

This research examines urban public transport regulation in Pakistan by setting the aims and objectives outlined in the following section.

1.2 Aims and Objectives of the Research

A systematic approach in conducting a research involves developing explicit research questions and formulating specific aims and objectives for the research. Weiss and Bucuvulas (1980) indicate that research suggests that studies which are rated higher on methodological quality are also rated higher on their usefulness. Some styles of research require researchers to firm these up at an early stage, others encourage their modification as the research progresses (Robson, 1996). In conducting this research on regulatory frameworks for urban public transport, the aims and objectives were formulated at the early stages and refined gradually.

The general aims of this research are (a) to understand the problems of regulating urban public transport in Pakistan, and (b) to provide the basis for a more rational framework that can assist with the formulation of regulations and policies in Pakistan. In particular, the research explores the following specific objectives.

1. To review government regulations and policies regarding quantity controls, fares, safety and other quality controls, subsidies and grants, together with their associated institutional arrangements, and to assess their influence on quality of service;

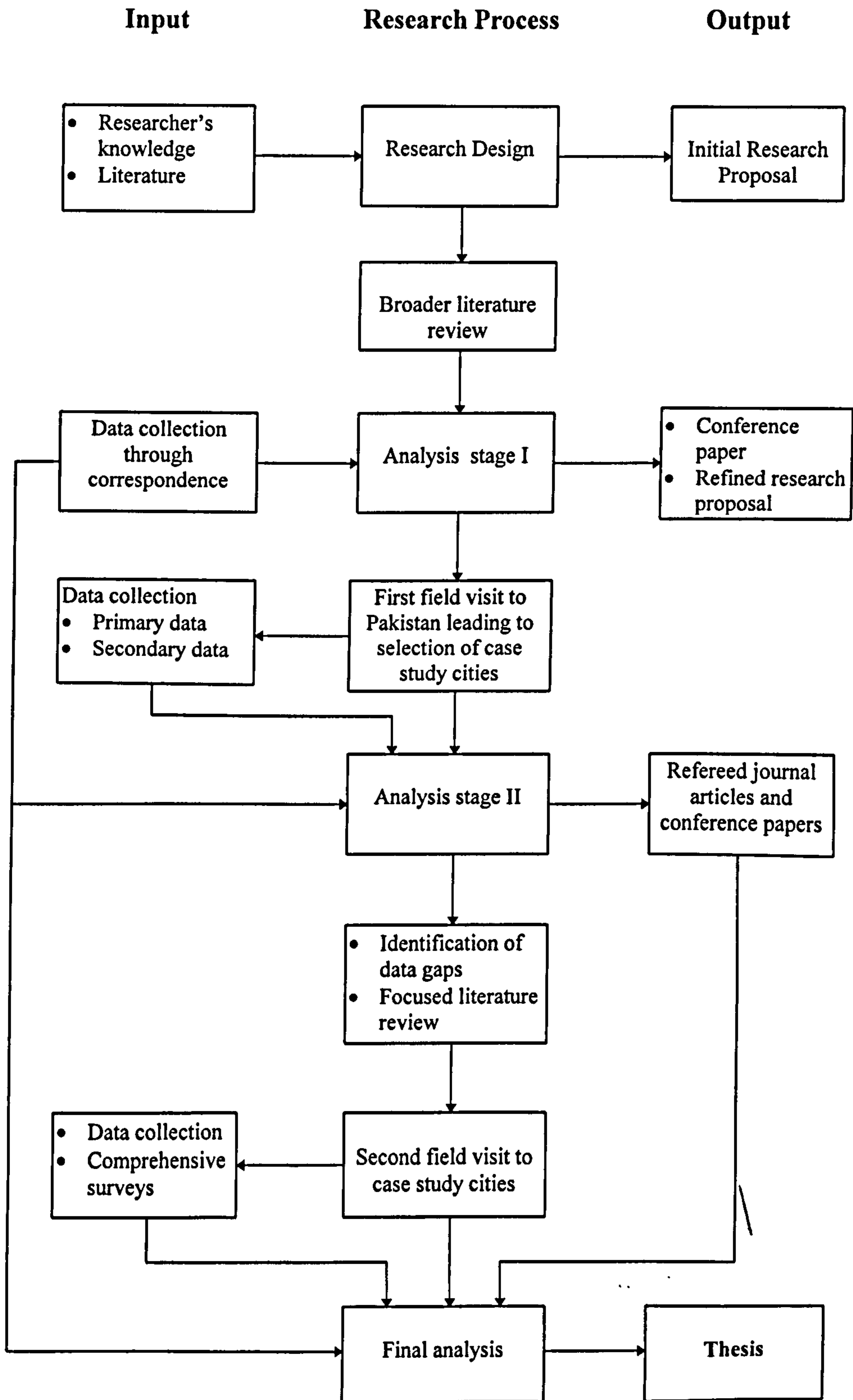
2. To examine the market for services at different fare levels, for different income and population groups, and specifically to study the potential for better quality services;
3. To analyze recent regulatory and traffic management interventions and their effects on quality of service; and
4. To identify and make recommendations for public transport planning/regulatory improvements which would be attractive and potentially feasible to implement in the Pakistani context.

1.3 The Research Approach

At the outset a research proposal was drafted on the basis of secondary data sources and the researcher's personal knowledge of the public transport problems in Lahore. The research proposal was further refined in the light of broader literature review on provision and planning of urban public transport in DCs and particularly in LDC context. Key issues related to urban public transport planning are fare regulations, quantity and quality regimes, on-street traffic management/regulation, and subsidies and taxation policies affecting operators.

Keeping in view these issues, secondary data on public transport in Lahore was gathered through correspondence. Data procurement through correspondence remained a continuing feature throughout the course of the research. Preliminary analysis of this data was made. It was realised that in order to have a deeper understanding of urban public transport regulation, operation and its problems, a field visit was required. Consequently, six major cities in Pakistan were visited during July-September 1995, data was collected on various aspects of urban public transport policies and regulation. From these cities, Lahore and Faisalabad were selected as case study cities. Reasons for adopting this approach and the basis for the selection of the case studies are presented in Chapter Two.

Figure 1.1 The research approach



Data collected during this field visit was analyzed, gaps identified, and case study survey work was planned. A further literature review was undertaken, in particular to identify good practice models of urban public transport regulation, utilizing the experience of DCs. Then a second field visit was made to conduct comprehensive surveys in the case study cities and to collect requisite information from Federal Government offices. The methods employed for the collection of data for the research are described in Chapter Two. A final stage of analysis was then undertaken. A summary of the research approach is presented in Figure 1.1.

1.4 Structure of the Research

The thesis is organised in eight chapters. Chapter 1 introduces a summary of urban public transport problems, aims and objectives of research, the approach adopted and the structure of the research.

Chapter 2 describes the methodological base for the thesis and methods employed for the data collection and analysis for this research.

Chapter 3 reviews urban public transport regulation and policies as documented in the literature. The various regulatory regimes along-with strengths and weaknesses, and their impact on public transport services are described. The outcomes of deregulation policies implemented in DCs and LDCs are also reviewed in this chapter. The literature review provides a basis for identification of public transport regulatory improvements for Pakistan, as discussed in chapter 7.

Chapter 4 presents background information about the country and reviews the overall government policies and initiatives regarding urban public transport in Pakistan. The current regulatory systems in practice and their effects on urban public transport in various provinces are also described in this chapter. The need for a detailed case study analysis is also highlighted.

Chapter 5 provides evidence from the city of Lahore where poorly administered public transport has resulted in inadequate supply and low quality of services. The regulatory

arrangements for public transport are reviewed and their impact both on publicly-owned and private sector services is evaluated. The evidence of demand from a household survey is analyzed and public transport problems in the city are discussed.

Chapter 6 evaluates the overall public transport situation in Faisalabad with particular reference to the services offered and their effectiveness under regulation through an NGO. It provides an account of the organisational structure, operational characteristics, and regulatory regimes and their enforcement by the Society. The impact of regulation and enforcement on the performance and quality of services offered by the Society is also evaluated. This chapter also compares user views about the stage carriage passenger services currently offered under two different regulatory regimes.

Chapter 7 synthesises the analyses presented in the previous chapters. The analysis is further supplemented by a discussion of results from in-depth interviews focusing on wider regulatory issues. The findings are discussed in terms of the implications for practice in reforming the present regulatory regimes for public transport. A comparative analysis of government regulation and NGO based regulation, with its impact on public transport services, is provided. In this chapter reasons are also presented for the success of NGO regulatory model.

The final chapter presents a summary of deductions from the research. Future research issues stemming from these conclusions are explored along with recommendations for current practice and policy.

Chapter 2 Methodology

2.1 Introduction

"A methodology is a general approach to studying a research topic. It establishes how one will go about studying any phenomenon" (Silverman, 1993). This chapter describes the methodological base for the thesis, introducing the methodology followed and the methods used to conduct the research.

This research deals with a range of regulatory and traffic management systems and review of policies affecting urban public transport in Pakistan. Hence a variety of methods are employed in conducting the research, and are devised in the context of specified research aims and objectives. The methods include; literature review, personal observation, the use of current and historical data, in-depth interviewing, study of relevant documents and records from local, provincial and federal departments/agencies associated with urban transport, correspondence, household surveys and passenger surveys. These methods are described in the following sections.

The research is primarily based on literature review and a case study approach. Reasons for this approach and the basis for the selection of case study cities in Pakistan are presented in section 2.3. Section 2.4 gives a detailed account of the methods applied in this research. A summary of methods employed for data collection is given at the end of this chapter. The final section of this chapter describes the analysis.

2.2 Literature Review

Background readings on urban transport planning were undertaken, and a comprehensive literature review on urban public transport and traffic management in LDCs was conducted. In addition, the literature was also reviewed on regulatory frameworks for road based public transport in developed countries with special reference to Great Britain. The literature review

covered books on public transport planning and research methods, articles published in journals, international conference proceedings, Ph.D. theses, reports prepared by international agencies (particularly the publications of the World Bank), reports prepared by the TRL, UK and annual proceedings of the seminars/conference organised by the PTRC, UK.

2.3 Case Study Approach and the Selection of Case Study Cities

'A singular case, the sign of the four' remarked Holmes (Casley and Lury, 1987). Much real world research is effectively 'Case Study Research'. Robson (1996) describes that a case study is a strategy of doing research using multiple sources of evidence, which involves an empirical investigation of a particular contemporary phenomenon. There is direct interest in the 'thing' to be studied in its own right (whether this is a country, a town, a village, a person or whatever) rather than as a statistical sample from a population (Robson, 1996). Detailed case study is required to identify cause and effect mechanisms, while broader survey is required to show that such mechanisms are generally applicable, by establishing statistical correlations. Casley and Lury (1987) emphasise that case studies are particularly appropriate when a high level of analytical content is required. Recently there is a growing trend to opt for case study approach in conducting social research (eg Yin, 1989).

A case study approach is seen as necessary for a number of reasons. In developing countries data are not readily available (Romaya, 1996) and collection of intensive data in these countries is almost always an expensive operation (Casley and Lury, 1987). Therefore, the use of the case study approach is appropriate. The study of all the factors that make-up regulatory regimes for public transport system and influence its service quality, is data-intensive. To understand problems and to gain knowledge about public transport services in all cities of Pakistan would demand extensive field work simply because of the inadequacy of secondary data sources and the difficulties associated with the use of mailed questionnaires. In addition, the essential methodological feature of a case study is that it enables in-depth, detailed analysis. That is its strength, and it means that study is generally carried out by a professional, sometimes with a few qualified assistants. For these reasons, a case study strategy is followed in this research.

To gain an overall understanding of urban public transport regulation, operation and its problems throughout Pakistan, most major cities (Lahore, Peshawar, Quetta, Islamabad, Rawalpindi, Faisalabad) in all provinces were visited during July-September, 1995. In-depth interviews with public transport operators and regulators were conducted in addition to the collection of secondary data sources. Information from Karachi was obtained through correspondence as this city could not be visited because of law and order problems. From these cities, Lahore and Faisalabad were selected for detailed case study.

Lahore was chosen as one of the case study cities primarily because it is one of the large cities of LDCs, the provincial capital of Punjab and the second largest city of Pakistan. The city accommodates an estimated population of over 6 million. Lahore is also typical of many large cities in LDCs, including others in Pakistan, and shares and exemplifies many of the public transport problems to be found in them. Public transport services are seen to be inadequate and offering poor quality. In addition, Lahore was selected as a case study city for the following reasons. First, the researcher's personal knowledge of the city and awareness of public transport problems as well as contacts with various government officials; second, the availability of relatively large amounts of data from previous studies; third, the familiarity of the research supervisors with Lahore.

Faisalabad is the second case study city undertaken for this research. Faisalabad was founded in the colonial period and is now one of the fastest growing cities in Pakistan. It is a large industrial centre with an estimated population of 1.63 million in 1994 which is expected to reach 2.5 million by the end of the year 2000 (EPAP/World Bank/ADB, 1993). It was chosen primarily, because of its innovative public transport regulation. The government has channelled the regulation of urban public transport in Faisalabad through the Faisalabad Urban Transport Society (FUTS), a Non-Governmental Organization (NGO) formed for this purpose. The Society started stage carriage services, with the active participation of local private operators in 1994. It has assumed delegated responsibilities for the quantity, quality and fares regulation of services under its control. Therefore, Faisalabad provided an opportunity to study this new form of public transport regulation and to analyze its effectiveness in the context of overall public transport provision there.

2.4 Methods Employed for Data Collection

Most literature on methods for collecting data on social sciences is concerned with the design of data collection and use of appropriate methods of investigation (Burgess, 1984; Oppenheim, 1992; Norman and Yvona, 1984). Relatively few publications are specifically related to the equally important issue of the means of collecting data, i.e. a series of actions to develop field skills in collecting data.

The methods for data collection used included, apart from the literature review; collection and collation of secondary data sources; direct observation; in-depth interviews conducted with key officials; public transport operators; household surveys; and passenger surveys. The roles for these methods are explained in the following sections.

2.4.1 Collection and collation of secondary data

The secondary data sources collected and utilized from Pakistan included; reports prepared by the National Transport Research Centre Islamabad; reports and studies and plans prepared by various consultants development authorities and agencies for major cities of Pakistan; reports and reviews prepared by publicly-owned corporations; publications of Federal and Provincial Governments, such as Five Year Plans, the Economic Survey of Pakistan, hand books of the Statistical Division, Government of Pakistan. In addition, articles and news given in the Pakistani newspapers were also utilized.

2.4.2 Direct observation

Personal observations are also a useful source of information. This method was initiated by anthropologists, and has been used by social researchers such as urban planners (Silverman, 1993). Observation in research context means deep examination of a particular aspect of study by the researchers themselves. Some researchers prefer to apply participant observation to get a deeper understanding of the situation (Bryman, 1988).

As a teacher at the DCRP and as a planning consultant, the researcher has been involved in

conducting various urban planning surveys in different cities of Pakistan. The researcher supervised surveys conducted by the final year town planning students in connection with the preparation of structure plan projects for various cities, viz Attock, Mansehra, Abbottabad and Sahiwal. As a consultant, the researcher has undertaken planning surveys including traffic and transport surveys as part of projects such as the Comprehensive Study of Transportation System in Lahore (JICA/TEPA, 1991) etc. Involvement in various such projects has provided opportunities for a deep observation of various planning issues, and particularly, those related to public transport problems provided a valuable source of information.

During the course of this study too, an attempt was made to gain deeper understanding of the situation through some participant observations. During the first field visit in 1995, some observational work was done in a limited time. The researcher observed very closely the traffic conditions and operation and functioning of various public transport operators in the six major cities of Pakistan visited. Personal notes and photographs were always taken to highlight typical situations. These notes and photographs were used in subsequent analysis.

In 1996, the researcher made in-depth observations in the two case study cities. To know about the working of private sector operators and to confirm general passenger responses about the service, the author travelled himself from time to time in different public transport modes. The practices of drivers and conductors' behaviour with passengers were observed. Similarly, the stoppage pattern by drivers and the boarding behaviour of passengers was observed while standing at some of the busiest bus stops. The functioning of the traffic police was also observed closely while standing at road inter-sections for some time.

Apart from in-depth interviews conducted with the officials of the regulatory bodies and public transport operators, an attempt was made to explore details of problems related to issuing of route permits and vehicle fitness certificates. The researcher attended the office of the Secretary, Regional Transport Authority (RTA) and the Motor Vehicle Examiner in Lahore. The working of the staff was observed for a few days and personal notes were taken from existing office files. He also met with private operators who visited the RTA office to inquire about the fate of their applications regarding route permits for their vehicles. These meetings provided opportunities to the researcher to develop awareness of workings below

the surface of bureaucratic procedures. In Faisalabad, office proceedings under the new form of regulation were also observed by attending the FUTS office. Information was gathered about all aspects of regulation and enforcement, such as the allocation of routes and procedures for imposing fines on defaulters.

The researcher also utilised information on public transport issues appeared in various newspapers and on internet.

2.4.3 In-depth interviews

In general the aim in using in-depth interviews is to obtain different viewpoints which increase the ability to interpret data. The interviews in this study were based on the interview guide approach. An interview guide is a list of questions that are explored in the course of the interview. The interview guide also enables the interviewer to probe and explore issues that will elucidate and illuminate that particular subject. Nonetheless it leaves the respondents to express their views and experiences in their own words rather than in preconceived categories devised by the researcher (Patton, 1987 & Bryman, 1988). The advantages of this approach are that:

- the interviewer has decided how best to use the limited time available in the interview;
- it helps to make interviewing across a number of different people more systematic and comprehensive by delimiting in advance the issues to be explored;
- logical gaps in the data can be anticipated and closed; and

The use of this in-depth qualitative interview approach ensures that responses are in no way constrained (Patton, 1987). Many researchers now believe that the aim of a case study using in-depth interview approach is not to derive the findings from a sample of a population by using frequencies and statistical generalization, but to test whether theory applies in practice (Silverman, 1993).

In-depth interviews were carried out to get deeper understanding of manifold problems related to public transport regulations and policies in Pakistan. These interviews were conducted (in

two rounds (July-September 1995 and November-December 1996). The interview guide (schedules of questions, see Appendix-1) used in this study were designed on the following basis: first, to overcome the constraints of the set questionnaire format; second, to obtain information on the public transport regulatory issues; third, to explore issues which the secondary sources had not fully dealt with; fourth, to gain knowledge of individuals' experiences about regulatory constraints and the ways in which they perceive public transport problems in their own words.

Senior government officials involved with policy making, with the regulation of urban public transport, and with on-street regulation and traffic management and enforcement were interviewed. These include officials from the following departments and agencies: Federal Ministry of Communication and Works; Central Board of Revenue; Secretary, Department of Transport Punjab; Secretaries of the Provincial and Regional Transport Authorities; Traffic Police; Motor Vehicle Examiners; Traffic Engineering Agencies; and Publicly-owned Corporations. Moreover, public transport operators, including FUTS, and public transport drivers were also interviewed.

There is a general tendency in government offices in Pakistan that the officials do not always keep office records in order. They have a large number of files piled-up in cupboards without a proper filing system. Sometimes the record keepers themselves take days to trace a required file. Moreover, officials are generally not ready to be interviewed without having knowledge in advance of the questions to be asked. The senior officials then usually consult with their subordinates about the required information. To address this problem, the interview schedule along with a covering letter was mailed (recorded delivery) to the government officials. Later on, the author visited their offices on the date specified in the covering letter and got a date and time for the interview. It also happened that some officials were not prepared simply because their subordinates had not provided them with the requisite information. However, they were prepared to be interviewed a few days later i.e in rearranged interviews. On the other hand, the private operator associations, individual operators and staff of the FUTS did not take time for the preparation of interviews and these interviews proceeded directly and on schedule.

Each of the interviews with government officials lasted approximately three to four hours. The interview took so long because some officials were also attending to other persons during the course of the interview. For the sake of consistency and reliability, the author did not make the use of research assistants in conducting the in-depth interviews. Interviews with the government officials were not recorded on a tape recorder because it was felt by the officials that if every single word would be recorded on a tape then they would have to be conscious in responding the questions. However, a video was made of some government officials in Lahore and the officer who introduced the FUTS. The video contained only material where the officials were explaining something positive about public transport. After completion of each section of the questionnaire, the researcher read back the responses briefly to get the respondent's consent to the authenticity of their responses. At the end of each interview, detailed notes were recorded on the questionnaire.

2.4.4 Correspondence

A questionnaire or a list of required information was prepared on the subject matter of the survey and mailed to the respondents. The respondents were required to record the necessary items of information. This method is generally cheaper and quicker as regards the collection of information than the direct observation or interview method, provided that the rate of response is adequate and responses are accurately recorded by appropriate respondents, and the documents are returned within a reasonable time.

The method of mailed questionnaire was not employed as a main means for data collection in this research. However, correspondence was used, through mail and telephones to obtain initial, supplementary and updated data. Some data on public transport problems and the regulatory systems in Lahore were accumulated through mailed correspondence, at the initial stages of the study.

Data on public transport services in Karachi were procured by sending the schedules of questions alongwith covering letter to friends of the researcher (town planners working in Karachi). These friends passed on the schedules to the relevant officials and mailed these schedules back to the researcher after collecting them from the officials. This method was very quick and worked well in terms of generating comprehensive responses and filling in

data gaps, at very limited cost.

Later on, most of the data was collected by the researcher through two field visits to Pakistan. During these field visits, some friends and relatives of the researcher were introduced to the various government officials and FUTS staff. Data gaps were filled through subsequent correspondence, with the friends and relatives mailing required information to the researcher after obtaining it from the relevant offices. Moreover, the friends also sent information about the latest developments related to public transport in Pakistan. Telephone calls were also made when it was necessary.

2.4.5 Household surveys

Passenger interview surveys provide information only on those who use the public transport, i.e. the current market. Nothing is learned about potential users/or users of competing modes. A more comprehensive understanding of the total demand for transport and how this varies with city structure and affluence helps in planning future developments and investments. A household survey should go a long way to meet this requirement (TRRL, 1987). Household surveys can give a general view of urban travel patterns, and this method is valuable for collecting information on the total amount of travel and its distribution by trip purpose, mode, distance etc. But home interviews are expensive to conduct for a major city like Lahore. The researcher made use of the existing data collected for the 'Comprehensive Study of Transportation System in Lahore' (JICA/TEPA, 1991), and conducted a survey, which consisted of home interviews with nearly 1400 persons (above 5 years age) from 220 households living in two different areas of Lahore. This survey was carried out in November 1996.

Selection of areas: Regarding validity, this depends on 'the extent to which a survey accurately represents the social phenomena to which it refers' (Hammersley, 1990). For the household survey this depended on the selection of suitable areas in which to conduct the survey. Various areas inadequately served by public transport were identified (see chapter 5, section 7.3). Two distinct areas with different income levels were selected for household survey: Jauhar Town and Baghban Pura. These areas are described in chapter five.

Definition of household: Although there is a general agreement that household is both a convenient and appropriate sample unit for many surveys, there is no universal agreement as to its definition . Generally, household means, a group of people who live and eat together in the same house (Oxford Dictionary, 1991; Longman Dictionary, 1988) or a social unit comprised of those living together in the same dwelling place (Webster's, 1961). The definition of household differs from one country to another, and even within one country the definition may change from one survey to another. The definition adopted for the purpose of this study was *"a household is a housing unit comprised of persons living together and using the same kitchen"*. For instance in Lahore, particularly in middle and high income residential localities, there are households who employ full time helpers. These helpers (male/female) usually live in a room specifically constructed within the premises of their house. In such cases, helpers are also considered as the members of the households.

Questionnaire design: The survey questionnaire was specifically designed to examine that there exists a market for improved quality of services to be offered at higher fares. To assess the potential for public transport market, the survey included questions about various bus services at specified higher fare levels to cater for different passengers. The design of the questionnaire was based on the preliminary findings of the research which emerged from the first field trip made in 1995.

The questionnaire developed included questions on household composition; vehicle ownership; household incomes and expenditures on travel; views about existing public transport services; main mode of travel of household members by trip purpose; intention to use better quality public transport at higher fares; and preferences for quality of service indicators (see Appendix-2). The local culture was considered and questions were asked in ways understandable to the people of Lahore. Difficult words and complicated terms were avoided for better communication between the interviewers and the interviewees.

Fieldwork organisation: The things that usually do not get into the books, such as how a researcher gets into organizations or other research settings, how a researcher gets on when (s)he is there, how (s)he gets out in a way which will facilitate researchers getting back again are vital for all research involving people (Buchanan et al, 1988). For the purpose of

conducting household surveys, the researcher organised the field work in the following manners. First, maps of the selected areas were procured. Second, a pilot survey was conducted to test the appropriateness of the questionnaires drafted in Edinburgh. Third the questionnaires were slightly amended in the light of the pilot. Fourth, five research assistants were arranged and trained about the various aspects of survey (for details see chapter five).

Promises of practical application from the information gathered from research can be seen as stimulating respondents to take part in the research (Oppenheim, 1992). But the researcher's experience in previous studies revealed that such promises also raise issues of expectations, which in turn can bias responses. The respondent's thinking may have a greater impact on the applications of findings, instead of providing the facts the researcher is looking for. The respondents were therefore categorically informed about the nature of this academic study and to have no expectations of improvements resulting from it.

Interviews were conducted in afternoons and on week ends in order to interview all members of the households. The nature of the research and purpose of the survey were explained to the head or an adult member of the household. Some households declined to be interviewed. Some information was obtained from the 'head' of the household such as number of vehicles owned by the household members, household income and travel expenditure. Consensus views of the household members were recorded about existing and future use of public transport services and the preferences given to various aspects of service quality. However, individual views were recorded where there were divergences of views or interest in services; for instance, work or education institutional trips. The research assistants handed over the completed survey forms to the researcher who checked the survey forms and made sure that they were filled properly.

2.4.5 Passenger surveys

Researching 'with' is more effective than researching 'on' (Robson, 1996). In this regard it is important to be with users of public transport and their views should be solicited. Passengers views were sought in order to obtain information regarding patterns of travel and use of public transport, as well as attitudes and opinions about the service. To seek

users' views of the service and their opinions as to how improvements could be made to public transport services, passenger surveys were conducted in Faisalabad. Presently, two types of stage carriage passenger services are operating in this city; suzuki services which are regulated by the Government and FUTS services which are regulated by the NGO. In August, 1995, passengers views were only obtained about fares charged by the FUTS service. However, comprehensive passenger surveys were conducted both for the suzuki and FUTS services in Faisalabad in December, 1996.

There are various techniques which are applied to obtain passengers views about services. For instance, a single card may be sufficient, where the information to be obtained is fairly simple. Information can be quickly recorded by handing such cards to passengers for completion (TRRL, 1987). However, in Pakistani cities it is hard to apply this method because 65 percent of the population is illiterate (World Bank, 1993). Instead the survey method used was oral interviews.

Comprehensive survey forms were developed in order to obtain several sets of information on both types of public transport services operating in Faisalabad. Four research assistants were arranged from the Agriculture University and Ayub Research Institute in Faisalabad. These assistants had experience of conducting socio-economic surveys. However, they were briefed about the passenger surveys by the researcher. In total, 280 passengers were interviewed: 140 passengers on suzuki services and the same number using FUTS service. The surveys were conducted during working days, covering peak and off-peak periods. The survey forms completed by the research assistants were handed in daily and were checked by the researcher overnight. In order to get a representative picture, passengers from different sections of the routes were randomly selected and interviewed. Most interviews were conducted at bus stops (see chapter 6).

2.5 Analysis

Analysis of data gathered through this study was undertaken in three main stages. The first stage of analysis deals with information gathered through mailed correspondence, at the initial stages of the study, and data collected during the first field visit to Pakistan over July -

September 1995. A paper was presented at the AESOP conference on the basis of preliminary information gathered through mailed correspondence (Russell and Anjum, 1995). Secondary data was also analyzed, and this was supplemented by inductive analysis of the qualitative data derived from the initial in-depth interviews conducted during first field visit. The AESOP paper was supplemented and modified in the light of analysis made in 1996, and a review article on public transport planning in Pakistan was published in *Transport Reviews* (Russell and Anjum, 1997a).

Some new and interesting initiatives emerged from the field study visit in Faisalabad. An analysis of these developments was undertaken and a further paper was written up and published in *Transport Reviews* (Anjum and Russell, 1997). Findings from the study were also presented in an annual research seminar held in the school on March 13, 1996. Data gaps in the study were identified and needs for further analysis were clarified. A paper was also presented at the Inter-Schools conference held in Huddersfield University (Anjum, 1996).

The second stage of analysis deals with data collected through the second field visit to Pakistan in 1996. During this visit comprehensive surveys were conducted in the case study cities, and additional information was collected to fill in data gaps. Data from both household surveys and passenger surveys were tabulated. Simple frequency tables were prepared and some analysis was undertaken using the SPSS package for social sciences. Analysis of cross tabulation from the questionnaire results was undertaken to assess the association between variables. In addition, graphics were produced using the Harvard Graphics package. A few maps were prepared by using a mapping software (Map Viewer). The qualitative data derived from the follow-up interviews was also analyzed at this stage. A paper was presented, on the basis of this more comprehensive analysis, at the International Conference held in Leeds on May, 1997 (Russell and Anjum, 1997b).

The third stage of analysis was undertaken when all available information, including information collected through subsequent correspondence, was analyzed in the light of the structure formulated for the study. An overall synthesis of analyses is presented in chapter seven.

Table 2.1 : Summary of methods employed for data collection arranged by objectives

Objectives	Methods Employed
<p>Review of regulations and policies and their impact on quantity and quality of service</p>	<p>Data collected from secondary sources</p> <p>Data collected on the Federal Government policies for imports and taxation of public transport vehicles</p> <p>Interviews conducted with the Federal Government officials</p> <p>Interviews conducted with the officials of Provincial Transport Authorities, Regional Transport Authorities, Secretary Transport Government of the Punjab, Motor Vehicle Examiners and Traffic Police</p> <p>Interviews conducted with private and public sector operators, and private operators associations</p> <p>Interviews conducted with public transport drivers</p>
<p>Analysis of market for services at different fare levels</p>	<p>Information collected from secondary sources</p> <p>Use of household survey data conducted in 1990 in Lahore (JICA/TEPA, 1991)</p> <p>Use of passengers survey data conducted in 1990 in Lahore (JICA/TEPA, 1991)</p> <p>Passengers surveys for FUTS and suzuki services in Faisalabad</p> <p>Household surveys conducted in Lahore</p>
<p>Regulatory and traffic management interventions</p>	<p>Literature reviewed</p> <p>Case studies from Lahore and Faisalabad regarding public transport regulatory interventions</p> <p>Use of secondary sources on existing traffic management measures employed in Pakistan</p> <p>Interviews conducted with officials of Traffic Engineering agencies and Traffic police</p>
<p>Identification of public transport planning/ regulatory improvements for Pakistan</p>	<p>Literature reviewed</p> <p>Studies of the public transport system in Pakistani cities</p> <p>More specific case studies from Faisalabad and Lahore</p> <p>Data from household survey conducted under the FDA study (FDA, 1997)</p> <p>Evaluation of service quality offered by the FUTS</p> <p>Interviews conducted with FUTS officials</p>

Chapter 3 Urban Public Transport Policies And Regulation: Literature Review

3.1 Introduction

This chapter reviews the literature on government regulations and regulatory policies for urban public transport in LDC context. In some sections there is an overlapping of issues as regulation and deregulation are discussed from differing perspectives. Section 2 discusses prevalent government policies which tend to undermine the role of urban public transport. The main policies involved are direct intervention of government in the operation of public sector services, policies towards subsidies, and financial incentives and taxes affecting operation. The origin and basis of regulation are reviewed in section 3. Section 4 covers the various regulatory measures directly associated with public transport operations, and on-street traffic management measures indirectly affecting public transport performance. Enforcement issues associated with regulation are the subject of section 5. Section 6 illustrates the impact of public transport regulatory regimes and their enforcement with a brief case study from India.

To overcome the problems attributable to regulation, deregulation policies have been implemented in many countries. These policies vary from partial to complete quantity and fares deregulation. The various deregulation measures introduced in DCs and LDCs are reviewed and the literature on the outcomes of deregulation is analyzed in sections 6 and 7. Section 8 reviews the various alternatives of competition. Good practice regulatory models of urban public transport both in DCs and LDCs are reviewed in section 9. The final section presents a summary of findings.

3.2 Urban Public Transport Policies

3.2.1 State intervention and public ownership

The review of literature confirms that in many LDCs, the problems of urban public transport have been compounded due to the nature of the involvement of government. The main forms

of government intervention affecting operators include; the imposition of social and unfunded obligations, and maintenance of unremunerative services; and direct political involvement in the managerial affairs of state bus companies. The public ownership of public transport services, in particular, has often been a channel for improper intervention (Hoen and Kuik, 1992; Armstrong-Wright, 1993; Gwilliam, 1997).

There has been a persistent belief in government agencies that various aspects of public service (for example provision of a reasonable level of service and fares for those in outlying locations) can only be maintained through the continued existence of a publicly owned operator. In fact, the objectives of government are often not being accomplished through the presence of publicly owned bus services (World Bank, 1986). As evidence witness Istanbul (Turkey), where subsidy was provided to a nationalised bus company with the objectives to keep fares down for the urban poor and serve outlying areas. In fact this company was reported to serve most of the dense, high income areas, whereas the minibuses and Halk buses (private unsubsidised services) serve predominantly low-income areas at the same fares charged by the public bus company. Moreover, these private services are sometimes banned from serving high income areas simply in order to protect the publicly-owned services (Feibel, 1987).

Armstrong-Wright (1993) states that one of the principal reasons for the failure of public sector operators is that the companies are subject to direct political involvement in managerial affairs such as recruitment of staff, and commercial strategies. High costs of these services are associated with excessive staffing. In general, the operating bus to employee ratios are high in LDC cities, as reported for Lagos 13; Jakarta 14; Calcutta 21 and Accra 28. Gwilliam (1997) also emphasises that in many countries the number of staff per vehicle in the public sector, which should not exceed about 5 in any well managed company - has exceeded 20. He reports that in Caracas, the number of staff per operating bus had reached 60 before public sector bus operations were discontinued. In some countries a reduced staff per vehicle ratio has not affected the overall functioning of publicly owned bus undertakings. For example, in a bold operational streamlining, staff per vehicle was reduced from over 10 to 5 by the Transport Board in Barbados. As a result, revenue support to the Transport Board was drastically reduced but there was otherwise no improvement in the overall performance due

to various government interventions (Memoire, 1996).

A common form of government intervention is the imposition of obligations on the operators to offer free or reduced fares to a wide range of passenger categories (see section 4.2). With the disappearance of the fiscal basis for such subsidy in many countries, the continuing legal commitment to widespread low fares has contributed to a financial crisis resulting in deterioration of assets and services. For example, in the states of the former Soviet Union for the first four years after political liberalization up to 70 percent of riders travelled free, cost recovery was as low as 10 percent, and the number of buses on the road declined rapidly (Gwilliam, 1997).

As the financial condition of the public sector services has declined it has become increasingly difficult to afford to maintain vehicles, which have dropped out of service. As services have declined, so has patronage and revenue, which has fuelled further decline. Consequently in some cities in LDCs, most of these services have either disappeared or been privatised (Gwilliam, 1997). For instance, publicly owned bus services provided in some Nigerian cities disappeared due to bad management of revenues and poor performance (Ezeife and Bolade, 1984). In Lagos, between 1985-87 the state corporation's depots comprised grave-yards for buses but things have improved a little since then (Maunder and Khezwana, 1994).

In some LDCs, after recognizing the drawbacks of public ownership of bus undertakings, governments have privatized them (Gwilliam, 1996). In Kingston (Jamaica), as a result of huge monthly financial losses (\$ 1 million) the assets of Jamaica Omnibus service were leased to the private sector in the mid 1980s . Similarly, in Argentina, following a period of growing inefficiency and cost, the operation of public bus services was abandoned in 1992. Vehicles were transferred to owner operators (Gwilliam, 1996; Gwilliam and Scurfield, 1996; Salvucci, 1997).

In LDC context, some authors still believe that the performance of bus undertakings can be improved under a suitable form of ownership, such as a public-private joint venture, and independent management.

"To combine adequacy and efficiency of public transport services, the existing public transport and private transport companies may merge together to form a joint public transport venture..... It may secure an optimum supply of new buses to supplement its services in less well used routes and on narrow roads.... The management of this company may adopt all private business practices.... It must have the freedom to fix its fares in view of its both running and fixed costs and determine its own routes" (Affan, 1986:81-82).

In a number of LDC cities bus companies are owned partly by public authorities and partly by private enterprises. In some cases, a large share of the company is held by an overseas bus manufacturer or supplier. There are several examples of this arrangement which appeared to be successful in improving the financial performance of companies (Armstrong-Wright and Thiriez, 1987; Maunder et al, 1994). The following examples illustrate this arrangement.

Maunder et al (1994) report that in order to address public transport problems, and to attempt to ensure more adequate and efficient services, the government of Zimbabwe participated directly in the urban public transport sector. For instance in Harare, the government acquired 51 percent shares in the Zimbabwe Passenger United Company (previously in private ownership) in 1988. The remaining 49% of shares were held by the United Transport Group (owned by a UK based company, Stagecoach). An important aspect of the new partnership was a management contract which gave the United Transport Group the responsibility of management of the company for a period of six years without any direct government involvement. The impact of this form of participation was a gradual reduction in average passenger waiting time, a significant decrease in the number of breakdowns, a higher level of fleet availability, and a substantial improvement in bus productivity (Maunder et al, 1994). However, the findings from another study by Mbara and Maunder (1995) show that stage bus patronage decreased, principally as a result of fare increases, but some of the loss in patronage has clearly been due to non-fares effects such as inflationary factors, drought and economic recession.

Armstrong-Wright and Thiriez (1987) reported another example of mixed ownership prevailing in Dakar. In the SOTRAC bus undertaking 64 percent of the shares were owned by the state, 27 percent by an overseas bus manufacturer, and the remainder by local private

interests. A three-year contract formalised the relationship between SOTRAC and the Land Transport Directorate of the Ministry of Equipment, responsible for setting fares and monitoring performance. Subsidy for the SOTRAC was fixed at a maximum of \$ 3.5 million in 1986. It operated 458 full size buses, of which 85-90 percent were put into service every day. The company employed 7 staff per bus. The contracting approach and mixed ownership, with regular fares revision and compensation for concessionary fares, resulted in substantial increases in productivity and financial performance.

These examples illustrate that public ownership, in LDC context, need not necessarily result in inefficiency, provided suitable institutional constraints are in place to ensure the management is independent and at arms length from government.

3.2.2 Subsidies and grants

Subsidies for public transport can be given for either or both capital and operating expenses (World Bank, 1986; Giannopoulos, 1989).

a. Operating subsidies

Public transport services are owned and operated by both state operators and private enterprise. Where the state has assumed control the profit motive is not always uppermost and prices charged to consumers can often be the equivalent to or less than the actual cost of transportation. The deficit is usually covered by a subsidy, which is often applied as a part of a deliberate policy to encourage the use of particular service which may be uneconomic but is seen by the state as worthy of support on social grounds (Giannopoulos, 1989; Tolley and Turton, 1995).

According to the World Bank (1986) governments generally grant operating subsidies with the primary objective of providing the public with adequate services at lower fare levels. Authorities justify subsidies mainly on two grounds. First, the government has the responsibility to provide the public with satisfactory services at affordable fares. Second, subsidies will encourage motorists to use public transport instead of using their own cars and thus reduce road congestion.

Many examples of heavily subsidised services can be found in the DCs where subsidies are given both public and private sector operators. Simpson describes that *"It is common for public transport operators to receive contributions, usually from the local government, for reduced fares for the disabled, large families, school children, the elderly or other groups for whom it is recognized that public transport provides a service below the cost of operation and below the level of benefits to the passengers. Moreover, most public transport authorities provide a service more frequent than is justified on economic criteria, particularly off-peak"* (Simpson, 1994:182-83).

In most cases the goal of subsidy has been only partially achieved. The impact of subsidies given to public transport in DCs were studied by the TRRL in 1980. The following are the findings of the TRRL study as reported in a World Bank study (1986).

- Where subsidies were introduced patronage increased because of more intensive use by existing users rather than attracting additional users.
- Subsidies given to attract car drivers generally have had very little effect because of the high value placed on the convenience of private cars.
- Subsidies designed to reduce fares and improve service quality have had limited success. Only about half the subsidy was actually reflected in lower fares, and there was little improvement in service.
- In most cases, increased subsidies have resulted in lower productivity and in substantial leakages of the subsidy into large staffs, wages, and unit costs.
- In most of the countries studied, subsidies once introduced have grown substantially.

Subsidies in LDCs are generally provided to publicly owned public transport services to operate at low fare levels that are affordable by the urban poor. The literature shows that the contemplated benefits from subsidies are generally disappointing and difficult to sustain. In his review of urban public transport in third world cities, Armstrong-Wright (1993) states that high subsidies were being received by urban bus companies; for instance in Calcutta, \$ 10 million, Cairo, \$ 26 million and Bangkok, \$ 30 million. In Sao Paulo, the public bus service received a massive annual subsidy of \$ 90 million. In these cities, actual effects are quite different from those intended. One of the major causes of failure to achieve anticipated results is that the existence of subsidies eliminates the incentive to reduce costs or to increase

revenues. This in turn usually leads to further inefficiency, greater deficits, and a need for additional subsidies. For instance, in Calcutta, the guaranteed subsidy is reported to have removed all incentives to reduce costs, and consequently the system is unable to expand. Therefore, the objective of subsidies could not be achieved at all (Umrigar et al, 1988).

Privately owned services are generally not provided with subsidy in any form even when fares are controlled and set at low levels. As a consequence, when low fares are implemented it is expected that private operators may compensate their losses from low fares by allowing more passengers and overloading at the expense of quality of service (Umrigar, et al, 1988). It can be argued that if a private operator provides a similar level of services to that provided by public operators (benefitting from subsidies), then the private operator is proving better in delivering the product.

b. Capital grants

The use of capital subsidies as a means of funding urban transport infrastructure, rolling stock and equipment is widespread throughout the world. It does not raise the same objections usually associated with operating subsidies, and may stimulate funding from other sources (World Bank, 1986; Simpson, 1994). Armstrong-Wright (1993) argues that capital subsidies are justified because these will permit the provision or improvement of systems with widespread economic and social benefits. Often the benefits stretch beyond the immediate users and it may be difficult to capture from all beneficiaries their share of the costs. He states, for instance, that most of the Brazilian busways, with widespread benefits, receive capital subsidies for this reason, as do metros.

In LDCs, capital subsidies are frequently given to prestige projects for political reasons without the support of appropriate feasibility studies. Often, politicians reject more appropriate but less impressive options. For example in Lima, *"a costly elevated metro is replacing, in part, the segregated busway which has a very good performance record and is very cost effective. Less prestigious alternatives were rejected by top politicians. However, because of the high cost and future financial burden, the completion of the metro is now in doubt and could be a political embarrassment"* (Armstrong-Wright, 1993:78).

c. Paradigm shift

The literature shows that in many DCs, the organization and management of public transport during the past two decades has been increasingly influenced by the need to control the spiralling demands for subsidy in view of the ever-increasing competition from the private car (Simpson, 1994; Cox et al, 1996 & 1997). Armstrong-Wright (1993) reports the eventual withdrawal of subsidies to bus corporations in Hong Kong and in some LDC cities such as Nairobi, Kuala Lumpur, Singapore and Porto Allegre.

Simpson (1994) reports that it is often pointed out that levels of subsidy are very low in the UK both for capital and operational costs. Many European cities have operational subsidies of over 40 percent, some over 60 percent, whereas UK cities mostly have less than 20 percent. It means most UK cities compare well in delivering value of money in local public transport services. The recent trend in most DCs is towards targeted rather than blanket subsidies.

3.2.3 Financial incentives to private operators

Unlike the situation in some developed nations, there are generally limited financial incentives available for private public transport operators in LDCs. The review of the literature shows that instead of giving financial incentives, heavy taxes are levied to private operators in most LDCs. The intention of taxes and fees is simply to collect revenue for the government or to influence the use of different modes or vehicles. Taxes and fees are often rigorously collected from formal channels for the purchase of vehicles, fuel, spare parts, registrations, and licences (see for instance Fouracre et al, 1994). However the literature also indicates that in a few countries, governments have provided incentives to public transport operators on occasions. In Sri Lanka, the government has relaxed import restrictions and gave tax incentives to operators for the purchase of new vehicles in order to overcome public transport capacity problems (see section 7.3). In Brazilian cities, most of the bus fleets are bought with National Development Bank funding, which provides lower interest rates than normal bank loans (Cannell, 1996).

In some LDCs, commercial banks provide various credit services for the purchase of new vehicles and spare parts. The procedure for obtaining commercial bank loans is often so restrictive that it is difficult for private sector bus operators to benefit from these credit facilities. For example in Ghana, local banks have offered loans to operators on the assurance of operators' unions or cooperatives. The conditions for such loans are a 30 percent down-payment and repayment within 24-30 months at interest rates of 25-31 percent. These loans are also supported by full-value collateral or bankers' guarantees. The high down-payment and the collateral requirements are the main deterrents for the operators seeking such loans (Kwakye, 1995).

3.3 Regulation of Urban Public Transport

3.3.1 Origin of regulation

Gwilliam (1989) states that the traditional reason for regulation concern was the perceived failure of markets to generate economically or socially optimal outcomes. The absence of a perfect market, especially in developing countries, caused government to own, control or influence, among other things, the pricing system, at least of public utilities (Moore, 1993).

3.3.2 Basis of regulation

"Irrespective of the structure of the industry involved or type of competition involved, regulation has a single aim. That aim is to protect the public" (Bell and Cloke, 1989:94).

The widely agreed list of factors in favour of regulation includes: (a) facilitating a comprehensive network, including unremunerative links; (b) providing access to non-mobile social groups; (c) ensuring safety of operation; (d) protecting infrastructure; and (e) creating order out of potential chaos. Gwilliam and Scurfield argued that *"total free entry may lead to undisciplined and uncoordinated bus operation in urban areas. While regulation is not justified on scale economies grounds, but some form of intervention in market process may be justified on grounds of economies of scope, the need to maintain safety, environmental quality, affordability and some minimum level of public service"* (Gwilliam and Scurfield,

1996:iv). These arguments are discussed as below.

(a) Scale economies

"Urban bus operating costs are highly divisible, and bus operations offer little if anything in scale economies" (Gwilliam and Scurfield, 1996:v).

A large number of studies have looked at the bus business in terms of economies of scale. According to Oram (1979), although consolidation and rationalization of poorly coordinated private operators had benefits, economies of scale have generally not been found to exist in bus transport. A literature search, drawing on US, UK and Indian experience showed no significant evidence of the existence of economies of scale in bus operations (Miller, 1970; Lee and Steedman, 1970; and Koshal 1970).

The literature shows that dis-economies of scale have occurred in large bus undertakings in developing cities. For example, in Singapore, Bangkok, and Seoul where in the expectation of achieving economies of scale and better quality of services, authorities had amalgamated several small bus operators into a single, large corporation, the decision of consolidation has had adverse effects, as costs have risen steeply and services have deteriorated. Moreover, in some studies it has been found that there is no correlation between cost and company size (Harris et al, 1984; and Armstrong-Wright and Thiriez 1987). A similar experience is found in Colombo and Buenos Aires where the large enterprise remained unsuccessful in coping with sustained growth in demand. In contrast, there are cases where large undertakings have been successful in achieving economies of scale such as the Cheran Transport Corporation in India (see section 6). Moreover, the post deregulation experience in UK appears to indicate that large companies do bring some benefits to the travelling public. They are able to invest in new fleets and plan services for the longer term (Simpson, 1996).

(b) Coordination

According to Gwilliam and Scurfield (1996) regulated operation can ensure strong service coordination including integrated route structures; through ticketing; coordinated scheduling

of services; multi-modal coordination; and centralized information supply. This may justify monopoly franchising only if the benefits generated exceed the extra cost imposed. Strict avoidance of duplication of services, either within a mode or among different modes, reduces competitive pressure. For example, the existence of such competition explains the high service levels and relatively low costs of public transport in many of the richer Latin American cities.

(c) Safety and environmental protection

Restricted entry is generally believed to facilitate better safety and environmental standards by protecting the financial capability to secure high levels of maintenance and by giving the regulator an easier monitoring task and greater leverage in enforcing safety requirements (Kang, 1995). The empirical evidence of British experience in bus industry shows that there has been no distinguishable impact on safety in a deregulated environment, where appropriate provision has been made for the direct implementation of safety controls (Evans, 1994). This implies that quality regulation alone can be sufficient.

Controls over the number of vehicles in the market are supported to avoid envisaged dangers of traffic congestion and environmental pollution. More specifically, quantity control of small vehicles is most often argued for based on their contribution to traffic congestion. Mogridge (1983) stated that small vehicles are seen as the root cause of Jakarta's traffic problems by reducing the average speeds of other vehicles, and by being inefficient users of road space when compared with full size buses. Fouracre and Maunder (1977 & 1978) also argue that the congestion effects of small vehicles are greater than large buses. Contrary to this the Department of Transport (1984) argued the replacement of large by more frequent smaller vehicles would on balance reduce congestion by attracting passengers from cars. Gwilliam and Scurfield (1996) suggest that in LDC context it is better to address environmental impacts directly with the relevant technical or operating standards or constraints than to approach them indirectly through entry control.

(d) Affordability

Affordability to passengers is generally considered the basis for fares regulation. It is believed

that high money costs for the journey to work accentuates poverty. The World Bank conventional wisdom has been that journey to work costs exceeding 10 percent of income for more than 15 percent of the workforce could be seen as discriminatory (Armstrong-Wright and Thiriez 1987). However, in the absence of subsidy, the imposition of uneconomically low fares on operators is likely to reduce the availability of services and limit access to jobs, and may thereby accentuate rather than alleviate poverty (Gwilliam and Scurfield, 1996). Such fares regulation typically reduces the quality of vehicles operated, reduces frequency and thus increases overcrowding and waiting times. Ultimately it can lead to withdrawal of services.

(e) Minimum level of service

According to Simpson (1994) in some cases, land use and residential location distortions may justify the maintenance of unremunerative services; as for example, between distant townships and work locations in South Africa. Monopoly only supports unremunerative services at no fiscal cost if there is profitable basis for cross-subsidy. Without that basis even peak levels of service may be very low and waiting times long, as in the case of Lagos (Gwilliam and Scurfield, 1996). For routes which are loss making or where a high number of off-peak services is desirable, authorities can buy in services/routes and set minimum service levels by employing competitive tendering for service supply contracts (see sections 8 & 9.2).

3.4 Regulatory Regimes

Public transport receives a good deal of regulatory attention from government. This usually takes the form of entry controls, quality controls, and fare level controls for public transport operators (Bell and Cloke, 1989). In addition, authorities attempt to regulate the operation of traffic, including public transport, through on street regulation and traffic management measures. This section presents a review of regulatory and traffic management measures for urban public transport, particularly in LDC context.

3.4.1 Entry controls

It was believed that a free market in public transport would produce an excessive supply.

Consequently, the load factors would be low and the average cost per passenger would be unduly high. This was the basis for entry regulation (Gwilliam, 1989). Entry regulation controls the quantity of firms or vehicles that provide public transport services (Okpala, 1981). In practice however, studies of the use of quantity controls in LDC context show that this rarely achieves the desired effect and the results are, very often, equally undesirable (Fernandez and De Cea, 1985; Black and Dardak, 1992).

Quantitative limits are often imposed in an arbitrary and unscientific manner; they tend to become fossilized and subject to political manipulation (Briggs, 1989; Wahab, 1994). For instance in South Africa, an operating licence is required for Kombi-taxis (15 seat van-type vehicles), but Joy (1995) reported no criteria are applied in issuing a licence for Kombi-taxis. Moreover, there is evidence of corruption in the issuing of the licences.

In situations where entry limits are too high they are obviously ineffectual. Farrel and Last (1985) reported that during the 1960s urban bus companies in Korea were typically operated by private owners or families with a few staff, and some of the owners leased their vehicles to other persons or their drivers on a daily or monthly basis. As a result, the bus industry could not develop. Kang (1995) describes that in order to rationalise the bus companies the government implemented compulsory administrative and legal measures. This forced a transfer in the nature of the operations from private companies to corporations, requiring the possession of office building and land for depots, imposing obligations to employ staff education and training managers, vehicle maintenance and so on. Most operators accepted these regulatory requirements without protest, according to the traditional customs of following the guidance or orders of government in licensed business industries. Some operators got monopolistic profits and remained in the industry for a long period. However, these strict limitations on entry into the bus industry had adverse effects such as the lack of competition which discouraged innovatory services. Recently, the government has begun easing restrictions on entry (Kang, 1995; Kim, 1998).

The literature shows that where entry controls are poorly enforced or where there are no entry controls, additional barriers can develop to entry through unofficial entry control. Routes legally open to any operator, can be closed by a group of operators, and entry can be

expensive and/or unpleasant. Public transport in Ghanaian cities bear witness to this practice (see section 4.3). As a result of this monopolistic behaviour usually the quality of services suffers, excessive fares may be charged, and there is inadequate response to the needs of public (Armstrong-Wright and Thiriez, 1987).

On the other hand, in the absence of any entry controls operators can operate where they wish. For instance, in Papua New Guinea, there were no entry restrictions on the operation of public transport services until 1986. As a result, operators operated in a demand responsive manner diverting from route to route (Khezwana and Maunder, 1994). A similar situation has been reported for public transport services in Nigerian cities (Tjahjono, 1996).

3.4.2 Fare regulations

Fare regulations determine the price of public transport services. The intent of fare regulation is to protect the interest of public by preventing fare gouging and wide variations in fares; and eliminating excess profits caused by entry regulation (Grava, 1980). Briggs (1989) asserts that in many countries, it is believed that government should control the fare levels because the fare structures are considered politically sensitive. Fares are generally regulated by governments at low levels, in the belief that this will be beneficial for the urban poor (Srinivasan et al, 1983, Cameron et al, 1986 and Bhau, 1989).

To authors such as Grava (1980) and Armstrong-Wright (1993) fares in LDCs are rarely regulated on the basis of reliable financial or economic analysis, with operators under pressures to keep fares low despite rising costs. Fare policies in North African countries, as described by Mitric, are summarised as follows. Firstly, fares are fixed without the consideration of operating costs. Secondly, the citizen's ability to pay has always been declared a main concern in fare setting, but there is no evidence of affordability calculations. Thirdly, fare increases are made too infrequently, with increases in fares only after 10 years in some cities (Mitric, 1990).

The literature indicates that fares are set at low levels in most of the LDCs. Very serious problems arise where fares are artificially held down. Operators incur large financial losses

simply because regulated fares are kept below costs (see section 6). Other problems relate to flat fares. In places where flat fares are imposed by regulation, the operators evade the fare regulations by shortening routes or by dividing the routes into two stages or they are reluctant to serve areas some distance from city centre. These anomalies are found in many developing countries (Armstrong-Wright, 1993). In Nigeria, for example, flat fares are imposed by the government. The operators evade the fare regulations by shortening routes or by dividing the routes into two stages. This practice has created problems for passengers in Lagos, as many of the five million daily bus passengers have to interchange many times in crowded conditions because of short routes and insufficient number of buses (Armstrong-Wright and Thiriez, 1987; Armstrong-Wright, 1993).

In some developing countries, reduced fares are fixed for special groups such as students or civil servants. Funds contributed by the authorities, in the form of specific compensation, operating subsidies or capital grants, often fall far short of making up for the concessionary fare (Darbera, 1993; Memoire, 1996; Gwilliam, 1997). In a few countries, no compensation is made to private sector operators for fare reductions for certain groups; for example in Morocco.

"The lack of compensation for heavily discounted school passes in Casablanca provides a dramatic illustration of the above problem. The price of the school pass remained unchanged from 1977 to 1986. The school trips represented about 19 percent (in 1987), with an estimated 64 percent discount off regular fares. Had the compensation been paid (and none was), the publicly-owned bus corporation might never have had operating losses" (Mitric, 1990:14).

Similarly in Santiago (Chile), most bus services are provided by small private operators under a deregulated market (see section 7.3). Yet operators are required to charge one-third fare to school children for which there is no compensation. *"In practice, therefore, they [crews] choose to carry adults instead of children. This issue is a problem in similar circumstances elsewhere. Subsidy support is needed if private operators are to provide important CSOs [Community Service Obligations] that clearly would not be provided for commercial reasons"* (Kilsby and Smith, 1996:205).

Fare increases are not authorized regularly and in line with inflation. When fare increases are granted it is often as a result of operators' strikes. Briggs states that *"unfortunately in many developing countries, decisions on fare policy are based on little more than assertions and value judgements reflect political pressures and ideological positions, with actual fare levels have been determined through a negotiating mechanism constituted largely of threats and counter threats"* (Briggs, 1989:53). In China public transport fares were reported not to have been increased for many years. As a consequence, the profitability of the companies was often inadequate and the buses in each city were deteriorating (Kneebone, 1987). Similarly, in many other LDCs fares are not reviewed regularly, which has resulted in poor quality of services (Armstrong-Wright and Thiriez, 1987; Bolade, 1988; Khezwana and Maunder, 1994). Darbera asserts that *"governments [in LDCs] do not have the political will to increase fares periodically, the system rumbles from one crisis to another: when adjustment is long overdue, the quality and the quantity of service decline"* (Darbera, 1993:46).

The literature reveals that low fares have often been cited as the major factor in the persistent poor performance of large bus undertakings in most LDCs. For instance in Harare prior to 1988, the level of fares approved by government fell short of what was required for the company to invest in fleet renewal and expansion to adequately meet increasing patronage. Hence profitability was enjoyed at the expense of an ageing fleet frequently prone to breakdowns; thus unreliable service levels were offered to the travelling public especially during the off-peak period when approximately two thirds of the fleet were garaged in the depot (Mbara and Maunder, 1994). Low fares have also affected the fleet capacity, efficiency, and quality of service. As a result, some operators shorten the length of certain routes, overcharge passengers, overload their vehicles, withdraw services, and ignore vehicle maintenance (Bajedo, 1990; Armstrong Wright, 1993; Fouracre et al, 1994; Kang, 1995; Roth and Diandas, 1995). Jacobs and Bowker (1994) stated the causes of the decline in bus system in Kuala Lumpur (Malaysia). They argue *"most of us have seen how the bus system has deteriorated in Kuala Lumpur to the point where it is now seen as providing a poor service. To a large extent this is a result of inadequate investment on the part of the private operators. One has sympathy with the operators because bus fares have not been allowed to rise for many years. Clearly, major investment is now needed in the bus system..... This can only come about if private operators are allowed to charge realistic fares. This means*

that the travelling public will have to pay higher fares. However, we believe that provided users can see they are getting a much better service then they will be prepared to pay for these" (Jacobs and Bowker, 1994:8-9). The impact of fare regulation on both public and private sector operators is also reviewed in section 6.

3.4.3 Quality controls

Quality control refers to the powers and procedures by which the authorities regulate the safety and operation of public transport services (Hibbs, 1985). The following are areas where quality control may be applied: safety standards, emission standards, size and type of vehicles, and route assignments.

(a) Safety standards

Safety standards pertain to: mechanical fitness of vehicles, insurance coverage, and driver competence. Most would agree on the need for standards of vehicles safety and driver competence. Generally, there is a substantial concern that profits under private ownership are obtained at the expense of quality and safety (Mbara and Maunder, 1994). It is reported that private operators are inclined to cause undue traffic congestion and unfair competition (Roth and Diandas, 1995; Diandas, 1989). However, the evidence on the safety and quality of public transport vehicles is limited and mixed. In some LDCs, a main cause of accidents is seen to be the mechanical non-fitness of vehicles. For example, in the Khartoum Region, one of the main causes of accidents was reported to be the obsolescence and lack of maintenance of bakassi (small capacity public transport vehicles) and taxis (Affan, 1986).

A review by Hibbs (1985) shows that safety standards exist in most LDCs. But the literature reveals that these are generally not being enforced properly (Barrett, 1988; Thomson, 1983; Kwakye, 1995). It is nevertheless clear that with the effective enforcement of inspection rules and regulations, vehicles standards, and driving competence tests, the situation could be dramatically improved in most LDCs. All quality control standards require effective enforcement if they are to be observed.

(b) Size and type of vehicles

The primary factors influencing the regulation of modes by size and type are perceived congestion effects, traffic accidents and pollution. Size and type of vehicles are specified to control the introduction of additional vehicles. Publicly owned undertakings have generally comprised of large and standard size buses, whereas private operators although do operate large buses, they usually prefer to use smaller vehicles. Generally, it is the use of smaller vehicles which is restricted through government regulations and policies (Armstrong-Wright and Thiriez, 1987). The most predominant argument in favour of the control of small vehicles is that they compete only on the most profitable routes and do not serve low demand areas or times. For instance, in Indonesia, current public transport policy is to control the number of minibuses and not to allow the conversion of cars and trucks into minibuses (Black and Dardak, 1992). Similarly in Manila (Philippines), public transport service on the highest volume roads is reserved predominantly for large buses, and the smaller jeepneys have been prohibited from operating on these roads (Case, 1980; Gwilliam and Scurfield, 1996).

Another argument in favour for defining size of vehicle has been to control congestion. Small vehicles have been considered to be less efficient, and relegated to a secondary and supporting roles on routes away from large bus routes (see the following section). Walter (1979) has put these assumptions into question. He argues that if one considers the waiting travel time of passengers, minibuses or small buses are often more efficient than large buses. The increased frequency of service compared with conventional services has been an important factor in the popularity of minibuses with the travelling public in UK (Simpson, 1994). Nonetheless, the operation of small vehicles can exacerbate traffic congestion (see section 7.2).

In most LDCs, the small buses and paratransit vehicles are both very responsive to demands and cost effective. According to World Bank (1986), small vehicles are usually less economic than larger ones in their use of road space and energy per passenger kilometre, but they are cost effective and popular with users. Armstrong-wright and Thiriez (1987) and Armstrong-Wright (1993) emphasise that apart from better utilization, smaller capital outlay, and ease of maintenance, the other features that favour the use of small capacity vehicles (minibuses, microbuses) are:

- drivers of small capacity buses often have to meet less stringent requirements for driving permits than the drivers of full size buses and thus can be paid less. Moreover, inspection requirements for small buses may also be less costly than for larger buses;
- although small buses result in a higher ratio of drivers to passengers, this is not a significant disadvantage in most developing countries where labour costs are low;
- fares are easier to collect on small buses than full size buses and the chances of revenue leakage are much reduced;
- small buses are easier to manoeuvre and are quicker in congested traffic conditions. In some areas smaller buses are the only form of public transport able to negotiate the labyrinth of narrow streets; and
- in low density areas small capacity buses can remain financially viable despite lower levels of demand. Users of small vehicles may benefit from more frequent services.

It is clear that for viability, operators need to be given freedom to choose from a range of large, medium or small vehicles offering low quality service at low fare to more comfortable vehicles at high fares. Operators select suitable vehicles because they are familiar with road conditions, levels of demand, and operating costs (Armstrong-Wright, 1993).

The literature also indicates that many people in LDCs are willing to pay for better quality services. The use of shared taxis indicates that many passengers are prepared to pay increased fares for convenient and comfortable services (Armstrong-Wright, 1993). Similarly in Jakarta, higher income groups prefer minibuses (8 seat vehicles converted from large size cars) because they are more comfortable, have seats available, and offer shorter waiting times. Low fare levels are also important determinants of mode choice for users of stage buses, especially for longer distance trips (Black and Dardak, 1992).

c. Route assignments

Route assignment includes route planning on the basis of accessibility, timetable, bus stops and terminals. Passengers are interested in knowing the timetable, the schedule, and when the first and last vehicle leaves the terminal. A timetable is also required by the operators if they intend to coordinate transfers and so increase passengers. However, the high frequencies found on most minibus routes in developing countries often obviate the need for schedules as

waiting times are low (Schuurman, 1985; Allos, 1986).

The purpose of route network regulation is to assure that mode is accessible to users. Stops and terminals should be regulated to ensure that service vehicles stop where they will not hold up traffic flow. Routes for operators can be regulated to minimise competition between operators and to reduce congestion on some routes. The literature shows that the regulations are observed in LDC context only in the presence of strict and visible enforcement (Khezwana and Maunder, 1994; Lee, 1990).

In most of the LDCs, route planning is done without any specific criteria, and route networks are usually neither revised nor extended regularly in the face of growing demand for public transport. Moreover, the regulatory authorities do not seek the views of private operators in determining the route network. For example in Malaysia, Wahab (1994) reports that the Road Transport Licensing Board has no technically or professionally qualified staff to deal with the present issues of public transport. The board does not follow any specific criteria for the regulation of public transport services. The lack of planning for bus stops, routes, capacity, frequency, etc are a reflection of such deficiencies. Operators are not given opportunities to present their ideas for improving services, and they face unnecessary bureaucratic delays when requesting permission for basic operational changes. The authorities on the other hand are usually less sensitive to problems, and can seldom produce alternative strategies to improve services when needed. Another issue related to route network planning is that networks are not modified in the face of public transport service demands. For instance the network of routes operated by Bangkok Mass Transit Authority in the 1980s was relatively small in relation to both size of fleet and city. This network was not suitable either to passengers or operators (Harris et al, 1984). By contrast in Hong Kong the bus routes are specified by the regulatory authorities in consultation with the operators and new routes are also added in newly developed residential areas (see section 9.1).

In a few LDC cities however, route networks defined by authorities appear appropriate with regards to vehicle size. Armstrong-Wright and Thireiz (1987) report that in Jakarta large buses usually ply major commuter routes and obtain high load factors with frequent services. Most midibuses (30 seater) and minibuses (14 seats) provide feeder services to main bus routes.

Similar public transport operations are found in Nairobi under franchised arrangements. Another impressive practice is seen in Istanbul. Here high occupancy vehicles are concentrated on main roads, largely operate in exclusive right-of-way, and serve high volume of passengers, whilst most minibuses serve low density and difficult areas.

A well defined route network has been developed in Curitiba (Brazil). Cannell (1996) reports that in Curitiba in the early 1970s, eight conventional bus routes were converted into 2 express routes. These operated on 20 km of the exclusive busways, together with 45 km of feeder routes, transporting 50,000 passengers per day. The route network was gradually extended over the years with the inclusion of new trunk and feeder routes. Moreover, interdistrict routes were created, linking various districts of the city without the need to pass through the city centre. The network uses transfer terminals that permit integration between routes. The integrated transport system is popular with passengers. In addition, the city and traffic benefit from the system as the total number of buses in the downtown is greatly reduced (Smith and Hensher, 1998).

Generally in most LDCs, there has been poor route definition in relation to demand, insufficient route coverage, and a lack of scheduling. Routes are specified for operators but the private operators disregard the agreed routes. Moreover they do not comply with schedules (if there are any), wait at terminals to fill up the buses, serve only the profitable routes, and provide infrequent services on low demand routes (Bolade, 1989; Maunder, 1990; Mitric, 1990; Armstrong-Wright, 1993; Roth and Diandas, 1995). For instance in Malaysian cities, poor services exemplified by unreliability, overcrowding, poor route coverage, discomfort and long journey times, are among the reasons why passengers began leaving the bus services and switching to other modes such as private transport (Wahab, 1994). Sadullah (1995) reports the general complaints by passengers about bus services in Kuala Lumpur. The complaints include discomfort because of unavailability of seats and overcrowding; unsatisfactory conditions at bus terminals; no timetables; and long waiting times. Forty percent of the bus users are reported to have to wait more than 20 minutes for their buses.

Some of these problems, however, have been addressed by route associations in a few LDC cities. It has been argued that operator associations can regulate the operation of public

transport very successfully (Armstrong-Wright and Thiriez, 1987). A good practice example of route regulation by associations is that prevailing in Buenos Aires in Argentina. In Buenos Aires, the government issues licences to operate routes to legal associations, regulates fares (albeit at relatively high levels by Latin American standards), and minimum frequencies of operation. The remaining aspects of bus service operation are regulated by operators' route associations (empresas). The functions of empresas are to select and employ individual operators by contract, to provide orderly schedules and administrative services. The important function of the empresas is to assure fair distribution of income among operators, usually in accordance with vehicle mileage. The empresas compete vigorously among themselves for patronage. The major outcomes of this regulation by the associations are as follows. Vehicles are generally well maintained. The quality and frequency of service is improved (Gwilliam and Scurfield, 1996 and Salvucci, 1997).

On the other hand cooperation among the operators may cause problems such as restrictive practices to eliminate competition and control of access to market. Kwakye (1995) states that in Ghana, due to the little control applied by the government, a number of transport unions and cooperatives exert strong control over the operation of private sector services. The unions regulate access by operators to the route terminals. Vehicles are held at terminals and not released until they are full. There is no strong evidence of an insufficient number of vehicles, and much of what exists is poorly utilised and/or of the wrong type (Fouracre et al, 1994; Kwakye, 1995). Moreover, most routes are radial which involve one or more interchanges for cross city travel. As result of poor network coverage the general quality of the urban public transport system is poor, and there is a high cost of service to the users. The poor quality of service is most noticeable in Accra, exemplified by the lengthy waiting times, long in-vehicle times and poor access to bus services (Abane, 1993).

3.4.4 On-street traffic management and regulation

The review of literature demonstrates that many of the world's cities face increasing problems of traffic congestion. Buses are forced to compete for road space with all other road users and hence frequently fail to deliver acceptable levels of service (Gardner, 1992). Armstrong-Wright (1993) reports that in LDCs, a large proportion of road space is used by private cars

and slow moving vehicles, particularly during peak traffic periods. The most affected mode of the anarchic conditions is public transport. In particular, bus services in many LDC cities suffer from a very poor image because these are often considered as unreliable and inefficient due to delays caused by traffic congestion. To combat this situation, authorities are increasingly turning to more cost effective solutions. More specifically, traffic management has been identified as a very effective method of decreasing congestion and improving the flow of public transport. Traffic management, in particular bus priority measures, have been implemented to address the ever increasing problems for bus public transport from congestion.

According to the IHT (1987), the term 'traffic management' is used to explain the process of regulating the use of prevailing road space to meet defined objectives without employing considerable new road construction. Traffic management is generally undertaken to accomplish some, or all, of the following objectives:

- a reduction in road accidents;
- environmental improvement;
- improved access for people and goods;
- improved traffic flows on primary and distributor roads.

The largest potential for improvement in traffic management can be achieved through better driver behaviour, regulation, enforcement and road safety (Latchford, 1986). However, a conventional response to chaos and traffic congestion has been the widening and construction of new roads in many LDCs and DCs. Many LDCs allocate most of their transportation budget to expanding roads and highways. This is a short term view of a city's transportation needs and creates many hidden costs, such as high levels of pollution and traffic congestion (Birk and Zergas, 1993).

"To relieve congestion, many countries have opted to expand road network..... But these solutions are costly and strain already hard pressed budgets..... Some traffic specialists claim that with a package of far less measures, designed to re-organise road space more efficiently, congestion can be dramatically reduced" (Koepell, 1982).

Armstrong-Wright (1993) states that there is growing trend to employ more cost effective measures, in particular, traffic management is becoming more recognised as a very effective means of reducing congestion and improving flow of public transport. The implementation of traffic management measures varies from city to city. Some of these have concentrated on particular trouble spots and some have involved comprehensive traffic management measures and road improvement schemes embracing a large part of the city. For instance a comprehensive traffic management scheme has been successfully implemented in Abidjan, in Cote d'Ivoire.

In Abidjan, the government undertook the integrated measures to overcome serious traffic problems with specific emphasis on the needs of public transport. The traffic management and improvement measures involved: a system of one way streets; traffic signs and road markings; installation of 136 computerised traffic signals; footbridges for the movement and safety of pedestrians; new road links for a high speed express bus network; facilities like new terminals, bus stops and depots; the provision of a busway and reserved bus lanes in central area; and effective steps to improve the enforcement of traffic and street trading regulations. The government has also established a traffic management and transport study group to study and monitor these initiatives. The Traffic Police appear to operate quite efficiently and this has contributed to the success and effectiveness of these measures (Barrett, 1988; Armstrong-Wright, 1993).

Many countries have considered the use of road pricing and car user restraints as means of reducing road congestion and to improve, in particular, conditions for public transport. Several different systems of restraint are used or at least attempted in DCs and LDCs (Button, 1984; Jones, 1989; Armstrong-Wright, 1993). In Singapore, where little more can be done in terms of expanding the existing road network to accommodate growing motorised traffic, the government has taken vigorous action to control the growth in the use of cars through various traffic restraints such as the Area Licensing Scheme in Singapore, parking controls and high taxes on cars. In order to improve traffic flows, a continuing programme of traffic management and area traffic control measures is implemented in Hong Kong (Government of Hong Kong, 1996). These restraints have fostered the use of public transport by creating improved traffic conditions because of reduced congestion. Operators have claimed that they

were able to meet schedules better and avoid delays (Richards and Huddrat, 1986; Armstrong-Wright, 1993). Encouraged by the success of Singapore's experience, a few other developing countries attempted these schemes in the face of increasing levels of motorisation. For instance, the use of Area Licensing Scheme was tried in Bangkok and Kuala Lumpur but soon abandoned because of political reasons (Orikaye, 1983). In some places restraints have been applied by restricting cross city movements by private cars. For example, a reduction in traffic flow has been reported in Tunis by dividing the central business district into "cells". Public transport and emergency vehicles are allowed to cross the borders between cells, but other motorised traffic must use entrances and exits onto routes that bypass the central area (Mitric, 1990; Armstrong-Wright, 1993).

"The main criteria for road and traffic [management] schemes....reflecting the particular policy inclinations of the authorities..... Typical of such policies are those which give priority....to public transport vehicles in order to maintain or improve levels of service by improving the efficiency and effectiveness of the services" (IHT, 1987). The need for traffic management to give particular attention to public transport is well admitted and the value of priority measures for buses is appreciated by most authorities. As a result, bus priority measures have been introduced when increase in traffic made the operation of urban buses problematic (Giannopoulos, 1989). Simpson (1994) envisaged that bus priority is likely to be the most significant way of improving the reliability and speed of services. He further emphasises that without it, the other ways of trying to improve bus services such as vehicle developments, integration of services and improved information for passengers, would be likely to fail. According to Gardner and Fouracre (1990) bus priority systems were implemented in many cities throughout the world during 1970s. At present, there is a growing trend to provide more effective measures to improve practical aspects of bus operations through the provision of bus priority measures as a part of traffic management schemes.

Bus priority schemes may be classified into several different types according to the procedures applied for required priority (Latchford 1986). The following is the range of suggested traffic management measures (IHT, 1987; Giannopoulos, 1989; Simpson, 1994).

- a. Various simple bus priority measures, including traffic regulations giving priority to

buses (for example when leaving bus stops), parking restrictions near bus stops, and on bus routes generally and traffic management measures specifically applied to bus routes to facilitate the passage of buses.

- b. Priority at traffic signals (automatic adjustment of the start and finish of the green periods to favour approaching buses, and redesigning of signal programmes in Area Traffic Control Schemes to give special weight to bus flows).
- c. With-flow bus lanes (reserved for buses travelling in the same direction to the general traffic).
- d. Contra-flow bus lanes (reserved usually, but not always, in one-way street, whereby buses are permitted to travel against the general flow of traffic).
- e. Reserved bus lanes on freeways (sometimes reversible for tidal-flow operation), priority access to freeways and other facilities.
- f. Bus-only streets (normal streets converted to pedestrian and bus use only).
- g. Busways (segregated roads for buses only).

The main feature of bus priority schemes is the separation of buses from other road users, either at selected locations (like bus stops) or along running sections of road network. A large number of bus priority schemes have been introduced throughout the world. The earliest schemes were introduced in Europe in the early 1970s. Bus priority measures included with-flow and contraflow bus lanes, bus streets and spot improvements. Some schemes were very effective and many were ineffective due to enforcement difficulties, poor design and other factors (TRRL, 1993).

Jacobs and Bowker (1994) report that bus priority measures, as a part of traffic management schemes, are little in evidence in LDCs; and six cities had actually abandoned bus lane schemes because of poor enforcement (see section 6). Success is possible however in LDC context. For instance in Bangkok, a 'with flow' and 'contra flow' bus priority project was implemented. Prior to implementation of the project, the speed of buses during peak periods in central area was as low as 10 kmph, while cars were able to maintain only a little better than 12 kmph. In areas where the most success was achieved, buses' and cars' mean travel speeds were increased by 25 to 30 percent. The cars did not suffer as a result of priority given to buses. With up to 250 standard buses and 150 private minibuses using a single bus lane during the peak hour, in total these vehicles carried about 18,000 passengers per hour

(Armstrong-Wright, 1993).

Subsequently, however, police enforcement waned, bus lanes violations increased and the benefits of the schemes were badly affected. In their study of the operational difficulties confronted by operators and the benefits achieved through traffic management measures in Bangkok, Richards and Huddart (1986) state that average speed for surveyed routes was 17 kmph with wide variations and some routes averaging only 11-12 kmph. A major cause was delays at traffic signals, and a few routes experienced delay due to the impeding of other vehicles at bus stops. This implies that any traffic management measure cannot obtain its anticipated benefits in isolation, without both enforcement of the regulations and a comprehensive traffic management scheme.

Armstrong-wright (1993) reports that with effective enforcement, bus priority schemes have provided benefits to all road users. Journey speeds and output of buses can be greatly enhanced. Reserved bus lanes can permit bus journey speeds, often of more than 20 kmph average, without reducing general traffic speeds. Furthermore, passenger volumes of about 15,000 and 20,000 passengers per hour per lane have been achieved for standard and large buses respectively.

In cases where enforcement of bus-only lanes is not effective, "physical" separation of the lane is suggested by Giannopoulos (1989). In order to improve the bus services and to cope with heavy demand along major roads, busways have been introduced. The term "busway" is used to indicate a continuous road segregated from the rest of the road network and exclusively used by buses. Busways are an extreme form of bus priority measures and have been implemented in a large number of LDCs and DCs. The earliest schemes were implemented in Europe, for example, the first busway was built in Liege (Belgium) in 1970, and the first purpose-built busway roads were commenced in Runcorn New Town in UK in 1971 (TRRL, 1993). Then in the late 1970s and early 1980s a large number of innovative busways were implemented in Brazilian cities, many with the assistance of World Bank (Fouracre and Gardner, 1990). Busways can present a highly efficient and cost effective system of mass transit under distinctive operational measures. Busways can be physically segregated from other traffic by using various types of barrier (medians, high kerbs, fences, and studs). The

performance of busways varies substantially from place to place and depends on a large number of factors, such as the extent to which overtaking is permitted, the bus stop arrangements, and the proportion of boarding and alighting of passengers.

A TRRL study of busway performance identified about 40 operational schemes throughout the world; eight of these, from developing countries, were selected for detailed surveys to identify operating performance. Some schemes were very effective and showed worthwhile benefits with high economic rates of return, but many were ineffective due to enforcement difficulties, poor design and other factors (Gardner and Fouracre, 1990). Some busway schemes are operating just at available capacity for reasons such as poor enforcement. Gedizlioglu (1992) reports that the busway scheme in Istanbul varies from 8-10 meter in width and is 5.2 km long. There are 12 stops in each direction, with an average distance of 500 meters between bus stops, and stops are about 50 meters in length. Over 80 routes use the same busway and all share the same stops. There is no ordering of overtaking. A bus can be boarded at any point of a stop and the disorganisation of the routing and scheduling of bus lines has resulted in delays at stops. As a consequence the busway is utilized under its capacity. However, this problem has been dealt with in Brazilian cities, where buses are ordered in convoys and passengers board at pre-determined loading points (Lindau, 1987).

Gardner et al (1991) report that busways in Brazilian cities have achieved very high bus speed and passenger throughput (number of buses and passengers handled per direction per hour). Bus speeds ranging from 12 to 24.6 kmph have been found during the morning and evening peaks. The highest average bus speeds (nearly 30 kmph) were recorded in Sao Paulo. The maximum line-haul passenger throughput recorded was 26,100 passengers per hour per direction in Port Alegre during the morning peak. The highest evening peak passenger throughput recorded was 20,300 passengers per hour per direction in Sao Paulo. From an analysis of each busway it was apparent that the main factors affecting average speed were bus stop and intersection spacing. Between stops, busway running sections are separated from general traffic lanes by heavy studs. Special operating features such as overtaking bays, bus-ordering, and trunk and feeder systems have also been provided (Jacobs and Bowker, 1994). Furthermore, extensive traffic management measures have also been implemented. Bus services are operated by various private and public companies under a regulated environment

(Gardner, 1992). Together these arrangements have resulted in relatively high speeds and provided high quality bus services.

The most famous and best example of a full busway system is found in Curitiba. Routes and stops are clearly identifiable, similar to a metro system. The busways serve five structural axes, each typically comprising a median busway with kerbed separators, and a service road. There are also extensive priority measures to route buses into and through the city centre. Busways are integral with the city land use plan. Detailed and sophisticated attention has been given to passenger interchanges, bus design and many other aspects (TRRL, 1993; Smith and Hensher, 1998).

A trunk and feeder system operates in which busways are routed through a series of terminals where passengers transfer between feeder and trunk buses in an enclosed area, with no further payment of fares. Tickets are purchased at the entry to terminal, rather than on the bus. This reduces boarding times and provides free transfer for those interchanging inside the closed area. As a result, this reduces cost and inconvenience to passengers, and permits high boarding efficiency. All four doors of the articulated buses can be used, since no ticket validation is necessary. Buses are operated by private companies under a regulated regime. They use common colour coding and high quality graphics for passenger information (Gardner et al, 1991). The average speed of buses has been recorded at 21 kmph (Fouracre and Gardner, 1992).

The review of literature has confirmed that busway transit is capable of carrying high passengers volumes at attractive commercial speeds. It can be argued that busway schemes compare very favourably with rail mass transit schemes. Certainly 20,000 passengers per hour in each direction is a realistic target, even without particularly elaborate measures for overtaking at stops and for boarding and alighting (Simpson, 1994).

More recently (1996) in UK, guided busways introduced in Leeds and Ipswich have been approached on a phased, incremental, basis. Indeed one of the supreme advantages of guided bus over other modes is that its fragmental nature allows progress and development as funds and opportunities arise. In addition, guided busways offer scope for more radical gains in

speed, reliability and ridership growth (see Tebb, 1997; White, 1997). Guided busways are also expected to begin work soon in Edinburgh (*Transit*, 5 March 1998).

Busways have advantages and disadvantages. Cornwell and Cracknell (1990) identify that there are difficulties and weaknesses associated with the implementation of busway systems. These include institutional fragmentation, a lack of political visibility, apparent complexity, severance impacts on other traffic, and land related impacts. Busways can also be criticized for taking road space away from cars (Gardner, 1992).

The advantages of busway systems as described by Cornwell and Cracknell (1990), and Gardner et al (1991) may be summarised as follows. First, since buses can join and leave a busway along its length, routes serving many parts of a city can use a busway over part or all of its length. Passengers from a wide catchment area can therefore benefit from improved services, without having to change vehicles. Second, because busway physically segregates buses from general traffic, schemes are virtually self-enforcing and therefore superior to traditional bus lane priorities. Third, busways enhance the use of buses, which will continue to be the main means of public transport in most cities. Fourth, a busway may be implemented relatively quickly since usually no special legislation is necessary and because track and vehicles are inherently less complex than those of rail systems. Nevertheless, negotiations with existing operators can be politically sensitive. Fifth, busways can be implemented incrementally and can be enhanced step by step such as guided busways in the UK. Sixth, a busway can be constructed with locally available labour and materials, and it offers considerable scope for construction by local contractors. As a result, the foreign exchange requirement for hard currency is minimised. One of the main disadvantages of busway transit is that their implementation requires the active cooperation of the highway authority, the licensing authorities, the police, and bus operators; such cooperation is often not easy to achieve in LDCs.

3.5 Enforcement of Regulation

Enforcement of regulations by various regulatory authorities is often weak in LDCs, which can be seen reflected in the poor quality of vehicles, route shortening by operators, and

overcrowding of public transport services. Moreover, ineffective enforcement will also undermine the implementation of traffic management measures (see the preceding section).

In Nigeria, for instance, local governments have had the responsibility for developing, controlling and monitoring urban public transport services, but they are not equipped with the financial means and regulatory capabilities required for performing these functions effectively (Ezeife and Bolade, 1984). Practically, regulations are left to the operators' unions, which make agreements amongst members to protect their interests rather than for the improvement and coordination of services. The private sector operators, officially assigned to routes by the Central Licensing Authority, operate anywhere they wish (Bolade, 1988). As a result, urban public transport in Nigeria has many deficiencies. Moreover, the most acute of the traffic problems is the notorious congestion. Maunder and Khezwana (1994) described congestion as appalling in Lagos, and it is not helped by the supply of large numbers of small capacity private sector vehicles operating anywhere in the city.

Barrett (1988) and Thomson (1983), assert that police departments, although they are often managed by highly trained professionals, have often poorly trained, low paid, and inexperienced officers. Traffic regulation is one of their duties and has a low priority, and laws may be written in ways that are difficult to enforce. Moreover, the police are reluctant to put drivers out of business if they are poor and their vehicles are poorly maintained. With low paid and undisciplined police forces, bribe taking is a common problem.

In contrast to this general pattern the literature also reveals that there are instances in some LDCs where authorities seemed able to enforce regulations. Khezwana and Maunder (1994) reported that the government of Papua New Guinea rigorously enforced regulation over the private sector operation in 1987. In consequence, vehicles operated only on specified routes. Passengers were forbidden to stand in a minibus and this regulation was strictly enforced. Pirate operators were non-existent. However, during the off-peak periods service levels reduced significantly. No information is available about the present situation. A similar instance of effective enforcement can be cited from Cote d'Ivoire in regard to the implementing of traffic management measures (see preceding section). It can be argued that in LDCs the authorities often have the potential to enforce regulations but generally they lack

competent staff and political support.

3.6 Urban Public Transport Regulation in India

In India public transport services are provided by both public and private sector operators, and services are regulated by the transport authorities. In some cities, the authorities have also attempted to improve the performance of public transport services by implementing bus priority measures. The purpose of this case study is to review the impact of regulatory measures on the provision of public transport in this country. India has been selected as a case study due to its similarity of conditions to those in Pakistan, so that the lessons learned from this experience have most relevance. The analysis is based on the accessible literature.

Road based public transport supply in Indian cities is characterised by a multiplicity of services with public and private sector operators. These services include double decker buses (in a few cities), full size buses, midibuses, minibuses, taxis, autorickshaws (three wheels motorcycle powered vehicles), man-drawn cycle-rickshaws and animal drawn vehicles (Maunder et al, 1987). According to Umrigar et al (1989) there is no uniformity about the institutional arrangements for the provision of services by the public sector. In some cities the municipality is responsible for the provision of bus services; in others the State Government controls bus transport provision through a State Road Transport Corporation. In Delhi the Central Government is responsible for providing bus services through Delhi Transport Corporation (Maunder et al, 1987).

The regulation of urban road transport in Indian cities (other than Delhi) is the responsibility of the individual State Governments rather than the Central Government. Fares are regulated by State Governments except in Delhi where Central Government controls fare levels. Stage carriage services require a route permit besides the registration and vehicle fitness certificates. The number of buses to be provided in a city is controlled by State Transport or Road Transport Authority by issuing route permits. Private operators are not involved in the planning and allocation of routes. They must only operate on the route which is allocated to them by the public agency (Umrigar et al, 1988; 1989). Moreover, various restrictions are applied on the operation of private operators. For instance, the policy of the Tamil Nadu

government relating to the role of the private sector in operating public transport services has been to allow only limited competition with public sector services. According to this policy, a single private bus operator can run only up to 5 vehicles. However, this ceiling on individual bus operators has in no way restricted the competition between the public and private sectors (Gunaseelan, 1995).

Umrigar et al (1988) report that State undertakings have gained preference in the issuance of route licences and in the receipt of subsidies from Central and State Governments (Maunder et al, 1987). Generally, the public bus companies are in a poor state of affairs. For instance in Calcutta, the Calcutta State Corporation had a fleet of some 1,100 single and double buses in 1986. Of the total fleet, less than 700 buses were in operation. The corporation had been plagued by low productivity and was receiving a monthly subsidy in the region of \$ 1 million. The main factors contributing towards this end included: the high staffing ratio per operating bus (20.7) and fare evasion estimated at more than 15 percent (Armstrong-Wright, 1993). Umrigar et al (1988) argue that as a result of controlled artificially low fares, operators are facing very serious problems. For instance in Delhi, the Delhi Transport Corporation, despite its better performance compared with many other bus corporations, incurred huge financial losses (\$90 million in 1984) simply because of low fares. As a result, the corporation was unable to raise finance to meet rising demands and the bus fleet became overloaded, standards deteriorated and it faced severe public criticism (Armstrong-Wright and Thiriez, 1987). A similar episode has been reported for the public bus corporation in Bombay (Buchanan, 1980; WS/Atkins, 1994). Maunder et al (1987) reported that in India, fare levels are not sufficient to invest in new vehicles. Moreover, fare levels are not reviewed regularly, for instance fares were not increased from 1980 to 1985.

However, in the state of Tamil Nadu, where privately and publicly owned operators coexist, the public sector bus undertakings are reported to be more efficient and financially viable compared with private sector operators, both in Madras and Coimbatore (Armstrong-Wright and Thiriez, 1987). In Coimbatore, Cheran Transit Corporation was mandated by the state to provide cheap and efficient bus services while maintaining financial viability. The corporation was also authorised a high degree of financial and operational independence. It operated 1,100 full size buses with a high level of efficiency; with over 95 percent of the total buses in

operation on a regular basis. Initially, the staff per operating bus ratio was 7.3 but gradually it was reduced to 6.5. Despite very low (government fixed) fares, the corporation was able to make a profit, which enabled it to expand its fleet in line with demand.

Much of the success of the corporation must be attributed to its dynamic and accountable management, and its degree of independence. It adopted prudent commercial policies, and undertook comprehensive monitoring and costing of services. An important reason for its high productivity was the payment of bonuses to staff as a result of higher bus utilization and better fares collection. Bus drivers were also awarded annual bonuses for accident-free driving. Another reason for high productivity was that the corporation achieved scale economies by establishing its own body building operations, with a target of 750 bodies for the year 1986/87. More than half of the bodies were sold to other companies (Armstrong-Wright and Thiriez, 1987; Armstrong-Wright 1993). Similarly, improved services and financially viable operation have been reported for the Pallavan Transport Corporation in Madras (Armstrong-Wright and Thiriez, 1987; Spiers, 1987).

Gunaseelan (1995) stated that in Coimbatore passengers were more satisfied with public than with private bus services, particularly in regard to reliability and safety; the exception was comfort, regarding which passengers were more satisfied with private services, due to their ability to provide more personalised service for short length trips than the public bus sector. It appears that the public bus sector had a higher comparative quality of service due to its large vehicle fleet and its maintenance and infrastructure facilities.

"The public sector organisations [in India] though they have done a fair job so far, are in many cases too large, complex and bureaucratic to be able to respond to changes in the overall travel market with the speed required to maintain a working financial surplus. Consequently services get out of time with demands and in particular costs and revenues are not adjusted quickly enough to prevent large deficit arising" (WS/Atkins, 1994:5-7).

The private sector does not play a large part in operating full size stage carriage bus services in most Indian cities. Generally private operators sub-contract full size buses to the public sector bus corporation, as in Delhi. However, small capacity vehicles such as minibuses are

increasingly used by the private sector (Maunder et al, 1987). As fares are controlled by the government at low levels and private operators are not given any subsidy, they maximise their revenue by maximising the number of passengers carried at the cost of quality of service. There is hardly any monitoring and control by regulatory authorities to check the quality of service provided to the users (Umrigar et al, 1989).

The present picture of urban public transport in India is not desirable one. The services are mostly overloaded throughout the day. In many cases the publicly owned organizations have attempted to contract out some services to private bus operators under their control and satisfy part of the demand. Even with this practice there is unsatisfied demand which is the principal cause of rapid growth of intermediate public transport modes such as autorickshaws, pedal-rickshaws and small capacity minibuses (Umrigar et al, 1988). Taylor (1988) also reports that in India, there is very high demand for road based urban transit, when compared to the situation in western cities, but that Indian cities suffer from a large imbalance of supply and demand for bus services. Low frequency, high density networks are the norm, and small bus fleet size leads to high average load factors throughout the day. Maunder et al (1987) confirm that the level of provision of stage carriage bus services in India (at between 0.17 - 0.35 buses per 1000 population) is very low compared with international standards. Even in the largest Indian cities the provision is less than half that observed in UK cities (0.77 buses per 1000 population). They further state that this deficiency to some extent is fulfilled by intermediate public transport.

The literature also shows that in Indian cities where bus services are deficient, better quality services (taxi-like and quality bus services) are used at higher fare levels by middle income groups on a regular basis (Maunder and Fouracre, 1981; Maunder et al, 1987). A recent study by WS/Atkins (1993) also reports similar findings. It also observed that performance of limited stop bus services introduced in Bombay has been affected by traffic congestion. *"Serious delays to bus services are caused by major traffic congestion in many parts of Bombay. This reduces speeds to between 12 and 14 km/hour, although in some instances actual operating speeds are even lower. Consequently, bus services are unreliable and in the worst instances journeys have to be cancelled to allow buses to pick up later journeys as scheduled"* (WS/Atkins, 1994:2-49).

According to the WS/Atkins (1994) a number of reserved bus lanes have been tried in a few Indian cities, and abandoned because of the difficulty of enforcement. Buses were often unable to use the lane due to parked vehicles, pedestrians, and hawkers. One can expect this situation where there is a lack of planning control and where disrespect of law is a way of life. An article published in The Guardian presents a scene from Delhi. *"Anil Aggarwal climbs aboard his four year red scooter and circles the streets of the capital. He pauses now and then, amid the lawless snarl of cars, autorickshaws, buses, hand-carts, cycles and motorcycles - all fighting as if life itself depended on advancing one inch farther down the road than the person beside them - and ascribes down the registrations of traffic offenders. It's strange way to spend his mornings and evenings, he admits, braving the smoky and cacophonous hell that is Delhi's rush hour"* (Goldenberg: *The Guardian* 5 January 1998). Nevertheless, in order to enable bus services to become more reliable, to achieve higher operating speeds, and to make better use of resources by improving headway, bus priority through physical segregation has been introduced in few places within Bombay city. So far, the introduction of a contra flow bus lane has been reported a success and was in operation in Bombay until 1994 (WS/Atkins, 1994). No later information is available on the operational performance.

3.7 Deregulation Of Urban Public Transport

"In the United States, and increasingly throughout the world, public policy relies on the competitive market is to establish the price and quality of goods and services. In the market, customer preferences drive the prices of competing firms lower, while maintaining or improving product quality. At the same time, public policy seeks to avoid monopoly. Governments grant private monopolies only where they perceive there to be no alternative. But because monopoly raises consumers prices and limits production, governments subject private monopolies to regulation to replicate the lower costs and higher quality that would be produced by the competitive market.... Thus governments have converted monopolistic industries such as long distance telecommunications to competition.... Similarly governments around the world have converted regulated oligopolistic industries to competition. (Such as airlines, rail transport, and intercity buses)" (Cox et al, 1997:1).

Governments have begun to recognize the drawbacks of government monopoly and are adopting service delivery mechanisms that improve public performance through the injection of competition such as privatisation, deregulation and competitive tendering (Meyer and Gomez-Ibanez, 1993; Cox et al, 1997). The United States has been playing a leading role in adopting deregulation policies at national level, most notably with the relaxation of government controls over telecommunications, airlines, banking, trucking and railroads (Meyer and Gomez-Ibanez, 1990 & 1993). In Europe Britain has been a leader in the deregulation of urban bus services (Glaister, 1993).

Khezwana and Maunder (1994) describe deregulation as a process of introducing competition into a previously protected sector of the economy so as to reduce constraints on potential entrants into the sector and make the sector more responsive. According to a Royal Commission Report, public transport deregulation is based on the theory that competition is normally the best way of ensuring that services meet the needs of customers at an economically justifiable price and that deregulated companies will improve efficiency and seek to innovate in order to meet the needs of their customers (Royal Commission on Environmental Pollution, 1995).

Tolly and Turton (1995) clarify that previously the state was seeking to protect the public interest via planned competition and regulation, but under deregulation the role of the state is redefined as one of creating conditions for efficient transport operations and allowing maximum competition. A key element of deregulation is the promotion of direct competition between rival operators. However, it is wrong to say that in a deregulated environment there will be no "quantity and quality" controls in the provision of urban public transport services and passenger safety. Quality licensing is required even in a so called deregulated environment (Khezwana and Maunder, 1994).

The proponents of deregulation such as Walters (1979) argue that government regulation of services and fares is unnecessary and undesirable. It was argued that competition would prompt the provision of new supply capacities and that a variety of new services better suited to the diversity of actual and potential demands would appear. Moreover higher frequencies as a consequence of increased demand resulting from low fares would be provided. Under the

assumptions of perfect competition, there is no need for the government to control fares. The only role that the government can play is to ensure that competition is fair.

The argument generally brought up against deregulation is that operators would concentrate on the profitable routes, increasing congestion and leaving the poorest neighbourhoods unserved, and that free entry would also bring in inexperienced operators who may cause accidents and add to congestion. A more sophisticated argument against deregulation is that it is impossible for the government to create and enforce the necessary conditions for perfect competition in the urban transport market at a reasonable economic cost (Khezwana and Maunder, 1994).

To authors such as Walters (1982) and Hibbs (1985) reasonably good services have appeared under deregulation in a competitive environment, provided by private operators on a commercial basis. On the other hand, a recent review by White (1995) stated that deregulation in the UK has produced major savings in operational costs and public expenditure, but significant changes in the quality and image of the bus are needed if it is to fulfil its potential future role.

An analysis of regulatory reforms in developed and less developed countries is given in the following sections.

3.7.1 Deregulation in developed countries

Public road passenger transport was in the past usually provided by protected monopolistic public sector operators in Developed countries (DCs). Fares were typically determined by local government which provided subsidy, often on a simple deficit finance basis (Gwilliam, 1997). In the past decade or so some countries have reduced government controls on prices, service quality, entry, exit and other aspects of private industry behaviour (Higginson, 1990; Meyer and Gomez-Ibanez, 1993). In Europe Britain has been a leader in deregulation of urban bus services. No other European countries have adopted policies based on the British model excepting Portugal, although more liberal regulation and a shift toward competitive tendering can be seen in Scandinavia in particular (White, 1995).

In New Zealand, the British model has been followed, as a part the general adoption of similar 'Thatcherite' economic policies from 1991. However, the approach is not identical, with a stronger planning role taken by the regional authorities. About 80 percent of services are operated on contract, and only 20 percent services are commercial (Fielding and Johnston, 1992). Deregulation has affected bus passenger service in a number of ways. In Auckland (the largest urban area of New Zealand), the average unit cost of bus service has declined. In some areas, service frequency has increased and new services have been provided. Competition has emerged but at the expense of service quality (Turley and Talley, 1996).

Gwilliam and Van de Velde (1990) report that Portugal is, after the UK, the most extensively deregulated country in Western Europe. A new law promulgated in 1990 displaced a regime which had been in operation since 1945. There is a complete deregulation for bus services in the country, subject only to a qualitative licensing system of operators, except in Lisbon and Oporto. The state retains a power to constrain maximum fares, and the municipalities have the right to supplement the commercial network by contracting for subsidised services. However, in Lisbon and Oporto, commissions have been set up with the task of establishing and implementing public transport plans and determining procedures for the regulation of the system.

The deregulation of urban bus services has been implemented in Britain and other DCs followed the British model. The academic debate on this is extensive as is evident in the proceedings of five international conferences in the series on Competition and Ownership in Land Passenger Transport and in a series of papers in journals such as *Transport Reviews* (White, 1995 & 1996; Gwilliam and Van de Velde, 1990;) and *Journal of Transport Economics and Policy* (Dodgson and Katsoulacos, 1988; Gwilliam, 1989; Heseltine and Silcock, 1990; Evan, 1990). Deregulation in Britain since 1985 has provided the best setting for evaluating the innovations which have been initiated by the market (Gomez-Ibanez and Meyer, 1997). The following section reviews in detail the British experience about bus deregulation.

3.7.2 Deregulation of the bus industry in Britain

For over fifty years from 1930 urban bus services were strictly regulated. A system of route service licensing controlled the network of routes to be operated, frequencies and fares, and assigned monopoly franchise rights (Gwilliam, 1989). The industry had been running on public service principles and had been largely exempted from the provisions of competition and restrictive practice legislation. There were suggestions that this monopoly had led to inefficiencies and the stifling of innovation which prompted a critical appraisal of how a competition structure might be generated (Savage, 1985).

Since 1980 the bus operating industry in the UK has undergone the most dramatic revolutions (Tolly and Turton, 1995). The 1985 Transport Act re-organised the bus industry in Great Britain and provided a new framework for all local bus operations outside London. The Act reflected a desire to introduce competition into local public transport and concern with increasing subsidies. The most effective ways of addressing these issues were by deregulation, the introduction of competitive tendering for unprofitable routes and the transfer of bus operations from the public to the private sector (Simpson, 1996). The Act followed previous legislation (The 1980 Transport Act) which had deregulated express coaches nationally and local bus services in three Shire Counties.

Passing judgement on that legislation, the government felt that: *"The 1980 Act began to remove the barriers to competition by making it easier for operators to run new services. The last four years have shown that industry has able and energetic managers who are ready to take advantage of new opportunities and that there is life in the bus market where operators have been prepared to try new ventures. It is now time to go further"* (The 'Buses' White Paper; HMSO, 1984).

However, rather than seeing this as a natural progression of successful policy, opponents of the 1985 Transport Act questioned the diagnosis based on this earlier legislation. To many commentators, the 1985 Transport Act was based more on an ideological conviction by the government that it would work, than on proven experience. Radical policies generated lively debate (for example, UK Department of Transport, 1984; Banister, 1985; Beesele and Glaister,

1985; Gwilliam et al, 1985 a & b).

The proponents of the deregulation such as Beesley and Glaister expected better results.

"Government policy dictates that subsidy to bus industry must fall substantially. If nothing else were to change then this would have serious consequences for the public. Fortunately, there is scope for substantial cost reduction. But this can only be achieved through competition.... deregulation will produce an instant response" (Beesley and Glaister, 1985).

They claimed, the reforms would create a market environment that was competitive, so that any monopoly profits would be eliminated. They argued that the resulting competitive pressures would also force the industry to improve productivity, reduce costs and to devise improved and attractive services. They also predicted reduced fares and higher ridership.

The opponents of the deregulation such as Gwilliam, Nash and Mackie predicted negative effects.

"The analysis of the White Paper rests on four straightforward propositions: deregulation will produce a competitive market, competitive pressures will substantially reduce costs, competition will improve resource allocation and will not cause significant side effects. We reject all of these propositions" (Gwilliam, Nash and Mackie, 1985). They expected competition either not to develop or to be wasteful if it did. They also contended that many communities would end up dominated by entrenched local bus monopolies, which being unresponsive to users and no longer inhibited by government oversight, would raise fares and cut services. If competition did develop, they stated, it would be concentrated on a few profitable routes and services would decline on the unprofitable routes. They predicted bus ridership would decline and car use and traffic congestion would increase.

Following enactment of the 1985 Transport Act, the British local bus industry was deregulated in 1986. Bus operators are now free to decide what bus services they wish to provide commercially and what fares they wish to charge. There is a quality control of operators, drivers and vehicles, but no quantity control. The only restriction on entry and exit is that the operator must register his service, giving 42 days notice of the route and timetable which are

to be offered (Mackie and Preston, 1992). According to Tolly and Turton (1995), route competition was introduced on commercial services, public subsidy has been slashed; and city streets have seen the decline of the old double-deckers and the appearance of mini and midibuses, often in eye-catching liveries and operated by previously unheard-of companies. The local authorities may choose to supplement the commercial network by securing additional services via competitive tender.

The effects of deregulation in Britain have been very uneven and have been well debated and documented. The following are the major outcomes of the deregulation.

Competition: It is difficult to establish how much competition has occurred, beyond conceding that it has so far been less than was optimistically expected (Glaister, 1993). Begg and Smith (1997) state that the effects on passengers have been mixed and localised. Some areas benefited from competition and some saw no changes at all. Still others experienced all the side effects of high level on-the-road competition. According to Tyson, deregulation has led to competition in the bus industry on a significant scale. There are few areas of the country which are the preserve of a single operator. Bus operators have shown themselves to be capable of diversifying to and from other activities and capable of operating well outside their traditional areas (Tyson, 1996). On the whole, however, competition has not generally been widespread or sustained. Where competition develops, many of its undesirable features are reportedly common. White (1995) reports that headrunning is a frequent competition strategy, for instance, while price competition is reportedly rare. Similarly travel cards or passes are less prevalent outside London than they used to be (Tyson, 1995). In some metropolitan areas active competition has been reported. The city of Oxford is the prime and possibly only example where competition has led to investment in new buses and very high frequencies. As a result of these developments, the number of passengers miles by bus into the city centre has markedly increased over the last decade (Jeffery, 1997). Colson (1996) claims that a successful growth of the market has also been achieved in Bristol.

Fares: The obvious effect of deregulation is changes in real fare levels. It was expected that with competition costs would be generally reduced which would allow fares to be reduced, but fares have increased significantly in real terms. During 1985-89, fares in metropolitan

areas rose by an average of 23 percent in real terms but only 10 percent in the country as a whole (Gomez-Ibanez and Meyer, 1989). Over a period of 10 years (1985-1995), a sharp fares increase has been reported by White (1997). He reports an overall fares increase of about 20 percent ranging from 5.4 percent in Scotland to 50.3 percent in the metropolitan areas.

Public expenditure: The government has saved a large amount of money in reduced subsidies. Gwilliam (1989) reports that subsidies to the bus industry and its passengers have been reduced by 50 percent. The overall fall in public expenditure on local buses (excluding London) from 1984 to 1988 was about 26 percent (Glaister, 1993). White elucidates that revenue support outside London fell by 55 percent. In 1985/86 this included payments to operators and controlling bodies such as Passenger Transport Authorities, for maintenance of fares and service policies. However, the payments to operators are now confined to those for tendered services and have declined more rapidly. These payments comprised some £143 million compared with the revenue support figure of £237 million in 1992/93 (White, 1995). This implies that deregulation tends to achieve its objective of reducing public expenditure.

"Deregulation has not achieved the main objective as summed up by Nicholas Ridley, Secretary of State for Transport when legislation was introduced, 'to halt the decline that has afflicted the bus industry for more than 20 years'. It has not resulted in many small and medium sized companies competing to provide a more efficient service at lower cost to traveller and taxpayers as was envisaged. The Transport Act 1985 has resulted, however in lower subsidies" (Simpson, 1996:217).

Bus patronage: Fairhurst and Edwards (1996) and Mackie et al (1995) reported a large increase in bus-kilometres, of almost 30 percent since 1985/86. The large increase in bus kilometres seems to have had very little effect on demand. Whoever, the main effect of the deregulation has been a reduction of people using buses, with patronage falling faster after deregulation than before, especially in the large cities (Tolly and Turton, 1995; White, 1995; Tyson, 1996). In the first six years of deregulation, the number of bus passenger journeys in the metropolitan counties fell by 23 percent and in the shire counties by 17 percent (Department of Transport, 1994). Moreover, there has also been a decline in travel at concessionary fares (Hill and Last, 1994; Paulley and Balcombe, 1996). Recently some

reduction in the rate of decline in the ridership have been reported by the Department of Transport (1995). This is the great disappointment of the policy (Glaister, 1993). White (1990), and Fairhurst and Edwards (1996) estimated that the post-reform ridership losses were slightly smaller than expected in London and slightly larger than expected elsewhere. These losses were mainly because of irregular running, or vehicle bunching, lack of service coordination or confusion among passengers because of frequent changes and lack of information. Owing to the above deficiencies, the drop in bus patronage is not therefore surprising (The Royal Commission on Environmental Pollution's Report, 1995). In addition, managers seemed slow to adopt good marketing practices and commercial pricing (Tyson, 1989;1990).

Fleet composition: The overall fleet grew by 10.3% from 67,900 in 1985/86 to 74,900 in 1993/94. Much of this growth was in minibuses/midibuses (vehicles with 17-35 seats). The number of these vehicles rose from 3,100 to 14,600 over the same period. However, the number of larger vehicles (over 36 seats) fell from 58, 200 to 50,900, notably in the double decker category. Rapid ageing in this category is also evident. The percentage of vehicles 12 years old and above in 1985 was 19 percent and increased to 48 percent by the end of 1993 (White, 1995).

Ownership: Presently most of the local bus industry falls within the private sector whereas over 90 percent of bus operations were in the public sector in 1986. This largely illustrates the gradual sale of previous public sector business to private ownership, although some expansion of private sector operations has also occurred through entirely new entrants in the local bus market (White, 1995).

Operational costs: A notable feature of deregulation has been the reductions in unit operating costs. Operational cost per kilometre has been reduced by 30 percent (Gwilliam, 1989; Heseltine and Silcock, 1990). The overall reduction in average operating cost is higher in areas outside London. Taking trends up to 1993/94 inclusive, the reduction in deregulated areas as a whole was more (at 41.9%) than in London (at 35.1%). However between 1993/94 and 1994/95, London displayed a greater reduction than other areas (White, 1997). Advocates of deregulation such as Glaister (1993) claim that the reduction in operational costs is due to

reduced labour costs resulting from the new policy. However, White and Turner (1990) added that costs also fell due to substantial reduction in fuel prices.

The minibus effect: One of the most striking innovations has been the substitution of minibuses/midibuses for double deckers (Gomez-Ibanez and Meyer, 1997). Before 1984, minibuses were rarely used on intensive urban services, but urban minibus/midibus operations have flourished in the deregulated environment (Watts et al, 1989; Turner and Mbara, 1992). The minibus experience in Britain has delivered increased frequencies, greater vehicle kilometres and more fuel-efficient vehicles. Increased frequency has been allowed by lower capital and operating costs, including drivers' wages and has resulted in increase in ridership, compared with full size buses (Simpson, 1994). What minibuses lack in passenger capacity, they often make up for in higher speeds and allow greater route coverage with better penetration of residential areas (Glaister, 1993; White, 1995).

Road safety: Safety was a subject of great debate. It was alleged that competition would lead to neglect of vehicle maintenance and personnel training (Glaister, 1993). An analysis has been made of detailed casualty trends from 1966 to 1992. The evidence indicates that no significant change in casualty rates for bus and coach occupants has occurred since local bus deregulation (White and Tyler, 1994). A similar conclusion is also supported in other recent studies (Astrop et al, 1991; Evans, 1994). The British experience suggests that quantity and price deregulation need not result in any worsening in casualty rates for bus and coach occupants, provided that strict quality control is retained. This is achieved through the operator licensing system (White, 1995).

Service quality: The effects on quality of services have been varied. Services have changed far more frequently than before deregulation. As a result it has been not easy to provide information to passengers. Tyson (1990) examined the provisional impact of deregulation on service stability, information and integration in metropolitan areas. Later in mid 1990s, Tyson reported that the present deregulated market has not provided stability of services, an identifiable network which could be easily promoted, with inter-operator and inter-modal tickets, regular coordinated timetables on routes, or significant investment in new vehicles. Moreover the deregulated market is not able to generate the level and quality of bus service

necessary to attract car users to public transport (Tyson, 1995). There is a lack of cooperation between operators which has resulted in poor connections between services. Many services have been reduced, networks are restructured and have become less stable. The general impression is of declining quality of services (Simpson, 1996; White, 1996). Moreover, there was also deterioration in the extent of bus-rail integration; markedly so in Tyne and Wear. Passengers on main routes with faster, cheaper and more frequent services have benefited, but this is offset by the losses suffered by those who wish to travel off-peak, on less used routes, or who wish to interchange with other urban transport services. Women and the elderly comprise the majority in this category (Tolly and Turton, 1995). Begg and Smith concludes that *"overall, there has been an erosion of customer confidence by the frequent changes to services, confusion of publicity and a perception of a lack of stability in service provision due to the competitive environment"* (Begg and Smith, 1997:20).

3.7.3 Deregulation in Less Developed Countries

To overcome the problems associated with regulation of public transport (discussed in section 3.3), various regulatory reforms including complete deregulation have been adopted in a number of LDCs (see Darbera, 1993; Fernandez, 1994; Fouracre et al, 1994; Joy, 1995; Kang, 1995; Roth and Diandas, 1995). The intent of deregulated entry is to find a mechanism which will enhance the capacity of the system. There are varied opinions over the outcome of deregulation in LDCs. With free access to the market, the capacity of the fleet would be enhanced and passengers may avail themselves of different types of services. Deregulated fares, coupled with ease of entry to the market, is likely to result in the provision of more services that meet the needs of the public at competitive prices. Moreover, the element of competition may reduce the chances of excessive profits and encourage efficiency (Armstrong-Wright and Thiriez, 1987). The literature shows that deregulation has however not improved the functional productivity of public transport vehicles particularly in developing countries such as in Chile and Peru (Henry, 1993).

Fouracre is pessimistic, and claims there is no guarantee that deregulation will encourage market entry. In developing countries there is no certainty that market forces will result in services at market price to all areas. Very often in practice trade associations or consortia of

owners or drivers take on the role of regulation in order to avoid cut-throat competition. Such associations tend to protect the interests of their members rather than that of the community. Gwilliam (1997) confirms that a common phenomenon in many of developing countries is the existence of operators' associations. Such associations typically establish property rights, often over terminals, and by force if necessary.

The implementation of deregulation policies has varied from country to country: from (a) complete deregulation except quality controls, (b) fares deregulation retaining strict quantity controls (c) fares deregulation with weak quantity controls and (d) free entry retaining fare regulation. Little information is published on c and d situations. Two countries, Chile and Sri Lanka, have been selected to illustrate the impact of a and b deregulation policies.

- a). Chile is the pioneer country that started deregulation of urban public transport in 1979. Complete deregulation has been rejected in the longer term. The analysis of the experience shows how the failure of deregulation has led to a form of re-regulation.
- b). In Sri Lanka, fares have been deregulated for private sector services. Yet fares for publicly owned services remain fixed by the government and quantity controls retained. The analysis in this case study illustrates the extent of the success of these reforms in the provision of public transport services.

1. Chile

Frenandez and De Cea (1985) reported that the public transport system in Chile had, previous to 1979, been subject to strict regulation under which quantity quotas per route and fares were fixed by the regulatory authorities. Deregulation of urban public transport in Chile was a gradual process, with pauses, performed in three steps, over about ten years. The first step was taken in 1979 when most of the entry restrictions were relaxed. New operators still had to submit an application stating the route they wanted to operate for approval, but practically all permits were granted automatically. In 1983 fares were deregulated with one condition that the fares be clearly displayed on the windshield. In 1989 the public transport industry was completely deregulated. The only remaining conditions were on running condition of the vehicles (safety and pollution) and on the qualification of the drivers (Darbera, 1993).

The outcomes of deregulation have been discussed by many authors (for instance see

Fernandez and De Cea, 1985; Thomson, 1992; Darbera, 1993; Figueroa, 1993, Fernandez, 1994). As a consequence of deregulation measures in Santiago, the size of fleet grew rapidly, but also fares increased rapidly in real terms so that ridership and average vehicle occupancy actually declined. Between the year 1979 and about 1989, the number of vehicles doubled in the city, from 5,200 to 10,500, with no corresponding increase in the number of passengers. The average vehicle age considerably increased between 1980 and 1988, and there has been a tendency towards smaller and smaller vehicles. The remarkable growth in minibuses and taxibuses added greatly to congestion in the downtown, and to Santiago's already serious air pollution problems. Also individual bus owners on a single route raced to get to the corner first where passengers are waiting. This practice has caused very serious safety and accident problems in the city. As a result, the image of public transport became totally negative. A cartel took over the control of fares and operation of the vehicles. There are approximately 8,000 bus owners who are organized in 50 unions. The fares fixed by the cartel reached levels which guaranteed high profits for their members, which in turn stimulated the incorporation of new operators, putting additional pressures on fares. In this manner, fares went up 140 percent in real terms between 1983-89. Brown (1993) argued that as a consequence of fare increases some people could no longer afford to ride the bus and had to walk, and average ridership per bus dropped from 1,000 passengers per day to less than 500. It meant there were empty buses all over the city at all times of the day. As a result, the average cost of operating a bus per day per passenger, went up again in Santiago.

On the positive side, owing to the huge increase in the number of buses and taxi-buses, there is a greater choice of where these vehicles go. Individual bus routes became much longer, and at the same time, the connections between them were greatly increased and waiting times were decreased. Passengers who used to take two buses to get from home to work now could find one bus that would go all the way. Quality of service in these senses increased considerably (Glaister, 1993; Thomson, 1992).

In summary the outcomes of deregulation in Chile include: fares more than doubled in real terms; the cartel of operators was strengthened; doubling in the number of buses with no corresponding increase in ridership; and external side effects, such as traffic congestion, pollution and accidents, strongly increased. On the other hand spatial coverage of the system

grew, and waiting times and walking distances were reduced.

Darbera in evaluating the deregulation policies in Chile concluded: *"Policy makers were definitely misled when they believed that complete deregulation would lead to perfect competition and market equilibrium, with its optimum allocation of resources. Urban transport is a market where the free interaction of market forces leads to unstable equilibrium with wide over-capacity. It is not clear that the end result of their policy is worse than the previous situation where buses were scarce, over-crowded, and the network very limited"* (Darbera, 1993:56).

In 1990, the existing law was amended to establish a new framework. Under the modified law access to the public transport market is restricted under terms and conditions specified by regulatory authorities (with a re-introduction of some entry restrictions but selectively). This modification was made to ameliorate the problems of congestion, pollution and accidents. In 1991, collective taxis were banned from certain areas. The Government has been promoting a large number of corrective measures to alleviate congestion and pollution levels in Santiago. One of the key measures adopted is to invite mass transit operators to bid for specific routes (Figueroa, 1993; Fernandez, 1994). The Government started a route franchised system in Santiago in 1991. This system has quantity control on the entry of buses to the central area, with licences distributed on the basis of a competitive tender. The criteria were based on the fares offered, the size of buses, and their average age (an important issue because the newer buses have lower emissions). After the introduction of the competitive franchising system fares were stabilised in real terms, congestion was relieved and environmental impacts substantially reduced as reported by Fernandez (1994). No information is available about more recent performance of this re-regulation in Chile.

2. Sri Lanka

Over a 60-year period from 1916, Sri Lanka's bus services went through a cycle of unregulated competition, private route monopolies, nationalisation and revived competition. This process has been described by Diandas (1989). In 1979, the government of Sri Lanka introduced the following measures for the improvement of public transport. First, it terminated

the monopoly enjoyed by the public bus company, the Ceylon Transport Board, which had been operating at huge losses and could not cope with increasing demand. Second, it let private sector operators compete. Third, it relaxed import restrictions on public transport vehicles. Fourth, tax incentives were introduced to operators for the purchase of new vehicles (Armstrong-Wright and Thireiz, 1987; Diandas, 1989).

Roth and Diandas (1995) report that these actions of the government evoked a strong response from private bus operators, who imported more than 10,000 buses. A majority of those responding to the government invitation were individual entrepreneurs who acquired one bus each. The availability of reconditioned Japanese 29-seat vehicles encouraged this process. An overwhelming majority (95%) of the owners have only one bus.

Public transport services within the provinces are regulated by provincial transport authorities and inter-provincial services by the National Transport Commission. All owners obtain individual operating permits for their buses for a specified route. The government fare regulation for private public transport services was abolished in 1989. At present, fares are theoretically set by the operators, but are largely based on the public sector bus companies fares, which are held artificially low. Moreover, fare increases are restrained by threats of permit cancellation. These threats, although illegal, have been effective (Roth and Diandas, 1995).

In early 1980s, the government also mandated each private operator to join a district operator association which was empowered to regulate schedules, despatch vehicles from terminals and generally police operator behaviour. These associations soon developed a reputation for corruption and favouritism. The National Transport Commission abolished them in 1991 owing to these irregularities. More recently, transport officials in two provinces have attempted to get operators to agree voluntarily to coordinate schedules and despatching. The negotiations among the numerous small operators proved so difficult that only 6 of the over 300 routes in one province are covered by agreements (Gomez-Ibanez and Meyer, 1997).

The overall effects of the deregulation of bus services in Sri Lanka are well illustrated. Despite the statistics indicating a steady increase in the number of buses, there is a

widespread perception that passengers carried on many routes do not obtain good service. This perception is supported by observation of Colombo's crowded buses. On the positive side, there has been a substantial increase in capacity, particularly at peak periods, and more frequent bus services. Users of the smaller buses on busy routes benefit from reduced waiting times due to the higher frequencies associated with the smaller vehicles (Armstrong-Wright and Thireiz, 1987).

On the negative side, the private buses operate only one daily shift, and do not offer service outside busy periods nor in remote areas. Another negative consequence is that standing in small buses is even less comfortable than standing in full size buses. One of the most common complaints is that the buses do not move from their route starting points until they are full, and they then have only crowded standing room for passengers at intermediate points. There are also numerous complaints relating to speeding and other unsafe operations, and to insufficient boarding and alighting time being allowed to passengers (Diandas, 1989; Roth and Diandas, 1995).

Headrunning, racing to bus stops, irregular despatching and other problems associated with competition are more commonplace in Sri Lanka than they have been in Britain or Santiago, perhaps because one bus operators are the norm (Gomez-Ibanez and Meyer, 1997). The end result is a dilapidated, inadequate system and substantial growth in two wheelers and the chartered van services. These divert a large articulate middle class segment of the travel market from buses (Diandas, 1989; Roth and Diandas, 1995).

3.8 Alternatives Forms of Competition

Governments have begun to adopt service delivery mechanisms that improve public performance through competition. Competition may be intensified by putting smaller packages of service out to tender through which a public agency guaranteeing service to the public, while reducing costs. As a result, competitive tendering has been implemented by socialist, liberal, and conservative governments in response to fiscal challenges (Cox et al, 1997). Van de Velde (1997) reports that Dutch government was planning to introduce franchising in local public transport which is meant to give to potential operators the possibility to tender for the

whole design and operation of bus networks.

Gwilliam and Scurfield (1996) state that the essential requirement is to secure effective competition between alternative sources of supply. This can be achieved in a number of ways, which can be categorised into the following forms (1) the system management contract, (2) the service supply contract, (3) unbundling and sub-contracting, and (4) mixed systems.

3.8.1 The system management contract

According to Gwilliam and Scurfield (1996) the extreme form is that whole network is franchised to a single operator for a protected period, with a complete specification of service structures and fares. This has the advantage of giving security of service. But it is then difficult to find credible alternative operators; terminals, vehicles and staff may need to be transferred between operators as a consequence of franchising changes. Competition is among different management groups, with inter-area emulation and professional reputation being the main instruments of competitive pressure. This approach does effectively separate the political and professional management elements. Such regulatory schemes are currently common in France and Latin American cities (Gomez-Ibanez and Meyer, 1997). But it is susceptible to capture both by incumbent management groups, who have a great advantage in the periodic competition, and by organised labour, which may be under no effective competitive threat. The selected management may have incentives to subcontract to small operators if they operate more economically (Gwilliam and Scurfield, 1996).

Monami (1997) reports the regulation of land passenger transport through management contracts in Belgium. In 1991, Belgian regulators opted for management contracts to provide public transport firms with more managerial autonomy and to increase their commercial responsiveness. Since then, management contracts have been increasingly used to determine, once in every few years, the financial and potential liabilities of both public transport operators and authorities. In the Walloon Region, bus operators were split geographically into five relatively independent local operators, placed under the umbrella of a holding company.

The problems associated with such systems are excessive rigidity in routes and services and

excessively stringent controls on fares. This rigidity develops owing to the nature of franchises. Fares are often not authorized to increase regularly with inflation. In theory this problem might be avoided by legally indexing fares to inflation, but in practice indexing is rare. Problems of administrative capacity and integrity are less, however, because the administrative tasks are relatively simple and there is a limited discretion (Gomez-Ibanez and Meyer, 1997).

3.8.2 The service supply contract

There are two major versions of this approach. First, the gross cost version involves bidding on the basis of the total costs of provision of the specified service, with all revenues accruing to the central authority. This protects the operator from any revenue risk and hence reduces his incentives to produce high service quality or to collect farebox revenue. It also increases the monitoring requirement for the authority over revenue collection and service delivery. The second version involves the net cost bidding on the basis of supplemental revenue or subsidy required by the bidder. This puts revenue as well as supply cost risk firmly with the supplier, and appears to have greater efficiency incentives (Gwilliam and Scurfield, 1996). Service supply contracts have been introduced in both DCs and LDCs.

In London, the alternative of comprehensive tendering is adopted. London Transport plans the entire service network and specifies the service to be provided. The tendered services are operated on a gross cost basis with all revenue accruing to the tendering authority (London Transport), and the operator is paid for total costs incurred. In general, such tendering on a gross cost basis works well and serves as a good model (see section 9.2 for details).

Cox et al (1997) report that competitive tendering has also been introduced in Scandinavia. In Denmark, the Danish parliament has mandated that the Copenhagen public transport bus system be converted to competitive tendering. As a result, Copenhagen now contracts 56 percent of its system on a competitive basis and it will convert the remainder by 2002. More than 20 operators provide service under competitive contracts. Copenhagen Transport credits competitive tendering with reversing its falling ridership trend. Policy is separated from operations. Total operating costs declined by 18.5 percent from 1989 to 1996 while bus

services expanded by 5 percent, and bus costs per kilometer have declined by 22.3 percent. Similarly, Stockholm competitively contracted about 60 percent of both its bus services and rail services as at 1995. Tendered bus services are reported to be 32 percent less costly than non-competitive services. Total operating costs have declined by 18.5 percent from 1992 to 1995, while bus services expanded by 2.8 percent, and bus costs per kilometre have declined by 20.3 percent in three years (Cox et al, 1997).

Goebel (1996) reports the service based commercial contracts have also been introduced in Queensland (Australia). The urban bus industry plays an important role in the provision of public transport in the city. There are 70 providers with a total fleet of 680 buses in Queensland. These contracts are on the basis of service performance above set minimum service levels for a franchised area, with all costs covered by internal cross subsidy. Contracts are awarded for a period of five years with a mid-point review. The main outcome of the contracts is service innovation.

In LDC context there are problems to deal with competitive tendering due to a limited administrative capabilities. The following are examples which show miss-managed tendering in LDCs.

Ackerman (1996) reports that with a view to increase competition, and to reduce the level of subsidies to the protected monopolistic public sector services, a competitive tendering system was also proposed in the late 1980s in South Africa. However, this system was only implemented in areas where bus operators threatened to withdraw their services due to financial difficulties, and where the government was not prepared to increase subsidies to unacceptably high levels. Other factors limiting the introduction of competitive tendering are reported administrative loopholes protecting operators from competition, the concerns of unions regarding job security and the complicated nature of documentation used for calling tenders.

Gwilliam reports that in Jamaica, dissatisfaction with the quality of service led the government to introduce a new system in 1994. The city of Kingston was divided into five areas each for the exclusive operation of a selected franchisee for a period of ten years in the

first instance. Each franchisee was required to own or control the operation of all buses operating within the franchise. The franchisee had to provide adequate depots, terminals, and vehicles, and meet specified quality standards including scheduled operation, a specified minimum quantity of service on each route. Because of political unwillingness to increase prices, the invitation to tender was amended. The fare table was omitted from the invitation to tender and provision was made for payment of a direct subsidy in the event that a commercial fare table was not subsequently introduced. In April 1995, the franchises were awarded to three applicants. Initially fares were adjusted for inflation and subsidy was paid, but the basic inadequacy of the fare level was not addressed and subsidy did not continue to be paid. In these circumstances franchisee are unable to provide the required capacity and traditional undisciplined practices are commonplace (Gwilliam, 1996 & 1997).

3.8.3 Unbundling and sub-contract

Where the supply of bus services is formally a protected monopoly right of a company, there are number of ways in which competition and private sector involvement can be secured. Few bus companies manufacture their own vehicles, and other activities which may be contracted out include vehicle maintenance, particularly for light vehicles for which there is usually a large maintenance sector. Where more competitive supply is required, but planning skills are concentrated in the incumbent operator, the master operator may be required to subcontract part of its operations to the private sector (as in Delhi, Melbourne). This effectively delegates the management of city-wide service to the original bus operator, but achieves a competitive supply of service. The main problems are those of creating sufficient incentives to subcontract ensuring fair competition between in-house and contracted suppliers, and ensuring that the master operator uses its powers to meet the social objectives.

3.8.4 Mixed systems

White and Tough (1995) reports a mixed system, used in UK outside London, combines free entry into the industry without subsidy, with subsidised services put out to competitive tenders. Gwilliam and Scurfield (1996) have identified that the main problems of this type of competitive system are ensuring fair competition, and particularly preventing cross-subsidy

in bids by parastatals; establishing the relationship between commercial and the subsidised sectors to prevent game playing by incumbents; establishing the appropriate administrative skills for operating a tendering system; monitoring performance to establish that contract conditions have been satisfied; and providing information to customers where a service network is divided among multiple operators.

3.9 Models of Good Regulatory Practice

3.9.1 Public transport regulation in Hong Kong

Lee (1993) reports that Hong Kong has a diverse multi-modal public transport system, comprising an electrified Kowloon-Canton Railway, a Mass Transit Railway, a Light Rail Transit, a tramway, franchised buses, public light buses, various residential coach services, taxis and ferry services. The latest innovation is an escalator-travelator system designed to transport residents, students and office workers between mid-level residential areas and busy districts of Hong Kong. The intensity and diversity of public transport services in Hong Kong are unparalleled in comparable cities of the world. The public transport services are provided by private concerns and public corporations without any direct subsidy.

It is government policy to promote healthy competition whilst maintaining a safe, comprehensive and efficient public transport network, offering the public a variety of services in terms of modes, operators, fares, comfort and convenience. Some 90 percent of the daily trips in Hong Kong are made on public transport. In 1995, the public transport services overall carried about 10.5 million passengers per day. Road passenger transport accounted for two-thirds of all public transport journeys. More than half of these journeys made were on franchised buses (3.51 million passengers daily), and the rest on public and private light buses, taxis and non-franchised buses (Government of Hong Kong, 1995).

The Transport Department is responsible for the planning, regulation and monitoring of public transport services in Hong Kong. The Commissioner for Transport is head of Transport Department. He is authorised for administering the Road Traffic Ordinance and legislation regulating public transport operations other than railways. His responsibilities include strategic

transport planning, road traffic management, government road tunnels, car parks and metered parking spaces, and the regulation of internal roads and waterborne public transport. The Commissioner is also responsible for the licensing of drivers and the registration, licensing and inspection of vehicles. While the police force is the main agency for the enforcement of traffic legislation and prosecutions of offenses, prosecutions involving safety defects found in buses, breaches of vehicle safety regulations and government tunnel regulations are handled by the Prosecutions Unit of the Transport Department (Government of Hong Kong, 1996).

The public transport services are subject to government regulation in order to ensure the availability of efficient services to the public. An operator proposing to operate a public transport service may at any time apply to the Commissioner for a licence. The Commissioner grants a license if it is considered desirable to introduce a service. A passenger service license is issued for a period not exceeding 5 years (Government of Hong Kong, 1990). Appeals against decisions made by the Commissioner for Transport are registered with a Transport Tribunal set up under the Road Traffic Ordinance. This tribunal comprised of a chairman and members all appointed from the public was set up under the Road Traffic Ordinance (Government of Hong Kong, 1994).

Route network and services are determined with the mutual cooperation of bus operators and regulatory authorities in Hong Kong. Bus route franchises are granted to bus operators for specified routes. The operators are responsible for providing services as agreed with the government. The agreement covers fares, schedule of services, vehicle carrying capacity, and types of buses (Government of Hong Kong, 1990a). Scurfield and Lee (1988) report that initially, the Department of Transport used to prepare a Route Development Programme. In preparing the programme, the department had to consider outstanding items such as complaints regarding bus services, population changes, availability of other public transport services, bus terminals, road conditions, and changes in passenger demand and market. Under this system, the entire route planning was done by the government and implementation by the operators, which resulted in some negative effects.

In 1985, it was considered that the operators, not the government, should plan. The need for franchised bus operators to make forward planning programmes became a part of the law.

Presently, they submit a programme of the operation, before 30 June of each year, for the following five years. The present regime contains: a bus route development programme; an estimate of the total fleet requirements; a programme bus scrapping and acquisition; a depot development programme; and a forecast of the financial implications of the programme. The operator and the Commissioner for Transport are required to reach an agreement before 30 September, and their disagreement is resolved through arbitration. This programme has been proved a very useful mechanism both to the government and the companies. The financial plan gives a forewarning of implications on fares, so that the government could have an idea and timing of prospective fares increase. In order to avoid unacceptable fare increases, a balance is sought between the quality and quantity of services on one hand, and reasonable fare levels on the other (Scurfield and Lee, 1988; Lee, 1990).

Minibuses in Hong Kong are licensed to carry a maximum of 16 passengers. There are two types of minibuses: public light buses and private light buses. The public light buses are authorised to carry passengers paying separate fares whereas the private light buses carry group passengers and do not collect separate fares. The public light buses are classified into green minibuses and red minibuses. Green minibuses provide services on approved routes, at fixed schedules and timetables with fixed fares. Red minibuses operate without a schedule. They do not have fixed fares and timetables (Government of Hong Kong, 1996).

Passengers in Hong Kong benefit from a variety of public transport modes. The government also ensures that consumers get a reliable service at reasonable price. The operators are given financial incentives to make long term investments for the provision of a proper and efficient service to meet anticipated demand. These objectives are achieved without any direct financial contribution or subsidy from public funds (Scurfield and Lee, 1988).

3.9.2 Competitive tendering in London

Regulatory practices in many DCs are evolving in similar ways, and the principal model is London's tendering scheme. This section presents an analysis of the effectiveness of service supply contracts in London.

Prior to the 1984 London Regional Transport Act, London's bus system was an increasingly costly public monopoly. Inflation adjusted costs per bus mile grew 65 percent (or 3.4 percent per annum) from 1970 to 1985 (Cox et al, 1995). To maintain performance and ensure public safety while reducing costs, the London Regional Transport Act required a competitive tendering of bus services until full deregulation of passenger transport at an unspecified future time. Tendering managed by the administrative body began in 1985-86 and increased gradually until 1994 when the operating subsidiaries were fully privatized. The entire network is to be provided through net-cost tenders by the year 2000 (Newton, 1994).

London Transport Authority plans the entire service network and specifies the services to be provided. Traditionally, they had been operated almost entirely by its own subsidiary, London Buses Ltd (LBL), until in early 1986, competitive tendering was introduced. Companies receive a single contract and each service is tendered separately. The separately tendered services are operated on a gross cost basis, that is, all revenue accrues to the tendering authority (London Transport), and the operator is paid for total costs incurred. As a result, the operator does not incur revenue risk. London Transport has the largest public transport bus system in the developed world, with over 5,000 buses and carrying 1.1 billion annual trips (Cox et al, 1997). It is the public customer, defining the routes, setting fares, paying operators for the service provided and collecting all revenue, and maintaining intermodal tickets availability and coordination (Chartered Institute of Transport, 1994).

Gwilliam (1997) assesses that in general the tendering system in London works well and serves as a good model. Over a 10 years period (1985-95) operating costs had fallen by 40 percent, and subsidy by 75 percent in real terms. Intermodal integration had been strengthened and, despite real fare increases of 30 percent, patronage remained approximately constant. Over the 11 years period 1985-96, services have been expanded 28.7 percent, ridership increased three percent and costs per vehicle km have dropped 45.7 percent. Moreover, passenger fares covered 94 percent of operating and capital costs in 1996 and fares covered 60 percent of the costs before competitive tendering. In contrast, passenger fares hardly cover 50 percent of operating costs in the largest US public transport systems (Cox et al, 1997).

The quality of service has been improved substantially on tendered routes, because of the

closer attention required for contract enforcement. Competition for tenders has been strong and traffic congestion has not been a problem. Revenues increased due to the increase in bus miles delivered. Tendering in London can be considered a success. Results have been good, the administration has run smoothly, and the sensitive situation created by an in-house supplier bidding against outside competitors has generally been handled satisfactorily (Glaister, 1993). Kennedy (1995) reviewed the tendering system in London, confirming that large savings have been made, but that there is also inflexibility in the system as perceived by bus company managers. Mackie et al, concluded that *"London's tendering has been successful because it avoids wasting resources in competitive battles, offers the opportunity to balance fares and service policies efficiently, and avoids the loss of consumer confidence associated with instability"* (Mackie et al, 1995:317).

Experience in London also illustrates some of the practical drawbacks of tendering. The negotiated contract with LBL companies functioned on a net subsidy basis. In the absence of a sufficiently precise system for revenue apportionment, this produced serious problems both for London Transport and the operating companies (Chartered Institute of Transport, 1994). In view of the difficulties encountered in net cost tendering, route-by-route tendering was resumed on a gross cost basis for the period to 1997 (White and Tough, 1995). Moreover, private operators providing contract services in London frequently complain that the route planners have little feel for the market and are unresponsive to suggestions, although the planners deny that this is the case (Kennedy, 1997).

3.10 Conclusions

- The literature shows that regulatory and other government policies in LDCs have generally undermined the role of urban public transport services, with as a result investments in public transport curtailed, quality of service reduced and expansion of services stunted (section 2).
- There is a direct relationship between the level of fares and the level of service which is commercially sustainable. Under low fare controls the operators are not able to

invest in new vehicles. As a result, the quantity of services is inadequate and there is a poor quality of services (sections, 4.2 and 6).

- The literature shows that quantity controls rarely achieve the desired benefits and results are very often undesirable. Quantitative limits are often set in an arbitrary manner and tend to become subject to political manipulation and corruption. Yet abolition of entry controls or their poor enforcement has also resulted in inadequate services (section 4.1).
- The literature indicates that operators' associations exist in most of the LDCs. Regulation by these associations for the most part has had negative impacts on the provision of public transport services, but if the activities of associations are well regulated by the government they can perform efficiently (section 4.3).
- The experience of complete quantity and fares deregulation overall has been a mixed blessing. The deregulation in Britain has proved very effective in reducing unit costs, with generally a poor outcome in terms of ridership. The deregulation in Chile solved capacity problems but resulted in increased fares and negative impacts such as environmental degradation and increased road accidents (sections 7.2, 7.3).
- General subsidies given to public sector operators have not achieved the anticipated results (see sections 2 & 6). Subsidies can be allocated more efficiently between operators through competitive tendering. The existence of a rational and consistent process for the determination of fares, service and subsidy levels is essential even in a competitively tendered franchise regime (see section 8). From an international perspective, the experience of tendering in London is seen to work well and serves as a useful model (section 9.2).
- The success in expanding the public transport system in Hong Kong under a highly regulated environment, is due to a pragmatic approach to the planning, regulation and control of the industry, which has given the operators the necessary operational flexibility and investment incentives. It is recognised the Hong Kong regulatory model

is not readily applicable in most LDCs, especially those such at much earlier stages of development, but it is one which deserves to be carefully considered if a regulated public transport environment is to be improved (section 9.1).

- The literature suggests that there is a demand for a diversity of public transport services in LDCs to reflect the willingness to pay for more for better quality services. On the other hand, low-income groups would opt for services with low fares at the expense of quality of service (section 4.3).
- The review shows that improved traffic management associated with bus priorities has resulted in increased levels of user benefits. However, poorly enforced traffic management and bus priority measures do not achieve anticipated benefits (sections 3.4 and 6).

Chapter 4 Urban Public Transport In Pakistan

4.1 Introduction

This chapter attempts to present the overall government policies, initiatives and regulation of urban public transport in Pakistan. The analysis presented in this chapter is based on information collected from various departments/agencies, data gathered through secondary data sources and in-depth interviews conducted with officials and operators. Section 2 gives background information about Pakistan and its provinces. In this section, population growth, development of economy and inflation rates and history of urban public transport in the country are described briefly. The following section deals with the role of Federal and Provincial governments. This section encompasses the role of the Federal Government in formulating transport policy and other matters regarding urban public transport throughout the country. Sections 4 and 5 describe the current subsidy and taxation policies at both provincial and federal levels and their impact on public transport services. Section 6 reviews the regulation of urban public transport services in the country. The current regulatory systems in practice in various provinces are described. Section 7 describes the overall efforts made by the government, including use of overseas aid, for the provision and improvement of public transport throughout the country. The final section concludes on the overall public transport situation in urban areas of Pakistan by describing the results, problems and effects of the policies and regulatory systems as they are administered.

4.2 General Presentation

4.2.1 Location

Pakistan has four provinces, viz, Punjab, Sind, Baluchistan and North West Frontier Province (NWFP), with each subdivided into a number of divisions and districts, as well as federally administered areas. In the west it is bounded by mountains and desert along the Iranian border and Afghanistan. In the north the Hindukush and Karakoram mountains form the border with the China, while a control line exists in the north east separating the Pakistan and Indian parts

of Kashmir and Jamu. In the east the boundary with India and the Arabian Sea in the south (Figure 4.1). The total area of the country is 804,000 square kilometres. Pakistan is densely settled at about 150 persons per square kilometre, ranging from 17 in Baluchistan to 315 in the Punjab.

4.2.2 Population

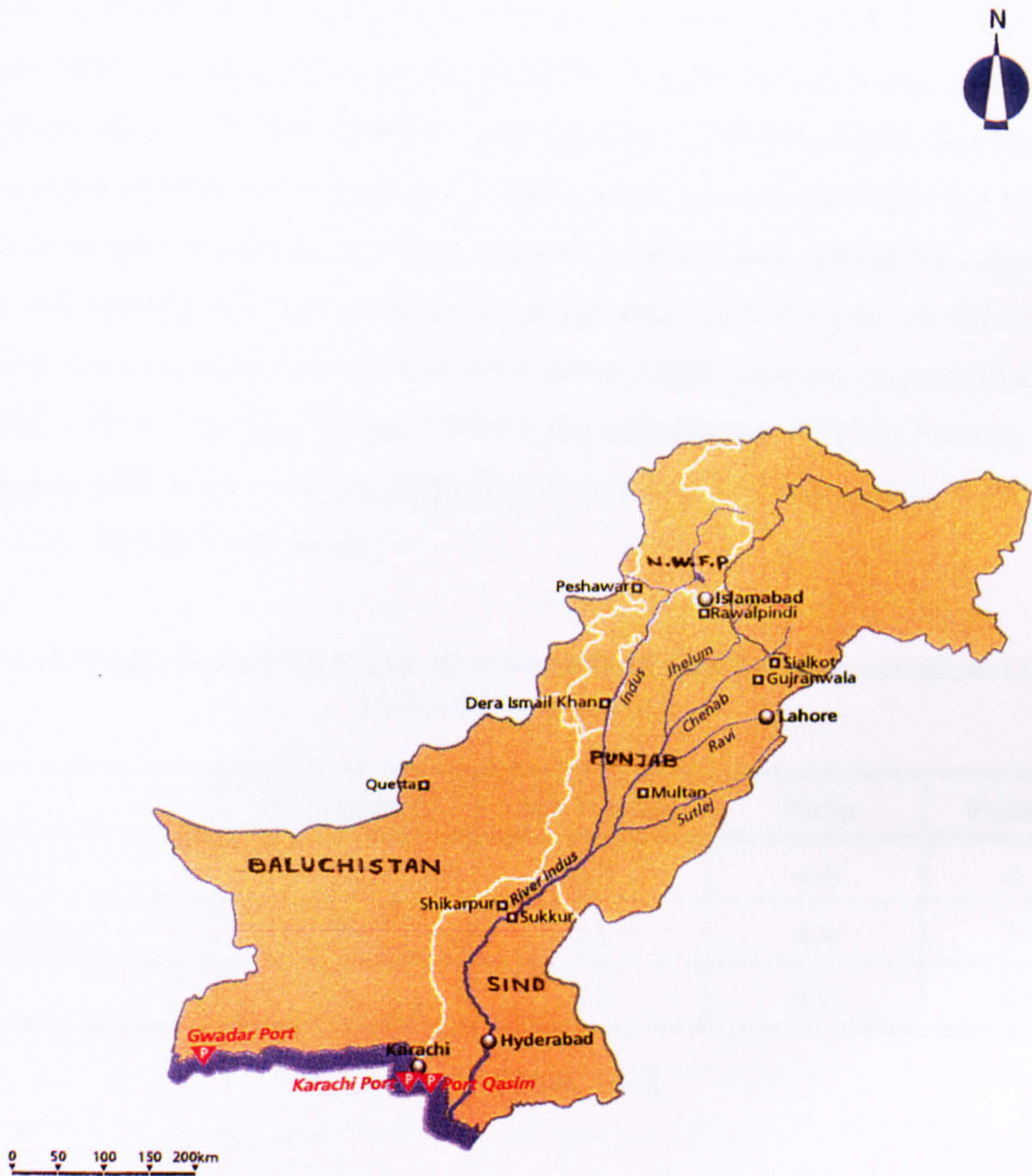
Pakistan is experiencing rapid population growth. The 1981 census put the population at 84.25 million (GoP, 1981a) and it was officially estimated¹ at 131.45 million in 1995-96 (GoP, 1996). The country's population is believed to be growing at a rate of 2.9 to 3 percent per annum. This population growth rate would be easily the highest in South Asia. In comparison, India's estimated growth rate was a more moderate 2.1 percent; Sri Lanka's stands at 1.4 percent and Bangladesh's was recorded at 2.3 percent during 1980-90 (World Bank, 1992). The annual population growth in Pakistan presents a real threat to development. The meagre slice of budgetary allocation available for development is each year divided among a growing number of people.

The overall literacy rate is 35 percent, a very low figure, with female overall literacy of 21 percent and about 6 percent in rural areas being one of the lowest in the world. The participation rate in primary education remain well below the average for LDCs, at 53 percent of the age group in 1985 (World Bank, 1994).

The estimated urban population of Pakistan in 1991 was 35 million, 30.7 percent of the country's total population (T P O Sullivan and PADCO, 1991). Of the urban total, over 60 per cent was living in eight large cities with populations exceeding one million. The number of such large cities will increase to 12 by the year 2001. This rapid growth in urban population is likely to continue and will pose severe problems, especially for the provision of efficient urban transport.

¹. The latest population census in the country was conducted in 1981, and plans to hold a further census have been postponed four times following disputes in the four provinces.

Figure 4.1 Map showing Pakistan and its provinces



Pakistan in South Asia



Source: Government of Pakistan, 1995d

4.2.2 Development of the economy

Pakistan has developed its economy in accordance with eight consecutive Five Year Plans (FYP) since 1955. The annual growth rate of GDP averaged around 6.1 per cent during the 6th FYP (1983-88) and 7th FYP (1988-93) periods (GoP, 1993). Pakistan's economy suffers from three major structural weaknesses: the high growth rate of population; the low rate of savings; and the adverse balance of external payments. Pakistan is among the large group of countries with grossly unequal distribution of incomes. Nevertheless, in the 1980s the economy was growing faster than those of other South Asian countries, as presented in Table 4.1 (UNICEF, 1993). Similarly during 1980-91, the inflation rate (7%) in Pakistan was low when compared with other countries in the region, India (8.2%), Bangladesh (9.3%) and Sri Lanka (11.2%) (World Bank, 1994).

Table 4.1 : Average annual economic growth rates of South Asian countries (1980-87)
(percent per annum)

Sector	Bangladesh	Sri Lanka	India	Pakistan
Agriculture	3.8	4.6	4.6	6.6
Manufacturing	2.4	3.1	4.8	3.4
Services	2.4	6.2	8.3	8.9

Source: UNICEF, 1992

The estimated income per capita (\$400) in Pakistan in 1991 was also higher than in India (\$330) and Bangladesh (\$210). However, this is not reflected in an improvement in the quality of human life. In fact, as far as social development is concerned, Pakistan lags behind India, and still more alarmingly, Bangladesh; in adult literacy, school enrolment and availability of basic health care (World Bank, 1993). It is also interesting that all the figures are estimated because Pakistan could not hold its census which was due in 1991 whereas India and Bangladesh held their latest censuses. Other indicators gauging economic performance tell a similar story.

Significant changes in the economic system have been initiated since the middle of the 7th FYP period (1988-93) such as deregulation of centralised control over the economy, a rapid privatization process of the government-owned or controlled public entities, the promotion of market oriented economy, reformation of tax collection system, changes in custom duties and emphasis on attracting foreign investments to develop the comparative advantages of Pakistan. The above economic development has resulted in increasing the transportation demand. The transport system in Pakistan, however, has not been adequately maintained nor improved to cope with changes in demand despite government efforts to improve the situation (GoP, 1995d).

4.2.3 Summary history of urban public transport

Prior to 1945, bus transport was provided by private operators with very poor performance, characterized by inadequate numbers of buses, irregular services; and rash and negligent driving. The Government of the Punjab decided to establish a transport system under its control in 1945. The NWFP and Sind provinces followed suit in 1948 and 1950 respectively. However, the private sector also continued public transport operation.

The Motor Vehicles Act of 1939 was amended in 1951. As a result, Road Transport Boards were constituted in all the provinces except Baluchistan where no public sector public transport was introduced. The Boards were to serve as a model for the transport sector in the respective province. The main objectives of the Boards were to provide an efficient, adequate, economical and coordinated system of transport in the provinces. Following the integration of the provinces into one unit, these Boards were amalgamated into the West Pakistan Road Transport Board in 1957. The new Board continued to function until 1963, when it was felt that the arrangements were cumbersome as they unduly inhibited the growth and operations of public sector road transport. Consequently, this Board was converted into an autonomous corporation in 1965.

In 1970, the West Pakistan Road Transport Corporation was dismembered and three separate corporations were created in Punjab, Sind and NWFP. In late 1970s, Urban Transport Corporations were also formed in the provinces of Punjab, Sind and NWFP. These

Corporations were controlled and financed by the Federal Government. The Corporations were defederalized and Federal Government stopped its funding in 1982 (Hundal, 1987). Consequently, the Provincial Governments have been responsible for the control, organisation and financing these Corporations since 1983. Moreover, the Provincial Governments were also responsible for the regulation of public transport services operated by the private sector. Over recent years the operation of publicly-owned bus corporations has been phased out by all the Provincial Governments and the public transport market is now totally left to private operators.

4.3 Role of Governments

The Constitution of Pakistan (1973) and its subsequent amendments establish the responsibilities and powers of the Federal and Provincial Governments. Some powers rest exclusively with the Federal Government, some are on the concurrent list and may be discharged by either the Federal or Provincial Governments, and others are vested in the provinces. In theory public transport is on the concurrent list and may, therefore, be a federal or provincial responsibility. Presently policy making, planning, development, operation and regulation of road based public transport is in practice the responsibility of the relevant Provincial Government. The Federal Government provides funds on certain occasions and has some inputs to policy making.

4.3.1 Role of Federal Government

The Federal Government (FG) is responsible for formulation of overall transport policy and policies related to imports, taxation and custom duties on all vehicles.

Currently there is no clearly stated transport policy available in Pakistan. During the 1980s there was recurring criticism by the media and politicians over the non existence of clear-cut transport policy. In 1992, a draft policy was produced by the Ministry of Communications (GoP, 1992). This policy paper addresses largely national rather than provincial transport issues, and the following is a synopsis.

The paper calls for innovative approaches to management and finance, developing the opportunities of federal, provincial and city governments to work with the private sector. Specific possibilities identified include 'Build, Operate and Transfer' schemes for urban mass transit and the phasing out of unprofitable and inefficient publicly-owned bus services.

Poor management and revenue leakage were identified as the two major problems in the provincial bus companies. In addition the restricted access of private operators to commercial bank credit was identified as a handicap to development (see section 4.8), along with regulated fares which have lagged behind cost increases. The paper emphasises the need to ensure that restraints on the development of the private sector are eliminated, particularly controls on bus fares.

In its policy direction, the paper stresses the shared responsibility between the public and private sectors, although it defines only in very broad terms the distinct role that the public sector should play. The role of government (at all levels) in relation to transport safety and environmental concerns is emphasized; and it is acknowledged that these aspects have been ignored in the past.

The importance of maintenance of the existing infrastructure is stressed and the need to make the best use of existing assets rather building expensive capacity expansion to deal with urban traffic congestion. Essential new capacity should be provided through carefully planned and coordinated transport systems. No major facilities should be built without full consideration of existing facilities, alternative options and the capacity enhancements which should be possible through improved management and control techniques.

Although this draft transport policy was not formally approved because of a change of government, some actions in keeping with the policy were started both by Federal and Provincial governments. Provincial Governments began to reduce loans and subsidies given to the publicly-owned bus corporations, and introduced a golden handshake scheme for their employees in order to shed surplus staff (PRTC, 1992; KDA, 1989). Various projects related to traffic management have also been started in urban areas (TEPA, 1993; GoP, 1995b). Similarly at federal level, the implementation of a Light Rail Transit project in Karachi is

agreed on Build Operate and Transfer basis (see section 8.2).

Table 4.2 Summary of the Federal Government responsibilities

Aspect	Responsibility
Policy	<ul style="list-style-type: none"> • Should prepare a transport policy for the entire country • Formulation of policies for the import of vehicles • Issuance of policy directives to the PGs
Administration	<ul style="list-style-type: none"> • Administration of the ITA Islamabad • Signing agreements related to overseas aid • Administration of Mass Transit Projects
Urban public transport funding	<ul style="list-style-type: none"> • Funding of the Circular Railway Karachi • Funding of Mass Transit Projects • Funding of the NTRC • Providing grants to the PGs for specific projects
Infrastructure development	<ul style="list-style-type: none"> • Development and maintenance of national highways and inter-city railways • Development and maintenance of road infrastructure in army administered cantonments
Taxation	<ul style="list-style-type: none"> • To levy various taxes on imported vehicles and spare parts • To levy taxes on imported petrol, diesel and kerosene oil and development surcharge on locally produced oils

Source: Compiled by the researcher from primary and secondary sources

As far as the regulation of road based public transport is concerned, the FG regulates services only in federally administered areas. Also a federal agency, the Islamabad Transport Authority (ITA), is responsible for planning and regulation of services in the city of Islamabad. Federal civil servants run the ITA. In the past the FG funded and controlled publicly-owned bus corporations up until 1982. It has also given grants on certain occasions to various provincial institutions for the purchase of buses. The FG deals with all foreign aid funded public transport projects and studies. It is also responsible for the construction and maintenance of national highways through National Highway Authority (NHA). Pakistan Railways, which run

local (in Karachi only) and inter-city services, are the direct responsibility of the FG, as is the development of infrastructure in the army controlled Cantonment Board areas which exist in most of the major cities. Other initiatives of the FG related to public transport are described in the following sub-sections. A summary of the responsibilities of the FG is given in Table 4.2.

4.3.2 Role of Provincial Governments

The transport responsibilities of the Provincial Governments (PGs) are confined to road transport. The regulation of public transport is also the responsibility of the PGs. Passenger transport services in urban areas are regulated by the provincial and regional transport authorities, except in Islamabad. Various PG Departments are concerned with these functions. Unlike federal ministries, which are primarily policy making bodies with no field responsibilities, all the provincial departments have very extensive field operations.

In all provinces the Transport Department is chiefly responsible for all matters regarding public transport regulation in the entire province but it has somewhat limited field involvement due to the presence of Road Transport Corporations and the Provincial Transport Authorities. In the past transport was often treated as an additional assignment of the Industry Department. However, a separate Transport Ministry was created in Punjab and Sind provinces during the 1980s because of the mounting transport problems. In other provinces, transport affairs are administered by officials of other departments. In both Punjab and Sind provinces, the Transport Department is headed by Secretary to the Government, whereas in Baluchistan Senior Member Board of Revenue supervises transport affairs in addition to his other duties, and in NWFP the Secretary of the Industry Department is in-charge of the Transport Department.

The other departments include Home, Local Government, and Housing and Physical Planning Departments in all provinces. The involvement of the different departments in public transport is discussed in section 6.3, but there is a lack of coordination among these departments. Some

coordination is exercised by Provincial Planning and Development Departments², but this is limited to development projects only. A summary of the responsibilities of the PGs is given in Table 4.3.

Table 4.3 Summary of the Provincial Government responsibilities

Aspect	Responsibility
Policy	<ul style="list-style-type: none"> • Should prepare provincial transport policy • Issuance of policy directives to the Regional Transport Authorities
Regulation	<ul style="list-style-type: none"> • Regulation of public transport • Controls over fares of public transport. • Vehicle fitness • Traffic management and on-street regulation • Enforcement
Urban public transport funding	<ul style="list-style-type: none"> • Funding of the publicly-owned bus corporations • Traffic and transport studies • Managing overseas grants for traffic and transport projects
Infrastructure development	<ul style="list-style-type: none"> • Development and maintenance of local and provincial roads • Provision of public transport infrastructure • Implementing traffic engineering and management schemes
Taxation	<ul style="list-style-type: none"> • Levy various taxes and charges on operation of public transport vehicles

Source: Compiled by the researcher from primary and secondary sources

4.4 Subsidies and grants

In Pakistan employees of government, semi-government and autonomous bodies and many industrial workers receive travel allowances for their journeys to and from work. These

². In all provinces the Planning and Development Department deals with approval of new projects including studies and coordinates with the Finance Department.

allowances are nominal, do not cover the cost of journeys, and are paid on a monthly basis alongwith salary. In urban areas, employees on Basic Pay Scale (BPS) 1 to 10 receive Rs 50 per month and employees on BPS 11 to 16 receive Rs 150 per month, employees on BPS 17 and above receive Rs 250 and Rs 350 if they own their cars (building in an incentive to car ownership!). Employees provided with a transport service by their employers are not paid this allowance. In some cities, government employees have been provided with subsidised transport. In Quetta for instance, the employees working in the Civil Secretariat of Baluchistan have been provided with government buses. Employees using these subsidised services do not receive travel allowance.

The Federal and Provincial Governments also provide finance for capital investment in publicly-owned vehicles and their operation, and the construction and maintenance of infrastructure. The FG and PG have invested in new vehicles on various occasions. The operators of private services are not paid any subsidy. Government generally grants subsidies with the primary objectives of providing the public with adequate services at affordable fares. An account of the subsidies/grants given to publicly-owned bus services is given in the following sections.

4.4.1 Federal Government subsidies

Federal subsidies have been paid to maintain the services of Pakistan Railways and the corporations. The Federal Government was responsible for funding and control of publicly-owned bus services until 1982. During its regime the FG gave funds for the purchase of new vehicles. For instance in Peshawar, the FG gifted 75 buses for Government Transport Service (GTS) fleet in late 1970s (GTS, 1981). Similarly, the FG provided Rs 592 million for investment in Karachi Transport Corporation during 1977 and 1982 (KTC, 1988). Concerned about the financial burden, the FG defederalised the Corporations in 1982 and the PGs were obliged to take them over. However, the FG has continued to give some grants to these Corporations. For example, FG concern about the public transport situation in Karachi led it to make a grant to cover the purchase of 200 new Hino full size buses for KTC in 1987/88 (KTC, 1989).

4.4.2 Provincial Government subsidies

After 1982, the Provincial Governments were also responsible for paying subsidies to the Corporations. The PGs gave grants, loans and subsidies to enable the corporations to cover their losses. For example in Karachi, the KTC's operating income was Rs 89 million in 1986/87 and it also received Rs 51.6 million subsidies from the Sind Government (KTC, 1988). This specific subsidy was intended to cover losses related to student travel and conventional services and additional payments were made on ad-hoc basis when KTC ran out of funds. Gray (1990) reports that the KTC had very low productivity and required an operating subsidy in the region of \$ 5 million per year.

The worst case is the PRTC which illustrates how public money is poorly managed. The financial review of the PRTC reveals that this corporation had been incurring heavy financial losses for many years. The Government of the Punjab was providing loans/grants to meet the gap between the resources and expenditures. The financial statement of the PRTC given in Table 4.4 presents trends in losses and loans provided by the Provincial Government. The loans given to the PRTC were substantially increased over a period of 9 years. The maximum loan was provided to the corporation in the year 1992-93 which includes Rs 200 million paid for the first phase of a golden handshake offered to surplus employees. An average loan provided to the PRTC by the PG was Rs 272.8 million per annum. A study commissioned by the PRTC has reported that the corporation was receiving a subsidy about Rs 300 million per annum in order to provide social services to the community (BCEOM, 1992). The officials of the PRTC considered that the funds provided by the Government are a loan but in practice the PRTC has never paid a single instalment towards this loan. However, in view of the poor performance of the PRTC services, the PG stopped providing loans and decided not to give any further grant/subsidy/loan from the year 1993-94. A detailed analysis of poor performance of the public bus corporations is included in chapter five.

Table 4.4 : The financial statement of the PRTC

Period	Income	Expenditure	Loss	Loans provided by the PG
1985-86	296.8	535.2	238.4	221.4
1986-87	279.0	571.9	292.8	142.5
1987-88	221.7	619.6	397.8	182.0
1988-89	188.5	541.1	352.5	245.0
1989-90	167.9	507.7	339.7	240.0
1990-91	170.4	499.4	329.0	266.2
1991-92	140.3	515.8	375.4	344.1
1992-93	100.6	718.6	618.0	541.9
1993-94	46.9	282.8	235.9	

Source: Data collected from the PRTC, 1995

Experience in Pakistan shows that the contemplated benefits from subsidies are generally disappointing and difficult to realise. At the time when these Corporations were abolished the subsidy and grants were being largely paid into the pockets of employees only as a social welfare payment. One of the major reasons for the failure of such subsidies to achieve anticipated results is that the existence of subsidies tends to lead to inefficiency and greater deficits (see chapter 3, section 2.2). In Pakistan, the management and employees believed that the Government would make up all the losses. Consequently, they exerted little effort to raise revenues.

4.5 Taxation policies

Vehicles are subject to a variety of charges at all levels of the Government. The details of various taxes are presented in the following sections.

4.5.1 Federal Government taxes

The Federal Government levies import duties on all vehicles, parts, tyre, batteries etc. Sales tax is charged on both the items imported and those produced in the country. In addition, there are surcharges as well. For instance, a flood relief surcharge is imposed on imported vehicles and spare parts.

The FG also levies taxes on petrol, diesel, lubricant oil and kerosene oil. The buses, midibuses and minibuses use diesel, whereas the taxis, autorickshaws and suzukis are using petrol. Kerosene oil is mostly used for cooking purposes. The development surcharge on petrol (Rs 9.28/litre) and diesel (Rs 3.47/litre) is higher, but for kerosene oil it is low (Rs 3.24/litre). Similarly, the excise duty levied on petrol is Rs 0.88/litre and diesel Rs 0.25/litre, whereas no excise duty for kerosene oil. These taxes are not increased frequently but prices of petroleum have increased frequently due to downward readjustment of the Rupee.

In some LDCs buses are free of customs duties and vehicles used as taxis are eligible for a reduction on custom duties (see for example Roth and Diandas, 1995). In Pakistan, heavy import duties and taxes have been imposed on public transport vehicles and their spare parts. The import duties include customs duty, Karachi Port Trust (KPT) import dues and clearance charges, and Municipal octroi. The rate of taxes are same for all public transport vehicles except for the KPT dues and municipal octroi which varies by vehicle type. The registration fee for vehicles is levied by the PGs. Table 4.5 shows the overall picture of import duties, taxes and other charges levied on new, imported full size buses (61 seater) before their operation on the road.

Until mid 1993, mostly reconditioned vehicles had been imported from Japan and custom duty was charged at 100 percent on both new and reconditioned vehicles. The reconditioned vehicles were generally in reasonably good condition. The import value of reconditioned buses and minibuses was very low. For instance, a minibus imported from Japan was being sold in the market at about a price of Rs 600,000 including custom duty. Later during 1992-93, a large number of public transport vehicles were introduced under the Prime Minister Public Transport Scheme (see section 7.2). These vehicles were exempted from custom duties

and available at very low price. A new minibus was available at a price of about Rs 400,000 under this scheme. Consequently, there was little problem regarding the supply of buses and minibuses in the market.

In 1994, the FG because of its concern over environmental pollution, particularly in urban areas, imposed a ban on the import of all types of reconditioned vehicles including buses and minibuses. For new public service vehicles, however, custom duty was reduced from 100 percent to 60 percent. As a result of this new import policy, only new vehicles are available in the market. Since the price of new buses and minibuses is very high, the import of these vehicles has remained very expensive even with the reduced 60 percent custom duty. For instance, a new minibus was being sold in the market at a price of Rs 1,200,000 in 1996. As a consequence, imports have fallen and there is limited investment in new buses and minibuses. The data collected by the researcher from the RTAs in the Punjab in 1995 shows that none of the operators applied for a route permit for urban operation with a brand new vehicle during 1994-95.

Generally, in case of new buses, midibuses and minibuses overall taxes are over 100 percent. As illustrated in Table 4.5. The total price of a new full size bus after paying import expenses is estimated at Rs 1,934,831 for the year 1996. Of the total price, 49.6 percent (Rs 960,000) has been paid as an import value and 50.4 percent (Rs 974,831) as taxes and import charges on the vehicle.

Table 4.5 : Taxes on imported buses

Taxes	Rate charged in 1996	Value of a full size bus in Rs
Import value	-	960,000
Custom duty	60% on import value	576,000
Sales tax	15% on custom duty paid value	230,000
Income tax*	4% on taxes paid value	70,656
Flood relief surcharge	1% on import value	9,600
Municipal dues (octroi)	Rs 54383 per bus	54,383
KPT dues	Rs 24167 per bus	24,167
Registration fee	Rs 500/Rs 100,000 of the value	9,625
Total taxes	-	974,831
Total value of a bus	-	1934,831

Source: Bus value is calculated by the researcher on the basis of tax rates of the Central Board of Revenue Islamabad, 1996

* If the importer is not an income tax payee

4.5.2 Provincial Government taxes

The Provincial Government levy a registration fee, an annual token fee, a capital value tax, a vehicle transfer fee, a vehicle fitness fee, a route permit fee, all driving licence fees and tolls on bridges etc. These taxes and charges vary from province to province. These taxes are not increased frequently due to the envisaged threats from the operators. The Punjab Government increased all its taxes in 1996 but later some of these increases were withdrawn as a result of a transporters' strike. A summary of tax rates realized by the Provincial Governments is given in Table 4.6

Table 4.6 : Charges on motor vehicles by Provincial Governments

Description	Charges in various provinces (Rs)			
	Punjab	Sind	NWFP	Baluchistan
Permit fee				
Bus/annum	1050	750	800	250
Wagon/annum	1050	750	710	200
Suzuki/annum	1050	-	710	150
Taxi/3 years	620	400	710	100
Rickshaw/3 years	620	400	710	100
Fitness fee/6 months				
Bus	300	250	250	50
Wagon	250	250	250	50
Suzuki	100	-	100	50
Taxi	100	75	100	50
Rickshaw	100	75	100	50
Driving Licence fee				
Motorcycle	60	90	40	40
Light	60	110	40	50
Heavy	50	110	40	100
Token fee (Road tax)	225/seat	225/seat	225/seat	225/seat

Source: Data on charges collected by the researcher in 1995

The Government of the Punjab Province has recently imposed a tax on private cars in its annual budget (1997-98) announced on June 16 1997. This tax is payable by those who own cars (above 1000 cc) with a 1990-model or newer. The tax also varies for different types of vehicles. The revenue collected from this tax is to be spent on the improvement of public transport. This historic initiative (a new tax for the improvement of public transport) has been undertaken only by the Punjab Government. The researcher envisages that this initiative will bring better results and that other provinces will follow by imposing similar taxes. However, this initiative may encourage the use of older and more polluting models of cars.

4.5.3 Local council charges

Local councils charge octroi, toll taxes, rent of bus stands, terminal stations and licensing of non-motorised vehicles. The rate of taxes/charges vary from one local authority to other and also varies from year to year according to the budget proposals.

Effect of local and provincial taxes

No published information on operating costs of private sector public transport vehicles is available either from private operators or regulatory agencies. Data on operating costs was collected, from the operators in major cities, by the researcher in 1995. The cost of maintenance varies from city to city depending upon the type of traffic and condition of roads. Similarly, the "contingencies" for instance, the ex-gratia payments to the officials (graft etc) also vary from city to city depending upon the local circumstances. The taxes on vehicles vary slightly from province to province.

The overall effect of the provincial and local councils taxes on the operating cost of public transport vehicles operating in Lahore is illustrated in Table 4.7. This Table shows that local and provincial taxes for full size buses are relatively higher than taxes on smaller public transport vehicles (see Appendix-4 for details). This implies that the operation of full size buses is discouraged. The operators also believe that some of the contingencies are taxes which they give directly to the officers.

Table 4.7 : Average annual operating cost of public transport vehicles in Lahore

Description	Expenses in Rs			
	Full size bus	Minibus	Suzuki	Taxi
Fuel	133,800 39	116,400 37	69,600 40	56,000 46
Maintenance	30,000 9	25,200 8	12,000 7	4,500 4
Tyre & tubes	20,000 6	30,000 10	10,000 6	5,000 4
Salaries/wages	96,000 28	86,400 28	60,000 35	48,000 39
Taxes	19,350 6	11,700 4	3,500 2	1,307 1
Contingencies	39,920 12	42,040 13	18,260 10	7,060 6
Total	339,070	311,740	173,360	121,887

Source: Data collected by the researcher in 1995
Percentages are shown in bold figures

4.6 Regulation of urban public transport

4.6.1 Legal framework

The legal basis upon which the public transport industry in Pakistan is founded is determined by the Motor Vehicle Act of 1939, the West Pakistan Motor Vehicle Rules (1969) and Provincial Motor vehicle Ordinance (XIX of 1965) and subsequent ordinances and regulations. Later ordinances are largely concerned with amendments to the financial provisions contained within the original legislation. The legislation admits two types of passenger carriage services; stage carriage and contract carriage services. The services comprised of a range of motor vehicles used in urban areas (see chapter 5).

4.6.2 Objectives of regulation

According to the MVO 1965, the measures applied to regulation of transport are intended to achieve a wide range of objectives:

- to coordinate road and rail transport;

- to ensure the financial viability of public transport;
- to prevent uneconomic competition, particularly in road transport;
- to protect highways, bridges, and other public infrastructure from overloading or abuse; and
- to ensure safety in road transport.

The regulatory instruments used in support of these multiple ends include restricting transport activities to a limited number of operators, structuring the fares system, requiring certain services to be provided even though they are not financially viable, and establishing standards for safety, examining the roadworthiness of vehicles, noise levels, and exhaust emissions.

4.6.3 Regulatory agencies

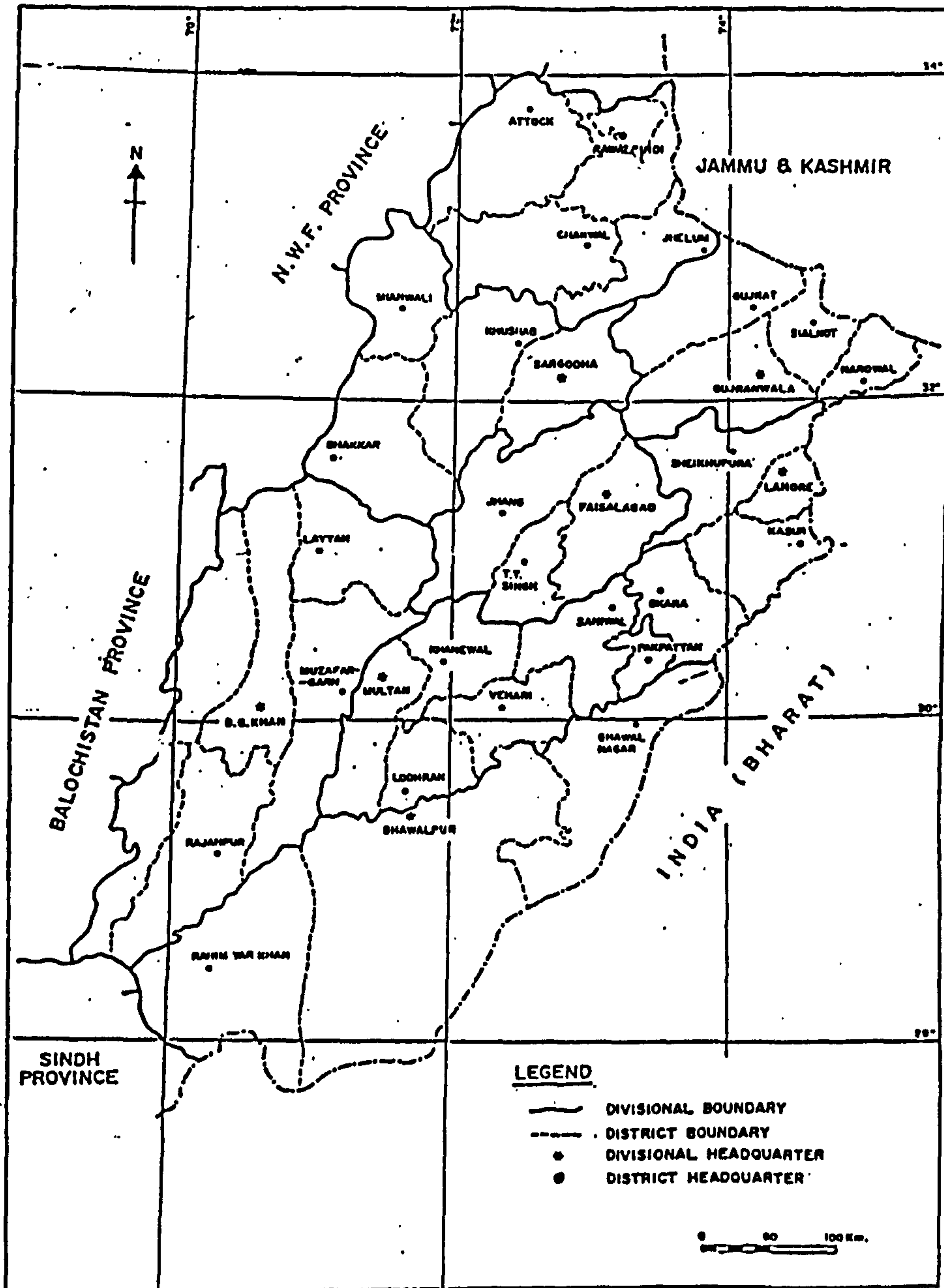
In each province, Provincial Transport Authority (PTA), having several Regional Transport Authorities (RTAs), exercises control over public transport within its jurisdiction. The PTAs function through their RTAs. The jurisdiction of each RTA extends to the boundary limits of a Revenue Division, usually consisting of more than one district. These authorities consist of officials appointed/nominated by the Provincial Government who have no financial interests as proprietor, employee or otherwise in any transport undertaking. Traffic engineering functions are carried out by the Local Government and Development authorities. Enforcement of regulations is the combined responsibility of transport authorities and the Traffic Police.

1. Provincial Transport Authority: The PTA consists of a chairman (who is ex-officio post of the head of the Transport Department), a few members nominated by the Provincial Government (the number varies from province to province) and a full time secretary who is usually an officer in BPS 17/18. The key role of the PTA is to convey the Provincial Government's policy and instructions to the respective Regional Transport Authorities, and coordinate and regulate their activities. The PTA deals with all inter provincial transport matters and liaison with federal authorities. The PTA also itself determines routes which originate and terminate in the jurisdiction of more than one Regional Transport Authority. In addition, it administers the vehicles introduced under the PMPTS.

2. Regional Transport Authorities: The RTA exercises and discharges powers and functions throughout the region/division. For instance, the Punjab province comprised of eight divisions viz; Lahore, Gujranwala, Sargodha, Faisalabad, Rawalpindi, Multan, Bahawalpur and D.G Khan, and each division has more than one districts (see Figure, 4.2) and eight RTAs are functioning in this province. Each RTA is chaired by the Divisional Commissioner. The Divisional Commissioner is generally a senior officer of the provincial or federal civil service. He is appointed by the Provincial Government. The Commissioner is the administrative head of a Division (region) and has wide ranging responsibilities including civil administration, law and order and vested judicial powers. In addition, he is ex-officio Chairman of the RTA and exercises considerable influence⁴ in all aspects of transport. The other staff of the RTA are Provincial Government employees reporting through the Commissioner to the Transport Department. This staff is headed by a Secretary (BPS 17/18), who is assisted by assistants and clerks. The following are the main functions of the RTAs:- to

- recommend and forward new routes for the approval of PTA;
- issue and renew route permits and decide on new route applications, in consultation with the Traffic Police and the Publicly-owned bus Corporation;
- grant licences for bus/minibus stands in consultation with local authorities and civil administration;
- nominate a member for the Licensing Authority which issues driving licences; and
- enforce bus route networks.

Figure 4.2 Map showing divisions and districts in Punjab



Source: EPAP/World Bank/ADB, 1993

3. Traffic Police: The Traffic Police come under the Provincial Home Department. It deals with the testing of drivers, inspection of vehicles and enforcement of traffic rules. In addition to these functions, the Traffic Police often attend on very important persons such as ministers and chief officials etc.

Most enforcement is carried out jointly by PTA, RTAs and the Traffic Police. The RTA and PTA Secretaries and the Superintendent Police (SP) for Traffic are magistrates and, together with the Police, they carry out spot-checks on private buses. The Traffic Police divert the vehicles to a place where checks are made on:

- a. overloading,
- b. driver uniforms and badges (sometimes),
- c. driving licences,
- d. vehicle fitness,
- e. registration book
- f. the certificate of fitness, and
- g. route permits.

But only these Magistrates have the right to fine drivers on the spot for offences. Normal enforcement of traffic rules for all vehicles is carried out by Traffic Police. Apart from spot fines, the Traffic Police book the vehicles for various offences and fines are imposed by the courts. However both normal enforcement and that which is specific to public transport vehicles is generally weak in Pakistan. The following are the principal reasons for this weakness (KDA, 1989):

- a. low salary and motivation,
- b. bribery/corruption,
- c. under-staffing,
- d. inadequate training and lack of resources,
- e. outdated procedures, and
- f. inadequate punishments and difficulties in obtaining prosecutions, due to lengthy delays in the courts.

4. Development authorities: These authorities were established in major urban areas under the Provincial Department of Housing and Physical Planning (Town Planning Department in Sind). They are responsible for the control of land use and the development of housing and other facilities, and for traffic engineering. Land use and transport infrastructure development have not been given as much importance as they deserve. No adequate land reservations have been made for transport infrastructure (terminals and bus stations etc) even in the newly developed residential areas.

In the face of growing traffic and transport problems in larger cities, separate traffic engineering bodies were created under the development authorities during 1980s. For instance, the Traffic Engineering Bureau (TEB) in Karachi, the Traffic Engineering Management Unit (TEMU) in Peshawar and the Traffic Engineering and Transport Planning Agency (TEPA) in Lahore. The main roles and functions of these bodies are to study, examine and identify the traffic problems; to recommend and to take steps to ensure smooth and safe flow of vehicular and pedestrian traffic; the prevention of accidents and road user education. A senior official of the development authorities (such as Chief Engineer from the TEPA and Director of the TEB) is nominated as one of the members of the relevant RTA.

The development authorities have conducted studies on various aspects of transportation and implemented improvement schemes with the help of foreign consultants. They have undertaken surveys of traffic and travel characteristics and improved traffic signalling systems, in addition to planning and designing of roads and intersection improvements. Public transport studies have been commissioned in rapidly growing cities, such as the Karachi Mass Transit Study (KDA, 1989) and the Comprehensive Transportation System Study in Lahore (JICA/TEPA, 1991).

5. Local councils: Municipal committees, municipal corporations or metropolitan corporations are the statutory bodies responsible for the provision of most services in urban areas. These councils work under the Provincial Local Government Department. The functions of these councils among others include the following (LGO, 1979; sections 80-85):

- a. to provide and maintain public streets and other means of communications, to prepare and execute a road maintenance and development programme;

- b. to take measures for the proper street lighting;
- c. to make arrangements for the control of traffic to prevent danger and to ensure safety, convenience and comfort of the public; and
- d. to regulate the operation of slow moving non-motorised vehicles and to fix the rate of fares for non-motorized public service vehicles.

The head of a local council is an elected Mayor/Chairman or Government appointed Administrator in the absence of an elected council. However, senior officers are Provincial Government employees. These councils have not played an important role in the provision of transport infrastructure due to their internal inefficiency, corruption and political interference. However, they have managed the provision of some improvements to roads and bridges and the operation of traffic lights in their areas. In some areas the councils have also provided some bus stops and shelters, for example, in Karachi and Quetta.

4.6.4 Regulatory instruments

Government has attempted to accomplish its regulatory objectives by applying three types of instruments to public transport in Pakistan. These are fare regulation, and quality and quantity controls.

1. Fare regulation

Public authorities can, and generally do, exercise control through the Motor Vehicle Ordinance, 1965 section 45 which states that the government "*shall fix maximum and minimum fares for stage carriage [services] throughout the province or within any area or any route within the province*". Currently, distance based fares are determined by the government. There exists a disparity among the provinces in that fares are neither uniform nor increased simultaneously. For instance, the fares fixed for bus services are Rs 0.20 per km in Baluchistan province. Fares set by other provinces are compared in Table 4.8.

Table 4.8 : Fares structure in different provinces

Distance in km*	Fares specified in Rs		
	Punjab	Sind	NWFP
Up to 5	2.25	2.00	2.00
Over 5 to 10	3.25	3.00	2.50
Over 10 to 15	4.25	3.50	3.00
Over 15 to 20	5.25	3.50	4.00
Over 20	6.00	3.50	4.00

Source: Data collected by the researcher, 1995

* Stage distance is rounded off to show comparison

In theory, fares should have been increased on a regular basis in line with escalation in the prices of petroleum, spares, etc. In practice, the initiative for fare increases has normally come from operators, particularly the associations of private operators and the publicly-owned corporations, who submit requests to the Provincial Department of Transport. Usually the Transport Department considers this request only as a result of private operators' strikes. According to the regulation proposed fare increases should be published in the press and public opinion/objections should be invited. This action is practised only in Sind Province. Eventually approved fares are notified in the press and fare increases are published in the official Gazette.

In the early 1970s, the Federal Government decided to introduce a concessionary fare for students. Under this scheme students are allowed to travel on stage carriage services (in full size buses and midibuses only but not in minibuses and suzukis) by paying a nominal fare of Rs 0.25 for a distance of up to 30 km, and beyond this distance they pay 50 percent of the normal fare. In Punjab and Sind provinces this regulation is implemented in letter and spirit but in Baluchistan and NWFP, it is modified and the students everywhere pay 50 percent of the actual fare. Moreover on production of identity cards, the blind, disabled and elderly (over 60 years) also pay 50 percent of the actual fare in NWFP. Private sector operators receive no compensation for these concessions except in the cities of Punjab, where a form of compensation is given to the operators in the shape of overloading. In this regard the

notification issued by the Punjab Government declares:

"For carrying students at concessional rates, stage carriages, may carry 15 passengers beyond the seating capacity, provided that the vehicle is carrying at least 15 students or such number of students by which the vehicle is overloaded" (Manual of Motor Vehicles Laws, 1992).

2. Quality control

The Motor Vehicles Ordinance, 1965 gives transport authorities the powers and procedures by which the standards of vehicles and drivers, and the conduct of drivers and conductors are controlled. Of the three forms of control, quality is the only one that is absolutely essential as it affects safety, a particular concern in urban areas of Pakistan.

Quality licensing for private public transport in Pakistan is the joint responsibility of RTA and the Traffic Police. These agencies, in accordance with the Motor Vehicle Ordinance, carry out driving test and issue driving licences. To obtain licences, drivers are also required to produce medical certificates.

A motor vehicle fitness test is required every six months. The purpose of this test is to ensure that the vehicle complies with the provisions of the motor vehicle fitness rules and is roadworthy. Conduct of this test is the responsibility of the Motor Vehicle Examiners (MVEs) who examine vehicle fitness and issue "Certificate of Vehicle Fitness".

3. Quantity control

Quantity controls are applied through the route permit licensing system. Route permits are issued in accordance with conditions specified in by the MVO, 1965. Applications for a public transport permit are made to the RTA of the region. The RTA grants a permit to an individual operator for a specific vehicle, if the application is in order. However, publicly-owned corporation services were exempted from getting route permits. For stage carriage services, quantity control is applied by the RTAs through a route structure and limits on the

number or frequency of vehicles operating on each route. For contract carriage/taxi services, RTAs limit the number of permits to be issued in any area (Rules 58 of MVO 1965) and refuse to grant a permit if that maximum number has been reached.

Transport authorities define the entire route network, and the size and the type of vehicles to operate on different routes. Usually routes are defined without employing any specific criteria. Local circumstances determine policies for defining and controlling route networks which vary from city to city. A summary of quantity control regimes employed in major cities of Pakistan is presented in Table 4.9. Until recently the RTAs ensured that the route did not compete with publicly-owned buses because the MVO, 1965 protected them from competition. The ordinance states:

"Government may cancel generally or in relation to a specified area any permit or class of permits granted in respect of transport vehicles in order to enable the Corporation to use its transport vehicles on the routes thus rendered vacant. Government may direct the PTA or the RTA not to grant or issue any permit or restrict the grant of fresh permits to a specified number on any route or routes or part of a route on which the Corporation is already operating motor transport or intends to do so" (MVO,1965).

Table 4.9 : Summary of quantity control regimes in Pakistan

City	Quantity control regimes	Explanation
Karachi	<p>RTA defines and publishes details of new routes in the newspaper. This procedure invites objections and potential operators informed. Route network modified although after long intervals.</p> <p>Routes opened to full size buses and midibuses subject to a no objection certificate (NOC) from KTC and the TEB. Until 1985, effectively no restrictions on the number of buses and minibuses serving individual routes. Smaller size minibuses (13-15 seater) not issued permits after 1990. Operation dominated by private midibuses and full size buses.</p>	In 1986, the Prime Minister announced that minibuses should be phased out from the city. This measure was taken in response to serious concern about high accident rates and congestion caused by the minibuses.
Lahore	<p>RTA defines routes and bus stops for the city. Routes not modified during the last 10 years. Some new routes have been added. Routes defined by RTA not fully operated being un-profitable.</p> <p>Routes earmarked for specific size of vehicles and permits are issued to private operators on production of an NOC from the PRTC. Until recently, full size buses allowed to operate on a few sections of the route network. Government has specified age and number of minibuses to operate on routes.</p>	The Punjab Government was concerned about traffic congestion and imposed restrictions for minibuses on entire route network in 1992.
Islamabad & Rawalpindi	<p>RTA Rawalpindi and ITA Islamabad define route networks for their own areas of jurisdiction.</p> <p>Routes allocated for specific size of vehicles and no official control over the number of permits issued. The authorities having 'informal arrangements' with the operators associations to increase on each route annually by not more than 5% permits. The maximum age of a minibus is fixed at 10 years.</p>	Route networks created according to operators maximum profit principles with poor or even no service in some areas of Rawalpindi.
Peshawar	<p>PTA defines route network on the recommendation of the RTA. Only 3 new urban routes for midibuses added in the past 20 years in addition to 3 existing routes for minibuses. Private operators initiated many illegal routes for suzukis.</p> <p>Urban routes restricted for full size private bus operation and the RTA also fixed the number of permits for midibuses and minibuses.</p>	Restrictions on private operators imposed to protect public sector omni buses. Full size private buses are old and their operation restricted due to environmental grounds. New routes not defined because of narrow existing road network.
Quetta	<p>PTA defines route network on the recommendation of the RTA. Eight new routes for minibuses have been defined during the past five years.</p> <p>Routes are allocated for specific size of vehicles with no official limits on the issuance of permits. Private operators, already in the business, do not let new entrants into the market because of their tribal monopolies on specific routes. Recently (since 1994), a change in regulatory policy for full size buses from free entry to gradual forced exit.</p>	The policy to phase out full size buses was for two reasons; narrow roads and more traffic in central area. Unfortunately the authorities 'regard' full size buses as a main contributor to traffic congestion.
Faisalabad	<p>In theory, the RTA responsible for defining the route network for public transport in the city. In practice, Faisalabad Urban Transport Society (FUTS), a non governmental organization has taken over the responsibility for planning and regulation of public transport services under FUTS control.</p> <p>The Society defines the entire route network, terminals, and bus stops for its own services. RTA obliged to 'rubber stamp' FUTS decisions. The Society specifies the size and type of vehicles. Route permits allocated in discussion with operators. No restrictions on the number of vehicles operating on individual routes.</p>	FUTS is a social company organised by government officials. Private operators, members of the Society, operate minibuses (15 seater vehicles) paying a donation and monthly fee to the Society.

Source: Compiled by the researcher from information collected in 1995

In all urban areas, the authorities have restricted entry to market by applying measures such as control over the number of route permits. The main reasons for the restrictions to be imposed include: protection to state-owned operators and or private operators already in business; a lack of awareness of route network implications; to avoid traffic congestion, road accidents or environmental degradation; and to achieve safe and efficient movement of cars and other traffic. The latter was specifically for Quetta, by the Secretary RTA in his interview with the researcher in 1995. These restrictions are reducing the supply of public transport at a time when it is recognised that there is a shortage. The resultant encouragement of greater use of contract carriage services and private vehicles will contribute to rapid increases in congestion because the capacity needed to carry passengers in taxis or private vehicles is much greater than that required to carry passengers in the buses.

4.7 Urban Public Transport Initiatives in Pakistan

4.7.1 The National Transport Research Centre

In most developed countries, the universities play a leading role in meeting the research needs of the country. In Pakistan however, transport related research has been confined mainly to the National Transport Research Centre (NTRC). Even the NTRC is seriously crippled due to lack of funds, man-power and other supporting facilities to meet national requirements (GoP, 1992).

The nucleus of the NTRC was established to conduct transport research in June, 1974. Initially, it was organised and funded by the Planning Commission. Generally, the NTRC conducts research on the pattern of the TRL, UK. It established a Road Research Wing in 1984, which has commissioned an Urban Transport Wing to develop indigenous expertise in preparing comprehensive transportation plans. Also a Railway Research Wing and a Training Wing have been added. It has prepared a large number of reports and its major projects cover vehicle operating costs and vehicle makes, road construction and maintenance, road safety, traffic management, the trucking industry etc. Since 1992 the Centre has functioned under the administration of the Federal Ministry of Communication.

The NTRC started studies related to urban public transport during the late 1980s and is attempting to introduce new initiatives. The Centre has successfully demonstrated the viability of a number of new ideas during past few years which (it claims) have been highly appreciated by all concerned (NTRC, 1993). The significant efforts related to urban transport are described below.

Quality urban bus: In 1987, a pilot urban bus project was undertaken by the NTRC, with the object of studying the effects of deregulated fares on patronage and on the quality of service offered by the private sector. A route (23 kilometres) between Rawalpindi (Railway Station) and Islamabad Secretariat was selected for the operation of 13 Mazda coaches with 25 seats (see Plate 4.1). Passengers were offered assured seats and information about service frequency. Overall regulation, planning and operation of the project remained in the hands of the government, but the maximum fare for the route was fixed at Rs 4.00, compared with the normal government prescribed fare of Rs 2.5. According to a preliminary evaluation, the response from the users was very encouraging and the one year pilot project proved to be a successful basis for a policy of better quality services at higher fares (Idris, 1987).

Urban bus train: In 1986, the NTRC focused its attention on developing an indigenous system which could provide transport facilities for the poorest group of the society, at minimum cost. One of the avenues explored was to try to recycle old and worn-out buses. Three worn-out Bedford buses were acquired from the Karachi Transport Corporation for conversion into passive trailer units for the NTRC Bus Train. The Bus Train was essentially a long articulated bus which had the potential to provide mass bus transit facility on main corridors (see Plate 4.2). The train was first operated in Karachi during 1989-90 and was later shifted to Rawalpindi-Islamabad to operate along Murree-Islamabad Highway (not the obvious route for mass transit). The Bus Train successfully operated without any serious accidents until 1992 (Idris, 1992). However, the service was terminated later owing to the lack of interest shown from the NTRC staff in continuously supervising and managing its operation.



Plate 4.1 Bus used under NTRC project



Plate 4.2 NTRC bus train

4.7.2 The Prime Minister Public Transport Scheme

The Prime Minister Public Transport Scheme (PMPTS) was introduced by the FG in the middle of 1992. This was neither a part of the FYP nor was there an existing policy to initiate such a type of scheme. It was solely the idea of the then and present Prime Minister, Mian Nawaz Sharif. The main purpose of this scheme was to partially address the unemployment problem, but also to provide a means to improve public transport services throughout the country. Custom duty was waved for new public transport vehicles under the scheme. These vehicles were provided at a subsidised price to unemployed persons who qualified to get a vehicle under the scheme. Only 30 per cent of the cost was to be paid as a down-payment and the remaining amount was to be paid in monthly instalments over 3-5 years in specified banks. However, the down-payment and the period of payment varied for different type of vehicles. The banks were authorised to confiscate vehicles in cases where the owner failed to deposit instalments in time.

According to the data provided by the Ministry of Communication, by the end of December 1993, 900 full size buses, 7,000 coaches (26, 29 seater), 11,000 minibuses (15 seater) and 45,000 yellow cabs were imported from Korea and Japan under the PMPTS. NO details were given to the researcher about the total foreign exchange spent on the scheme. Some of these vehicles were fitted with air-conditioners and have become popular among passengers. Full size buses and coaches with air-conditioners are popular for long journeys. Few air-conditioned coaches were inducted in Karachi, and these vehicles have been converted into non-airconditioned by the operators due to operational reasons (air-conditioners were ineffective due to frequent openings at different bus stops). The coach bodies were built locally either on a Mazda Chassis of 3500 c.c with 26 seats or on a Hino Chassis of 4200 c.c with 29 seats.

Yellow cabs vary in size from 600 c.c to 2800 c.c and mostly they are of Korean make. A few Mercedes diesel taxis were also imported and these are operating in urban areas. Most of the taxis are fitted with air-conditioners. The Provincial Government has fixed relatively higher fares for yellow cabs compared with old taxis. As these are relatively new and better quality vehicles, they are popular inspite of their comparatively high fares. The majority of

these taxis are operating in Karachi, Lahore, Islamabad and Rawalpindi. Initially, the Magistrates were deputed to make sure that yellow-cabs were operated only for public service. At present, however, these checks are seldom applied, and a large number of owners have changed the colour of their vehicles after paying all instalments and they are using them as private cars.

In spite of large commitments of the scarce foreign exchange resources of the country for the improvement of public transport under the PMPTS, only a small number of large buses and minibuses have been introduced in urban areas. About 100 large buses were introduced under this scheme in Karachi and a special notification was issued by the Provincial Government to allow higher fares for these services (Qasim, 1994). No full size bus was introduced in Lahore due to regulatory restrictions. The vast majority of full size buses and coaches are operating on inter-city routes, and the operation of the new vehicles introduced under the PMPTS is reported successful and profitable. This is mainly due to a higher fare structure and lower costs of maintenance and repair for the new fleet.

Under this scheme a large number of new vehicles were introduced in the public transport fleet. As vehicles were given to individuals and inexperienced operators, this scheme gave rise to fragmented vehicle ownership in addition to the introduction of inexperienced operators and drivers. As the PMPTS was suspended by the end of 1993, the import of new buses, minibuses and yellow cabs has come to a stop. Unless remedial measures are taken the future availability of newer public transport vehicles is bound to decline.

4.7.3 National Mass Transit Authority

The National Mass Transit Authority was established by the FG in April 1995. The establishment of the authority also was not covered in any existing policy and was not included in the FYP. Again it was idea of the then Prime Minister, Benazir Bhutto, to establish this authority alongside the National Highway Authority. The headquarters of the Authority is in Islamabad and its regional offices were proposed to be in capital cities of the provinces where the national mass transit ways are to be set up. The authority may, in concurrence with the concerned Provincial Government, prepare a master plan for the

development, construction, operation and maintenance of appropriate mass transit for major cities in Pakistan. The purpose of the Authority is to formulate and implement policies and to plan, promote, organize and implement programmes for construction, development, operation, repairs and maintenance of national mass transitways, whether bus, light rail or heavy rail systems, including other allied works specially entrusted to it by the FG or by a PG (GoP, 1995c).

Three months after of its formation, the National Mass Transit Authority prepared an immediate action plan for the implementation of mass transit. This plan included the following initiatives; Development of a Circular Light Rail line along the existing Karachi Circular Railway, and development of Light Rail Transitways, either simultaneously or consecutively, along the two corridors defined as priority I and II in the Karachi Mass Transit Study (Soomro and Shamim, 1996).

4.7.4 Awami Train project

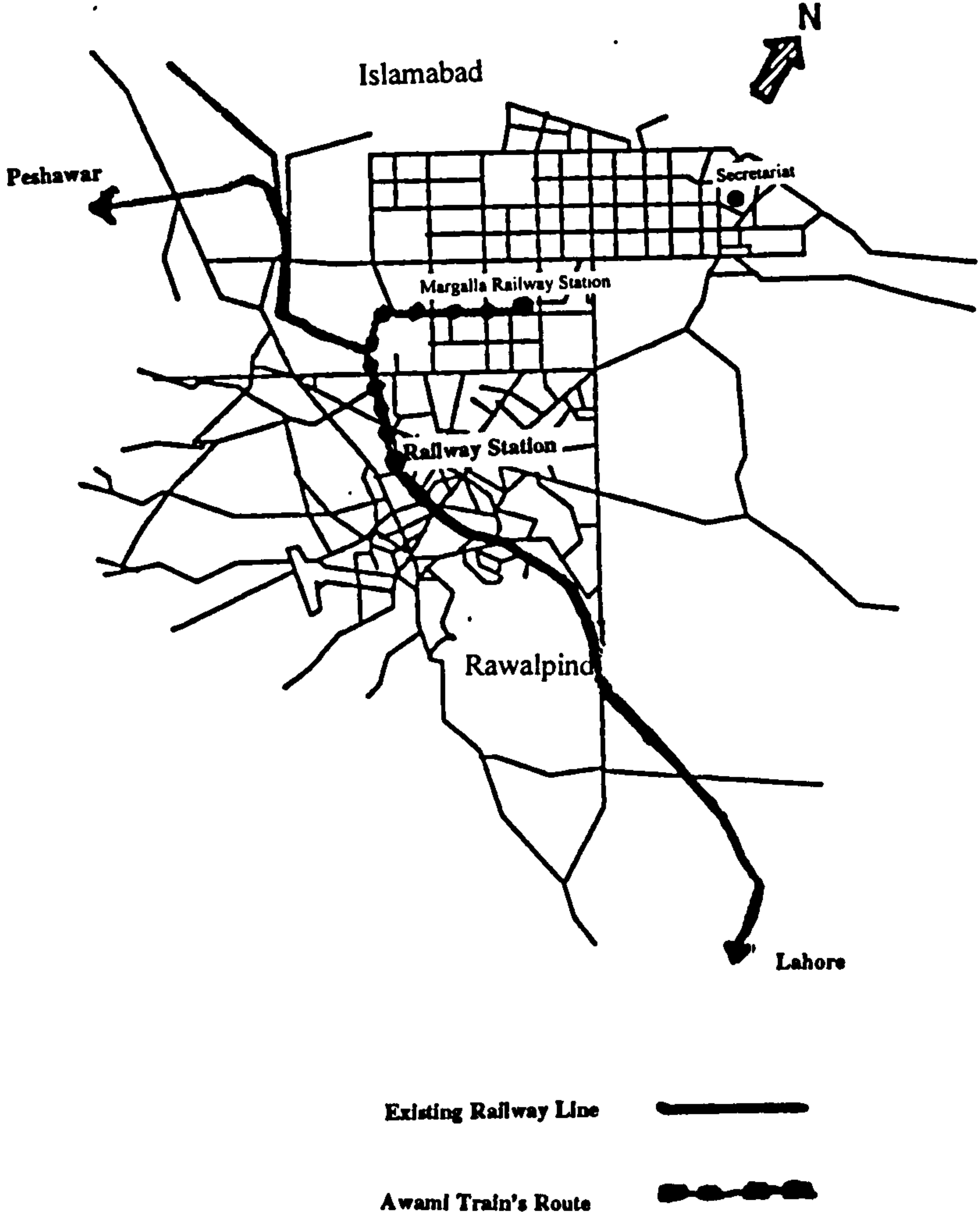
A new train service (on the existing rail track) from Rawalpindi (Marir Hassan station) to Islamabad (Margalla station) was introduced during the dying days of Benazir Bhutto's Government. This "Awami (peoples) Train" project was launched by the FG on August 1996 as a part of the Rawalpindi Development Package. The idea was to offer an alternative mode of transportation for around 400,000 people travelling daily between the twin cities on working days. The cost involved was Rs 40 million per km and the FG funded the entire cost. The Capital Development Authority (CDA) was a partner in the project as it was assigned to transport passengers in its buses (specially arranged for this purpose) to their destinations in the central Secretariat and other places in Islamabad. The schedule of the Awami Train was designed to coincide with official working hours.

The train service has proved to be a failure in all respects, and is no longer operating. A senior FG official told the researcher in December 1996 that the daily operating cost of the Awami Train was well over Rs 26000 per day, but it could hardly collect Rs 2000 in return. The principal reasons for its failure were the lack of coordination and monitoring of the services. For instance, there was a scheduling between the CDA buses and the train but the

train service was not operated reliably to coordinate with bus schedule. The CDA buses would not be there to meet the train's arrival. As a result, the Awami Train neither saved time nor the hassle which the passengers face while travelling between the twin cities. In addition, the Margalla Station in Islamabad is not well located to travel onwards to the Secretariat (see Figure 4.3) and has been described by Mushtaq (1997), as a dead end rather than a destination.

It was also planned that this rail-track would be stretched to the Secretariat and Quaid-i-Azam University in Islamabad. This idea was, however, simply one of the castles in the air which our part-time rulers, the politicians, are in the habit of building whenever they get an opportunity to speak at the inaugural ceremony of this kind of a project. Since the Benazir Government was dismissed by the President of Pakistan in November 1996, there is a little hope of any further extension of the project.

Figure 4.3 Schematic picture of the Islamabad/ Rawalpindi road network



4.7.5 Overseas aid

A substantial part of most overseas aid projects involves policy decisions such as the formulation of financial and fiscal incentives, concessions or guarantees. These policy decisions can only be made by the FG not by the PGs. The FG approves and signs agreements between funding agencies and the Government. However, specific projects are implemented and dealt with by the concerned PGs through the Provincial Planning and Development Departments. The aid projects include; training of staff working for traffic and transport, building up and strengthening of institutional capabilities, provision of public transport vehicles, funding of transport infrastructure and financing studies related to public transport.

Public transport was not considered as an important priority by the Government until the mid 1970s. As a result, public transport services were not meeting the travel needs. There was continued public dissatisfaction with the services provided during the 1970s by both public and private sectors. In 1977 a high level committee, after detailed deliberations, established that there was a need to improve public transport in Karachi (KTC, 1988). In view of this situation, it was proposed in the fifth FYP that improvement to public transport would be undertaken by inducting a large number of buses in major urban areas with the assistance of overseas aid (GoP, 1978). In order to overcome the serious lack of a strong cadre of fully trained professional manpower to properly plan, design, construct, operate and manage transport in the country, the NTRC has organized courses on Transportation Projects Planning. Some of the courses were held in collaboration with the World Bank and US-AID (Swati, 1993). Other main efforts made by the FG related to public transport and studies conducted with the assistance of overseas agencies are given below.

In 1979, Volvo was persuaded to propose a comprehensive five year project to develop public transport in Lahore. This project involved training of staff and assistance in planning, management and the maximum utilization of public transport resources, and a delivery of 750 new chassis (Hansen, 1981). New buses were also introduced in Faisalabad and Rawalpindi and Islamabad in early 1980s.

In 1991, two offers were received by the Government of Pakistan (GoP). The first offer was an interest free loan for the purchase of buses from the Chinese Government. The second offer was from the Belgian Government. This offer included the purchase of 100 Volvo buses on a credit at the rate of 0.6% per annum and rehabilitation of 75-100 Volvo buses of the PRTC free of cost. The Transport Department of Punjab prepared two projects both for Chinese and Belgian offers. These projects were submitted to the Provincial Planning and Development Department for onward transmission to the FG. This department forwarded these projects to the Federal Economic Affairs Division. The FG accepted the project containing Chinese offer and allocated 60 buses to Punjab and 40 buses to Sind province. The project was submitted to the Chinese authorities and finally, it was materialised and more recently, the FG has imported 100 buses from China in 1996 (see the following section).

The GoP requested on various occasions assistance from the UK for a number of traffic and transport projects. For instance, a workshop has been set up in the NTRC for providing a range of services for in-house maintenance and repair of equipment including the official transport fleet (Swati, 1993). Similarly, the UK has assisted in the strengthening of existing institutions. Halcrow Fox and Associates were appointed in 1983 to provide technical assistance services to the LDA in the field of Transportation in Engineering and Planning. Specifically this assistance was requested to support the work of TEPA (the then Traffic Engineering and Transportation Planning Unit) in the introduction of modern traffic engineering techniques in Lahore. Moreover, a Traffic Manual was produced by these consultants in 1984 (Halcrow Fox and Associates, 1984a and 1984b).

In 1987, the Karachi Mass Transit Study was commissioned under World Bank funding. Extensive data collection, planning and analysis were undertaken under this Study which was completed in 1990. The Study was conducted for the purpose of defining a Mass Transit System appropriate for Karachi and to develop a programme by which needs for improved public transport in the city could be met. The plan comprised of a network of 87 km of transitways to be built along existing corridors incorporating a rationalized bus route network. These transitways were planned to be built as busways convertible to light rail (Qasim, 1996). At the early stages of the project formulation, the World Bank expressed its interest in the funding of the infrastructure i.e the transitways only. With the change in government in 1994,

the GoP decided to take the project under its umbrella. Accordingly, the National Mass Transit Authority put forward an immediate action plan as a first phase of mass transit implementation. Under this plan, the development of Light Rail Transitways was offered on a BOT basis to interested investors and operators bidding for the project. Subsequently, the GoP signed an implementation agreement with a Canadian-Turkish-Pakistani consortium to build an 18 km long light rail urban transport line (Soomro and Shamim, 1996).

In 1988, the GoP decided to conduct the Comprehensive Study on Transportation System in Lahore (JICA/TEPA, 1991). The GoP requested the Japanese Government for its assistance. In response to this request, the Japanese Government entrusted the study to the Japan International Cooperation Agency (JICA). The funding for this study was paid by the Japanese Government. Similarly in 1994, in response to a request from the GoP, the Government of Japan funded a master plan study on the National Transport Plan (GoP, 1995d). The Punjab Urban Development Project was launched by the Planning and Management Unit of the Housing and Physical Planning Department in the early 1990s. This project included the preparation of development and infrastructure plans for various cities in Punjab. The PRTC was one of the beneficiaries of this project. The project was financed by the International Development Agency (IDA). In the case of PRTC, the original intent of the project was to carry out a study encompassing operations, vehicle maintenance, financial management and management information system and to develop various concepts related to the PRTC's operational problems including the review of the existing organization structure, and to provide guidance and recommendations to improve technical and financial efficiency (BCEOM, 1992). None of the recommendations given in this study was implemented due to the reluctance of the Provincial Government to grant funding.

Facing the growing problem of urban transport in Islamabad and Rawalpindi, the GoP requested Sweden to assist in the development of local competence in urban transport planning and in the undertaking of an urban transport study of the Islamabad/Rawalpindi area. The project was financed by Swedish International Development Authority (SIDA). An agreement was signed between Scandiaconsult, a major Swedish consultant firm, and the counterpart, the NTRC within the Ministry of Communication of Pakistan. This study was completed in 1995 (GoP, 1995b).

More recently (in August 1997), the Government of Punjab has decided to operate about 20 buses for the exclusive use of females in Lahore. The total cost of the project would be \$ 1 million. The entire funding for the project would be provided by the UNDP. The route network would be determined by the representatives of the UNDP, Punjab Government and the private sector. However, this pilot project would be operated by the private sector under the supervision of the government. If there is a successful experience in Lahore, the project is intended to be extended to Karachi, Multan, Faisalabad and Rawalpindi etc (*Daily Jang*, August 22 1997). The proposal of the project had been suspended due to the dismissal of Benazir's government in November 1996.

4.7.6 Recent initiatives

The following are some of the recent efforts made by the FG and PG to improve public transport services in Pakistan.

Public sector's new buses: The Government of Pakistan imported 100 full size buses from China in 1996. The initial aim of importing these buses was to increase the existing fleet of publicly-owned services. Forty buses were given to the KTC and remaining 60 buses were handed over to the PRTC. The KTC added new buses to its fleet in Karachi and one of the new buses was set on fire during a strike by the public in August, 1996. However in the Punjab, the Government decided that the new buses should not be inducted into the PRTC's fleet. Instead these buses were gifted to various girls' educational institutions in the province. The institutions were made responsible for recovery of the operating costs of the buses. These services charge higher fares from their students than the buses in other educational institutions.

The Prime Minister's directives: Although the Federal Government has no formal role in the provision and regulation of public transport, in 1997, the newly elected Prime Minister (Mian Nawaz Sharif) directed the Federal Ministry of Communication to set out short and long term plans for a revamping of the public transport systems (national and local both) and road network in the country. These plans are to include the construction of flyovers and underpasses on roads and provision of better quality public transport services in urban areas.

To overcome the problems of traffic jams and congestion, the widening and repairing of roads in the cities should also be included in the plans (The News, February 26, 1997). In some cities progress to this end has been reported. For instance in Lahore, the Traffic Engineering and Transport Planning Agency (TEPA) presented a development package for the city in a briefing given to the Prime Minister in Lahore. The package includes, along with other projects, the construction of a ring road, and flyovers and underpasses on the Mall (*Daily Jang*, July 28 1997). Recently, the FG has also proposed a relaxation in taxes on public transport vehicles (see chapter 7, section 2.4).

4.8 Conclusions

In Pakistan transport in general and urban public transport in particular is in a very sorry state of affairs. The dissatisfaction of the public is manifest in a number of ways. The national newspapers are full of complaints against the level of transport service. The following issues are at the heart of urban public transport problems: first, a lack of defined government policy; second, a lack of political will; third, poor administration; fourth, a lack of financial incentives to private operators; and final, undue regulation of public transport services. These issues are discussed briefly below to outline the various dimensions involved.

4.8.1 Lack of articulated transport policy

Urban public transport policy has been shifting from one extreme position to another. There was no clear-cut understanding of the role of the private sector and the responsibility of the government in providing urban transport. Not only the question of public and private sector roles remained undecided, but the responsibility for publicly-owned services was tossed between Federal and Provincial Governments. There were repeated suggestions that public sector bus corporations must run on commercial lines but none was implemented. Public transport services are fragmented in urban areas, with no scheduling for private sector services.

Most educational institutions and factories have their own buses. Moreover, introduction of special buses for ladies is a result of a lack of provincial transport policy and a lack of decent

public transport services in urban areas. History of overseas aid packages also does not reflect any FG policy to improve public transport in the past. However, in the recent past the Government has shown its concern to commission studies on public transport with the assistance of funding agencies.

There has been also individual concern from the Chief Ministers and Prime Minister to dictate their own decisions. The decisions to eliminate minibuses from the city of Karachi was made on the directions of the then Prime Minister in 1986. There were also suggestions from the Federal Division of Environment and Urban Affairs in 1996 that autorickshaws should be eliminated from cities like Karachi and Lahore by the end of year 2000. No action was taken owing to the change of government. For instance, the Prime Minister seems to be acting as Mayor of Lahore as he is giving directions to initiate traffic and transport projects for the city. Moreover, he is regularly monitoring the progress in this regard.

4.8.2 Lack of political will

The experience of Karachi Mass Transit Project also demonstrates inconsistent policy and a lack of political will. Under this project busways were proposed in the Karachi Mass Transit Study (KDA, 1989) and at that time the World Bank was willing to finance the infrastructural cost. At that time, the project had the support of the government but when the Federal Government changed in 1990, the support for the project slackened. As a result, the project was delayed. Again with the change of government in 1993, the project was re-launched, the government decided to implement a Light Rail Transit project based on financial and fiscal incentives and the project agreement was signed on BOOT basis in 1996.

The FG could regulate and operate public transport services easily in Islamabad as services in the National Capital are regulated by the federal ITA. However, the poor regulation and operation of urban transport services in Islamabad shows that the FG is not giving serious consideration to urban public transport problems. Lessons from the NTRC pilot project and the NTRC bus train project were clear, that there is a need for different types of public transport services at different fare level in urban areas. Owing to the absence of transport policy, no follow-up was made to this end. Similarly, government officials are aware of the

situation that present fares are not sufficient to operate urban public transport successfully but due to lack of political will of the government fares are not increased regularly. On the positive side, the introduction of FUTS and its successful public transport services is the result of political will on the part of the government (see chapter 6 for details).

4.8.3 Poor administration

The government has improperly administered public transport services at all levels. The bureaucrats involved are not properly trained to regulate public transport. For instance, the Awami Train project was launched without studying its feasibility. Moreover, no attempt was made at reliable train scheduling. Similarly, the Prime Minister Scheme was initiated without adequate administration of its operation. Initially, the operation of yellow-cabs was checked but when the owners paid off all instalments of the vehicles, they have been able to use the vehicles for private purposes. The public sector bus corporations were so poorly administered that they are now no longer operating. Generally corruption and bureaucratic procedures are involved at all stages of administration.

4.8.4 Lack of financial incentives

One of the biggest hurdles in promoting urban public transport is the lack of financial incentives to private sector operators. Although some temporary financial incentives were given under the PMPTS, the tax and incentives structure however, works against public transport and does not encourage bona-fide private operators to enter in the market. Private sector bus operators are obliged to give fare concessions on social grounds but they are not given any compensatory subsidy or grant. Taxes on new vehicles are excessive and both present taxation structure and the regulation of services discourage the operators from investing in new vehicles. A higher fee for issuing fitness certificates for full size buses and the token tax charged on the basis of the number of seats both discourage the use of larger buses. As a result the supply of vehicles in the public transport market is restricted and passengers are constrained to travel in low quality vehicles. It is imperative that operators be given some tax rebates and concessions in customs duties.

4.8.5 Undue regulation

The most important issue is the undue regulation of public transport services by the regulatory authorities. Under the circumstance, vehicles are overloaded in peak hours, quality of vehicles and safety standards are poor, and undisciplined drivers and passengers are contributing unnecessarily to road congestion. The underlying reasons are:

- Control of fares has made investment in new buses unattractive and has meant that operators reduce standards of service and safety;
- Control on quality (safety) is weak because of the fragmented and competitive nature of the industry, and enforcement problems; and
- Controls on quantity are reducing the supply of public transport in all major urban areas.

Current government policies, the institutional framework and regulatory arrangements are generally causing reductions in the quality and quantity of privately-provided transit service rather than promoting the increases generally desired. Owing to the lack of transport policy, import restrictions and heavy taxation, limits on fares, and over regulation of services, public transport in urban areas is inadequate, unreliable and uncomfortable. Given the above findings it comes as no surprise that a recent study for the Ministry of Communications has acknowledged these deficiencies in Islamabad/Rawalpindi (GoP, 1995b). This chapter has identified problems which require more detailed exploration in order to search for solutions. This is done in chapter 5 for Lahore and chapter 6 for Faisalabad.

Chapter 5 Public Transport In Lahore

5.1 Introduction

It was concluded in the previous chapter that urban public transport in Pakistan is suffering from inappropriate policies and undue regulation. The services provided are generally inefficient and are of poor quality. This chapter provides evidence from the city of Lahore that poorly administered public transport has resulted in inadequate supply and low quality of services. Section 2 describes the overall city characteristics. It also gives an account of the variety of public transport services offered. The regulatory arrangements for public transport are reviewed in section 3. Sections 4 and 5 provide the details of services offered by public and private sectors. The impact of current regulations on both publicly owned and private sector services is also evaluated in these sections. The market for various types of public transport services is analyzed in section 6 through the analysis of household surveys. A summary of the findings of these surveys is also presented. In section 7 the public transport problems in the city are discussed, and section 8 concludes.

5.2 City Characteristics

5.2.1 General presentation

Lahore is the provincial capital of the Punjab and the second largest city of Pakistan. The city is located on the south-eastern bank of the River Ravi and its centre is within 25 Km of Pakistan's border with India to the east (see chapter 4, figure 4.2). The river and Indian border are major impediments to the location of urban development and general growth of the city. Consequently, modern expansion has been confined predominantly to the southern side, producing an increasingly symmetric city (Qadeer, 1983).

Lahore boasts a long and proud historic significance, portrayed through a glorious architectural and urban heritage, and thriving cultural life. Lahore used to be known as the city of gardens. The city earned this name through the famous gardens of Mughal legacy, and

the parks in the cantonment and the civil lines areas created during the British period. At present, Lahore is a major national centre for commerce and administration, with diverse sources of industrial employment ranging from the large scale to a multitude of traditional cottage industries, and numerous recreation, cultural, and higher education establishments which contribute significantly to the overall character and activity of the city.

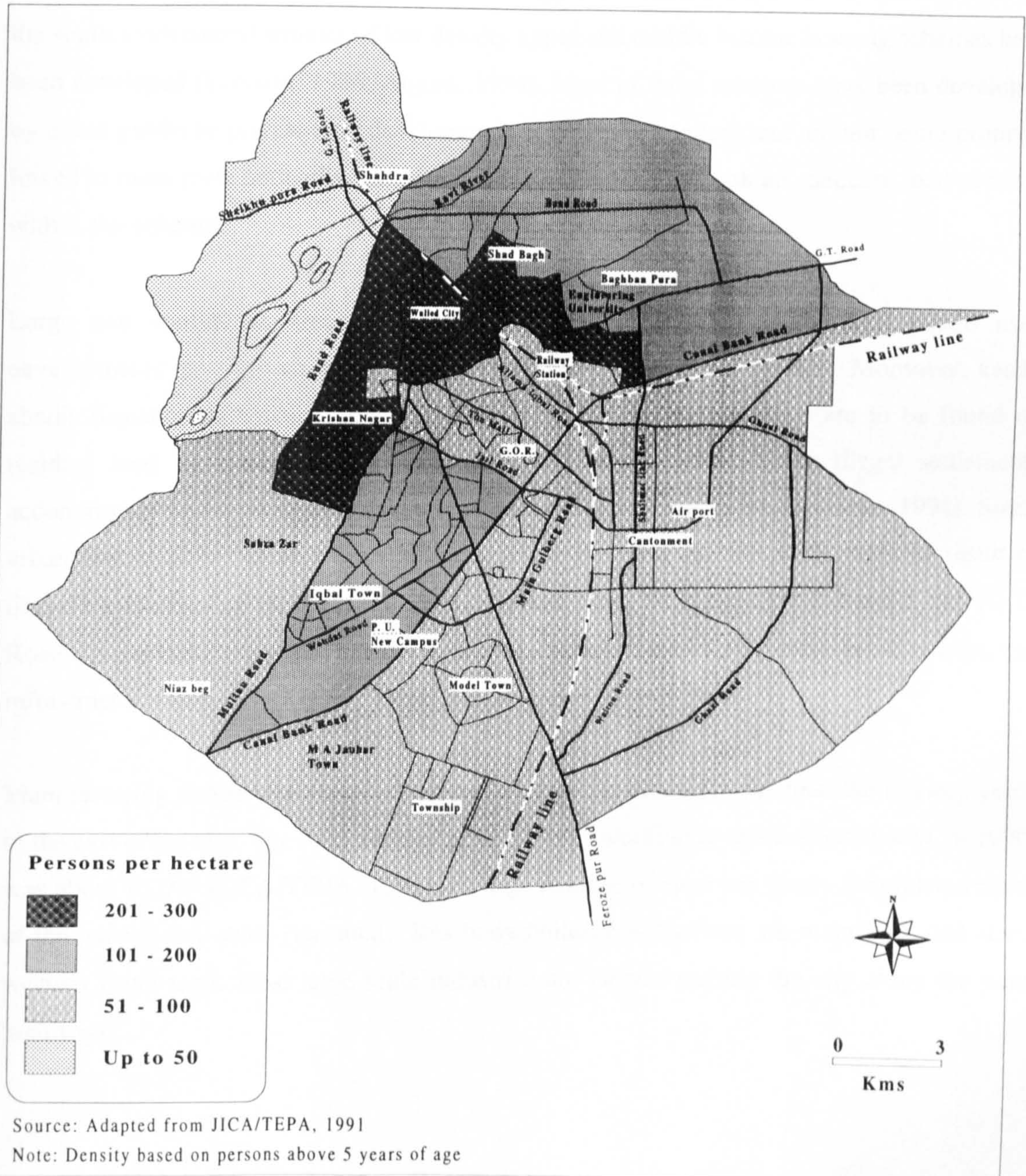
5.2.2 Population growth and density

Since independence, the population of Lahore has registered a big increase which has been linked to a heavy influx into the city of industrial labour from the rural hinterland. The population of Lahore city¹ grew from 0.85 million in 1951 to 2.95 million in 1981 (GoP, 1981b) representing a cumulative growth rate of approximately 4.2 percent per annum over the 30-years period. The estimated city population in 1990 was 4.17 million and the total population has increased about fivefold in a period of four decades. The estimated total population of the wider Lahore Metropolitan Area (LMA²) in 1990 was 5.43 million (JICA/TEPA, 1991). Recent estimates suggest that the population of metropolitan Lahore would grow from 6.1 million in 1994 to 7.9 million by the year 1999 at an annual growth rate of 5.62 percent (EPAP/World Bank/ADB, 1993). The overall population density (persons above 5 years of age/hactre) of the city in 1990 was estimated as 90 persons per hectare and densities of over 200 persons per hectare are found in the Walled City, Shad Bagh and Kirshan Nagar areas (JICA/TEPA, 1991) (see figure 5.1). This rapid growth of population puts great strains on the city's transport systems.

¹.The city consists of the area under the administration of the Metropolitan Corporation Lahore (MCL) and the cantonment

². Presently LMA covers approximately 2250 sq.km, whereas in 1979 it was about 1650 sq.km

Figure 5.1 Population density by zones in Lahore



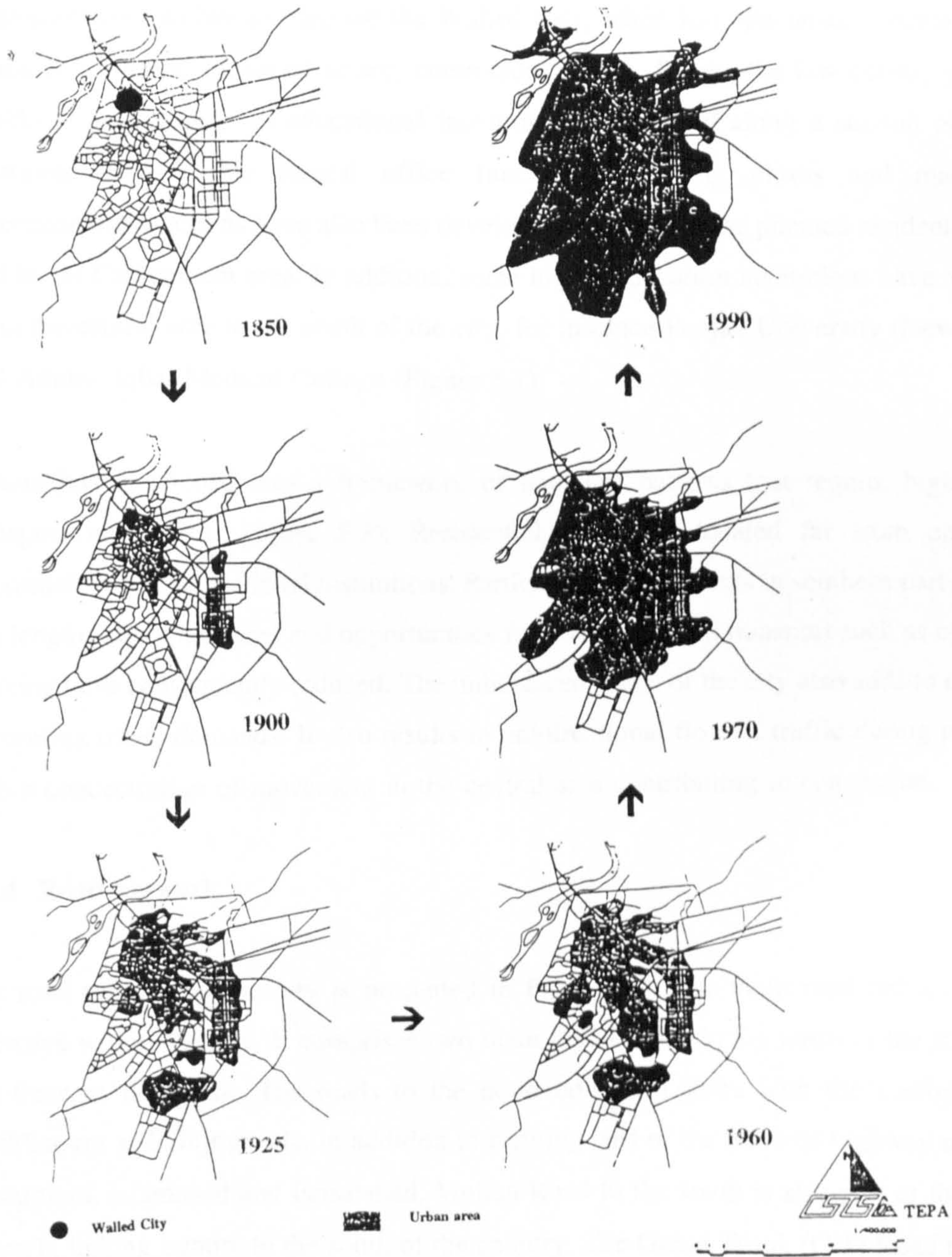
5.2.3 Land use and urban structure

Lahore's physical development since 1947 exhibits both the scale of demographic and economic change and the structural characteristics of the city. Historically, Lahore City has developed from the Walled City and expanded southward (see figure 5.2). The development of the city reflects wide disparities in income distribution. In the expansion of the city towards the south a substantial number of low density upper and middle income housing schemes have been developed (Leonard, 1986; Anjum, 1994). Most of these schemes have been developed by either public or private land developers in a piecemeal pattern and are not being properly linked to main route networks, albeit they have been provided with an adequate road network within the schemes.

Large and continuous areas of unauthorized low-income residential and mixed used developments have grown up to the north and east periphery of the city. Moreover, katchi abadis (squatter settlements, predominantly with low-income families) are to be found on residual land all around the city and numbered 308 in 1990. These illegal settlements accommodate about 30 percent of the total population of Lahore (Mueenuddin, 1991). Some urban development has also been initiated across the river (on the north side), as result of liberal taxation policy for industrial establishments along Shekhupura and Grand Trunk (G.T) Roads. Associated residential developments are characterized by poor road layout, access, and infrastructural services (Anjum, 1990; Anjum and Hameed, 1994).

Manufacturing industry is dispersed, apart from some concentrations near the railway yards to the east of the city. The total number of employees working in this industrial area, in 1990, was about 17,000 (JICA/TEPA, 1991). A large number of steel bar plants are situated north of the general bus stand (terminal). Bus body building workshops are mainly located along western Bund road. Most large-scale industries are located outside the city along the main highways.

Figure 5.2 Trend of urbanization in Lahore



Source: JICA/TEPA, 1991

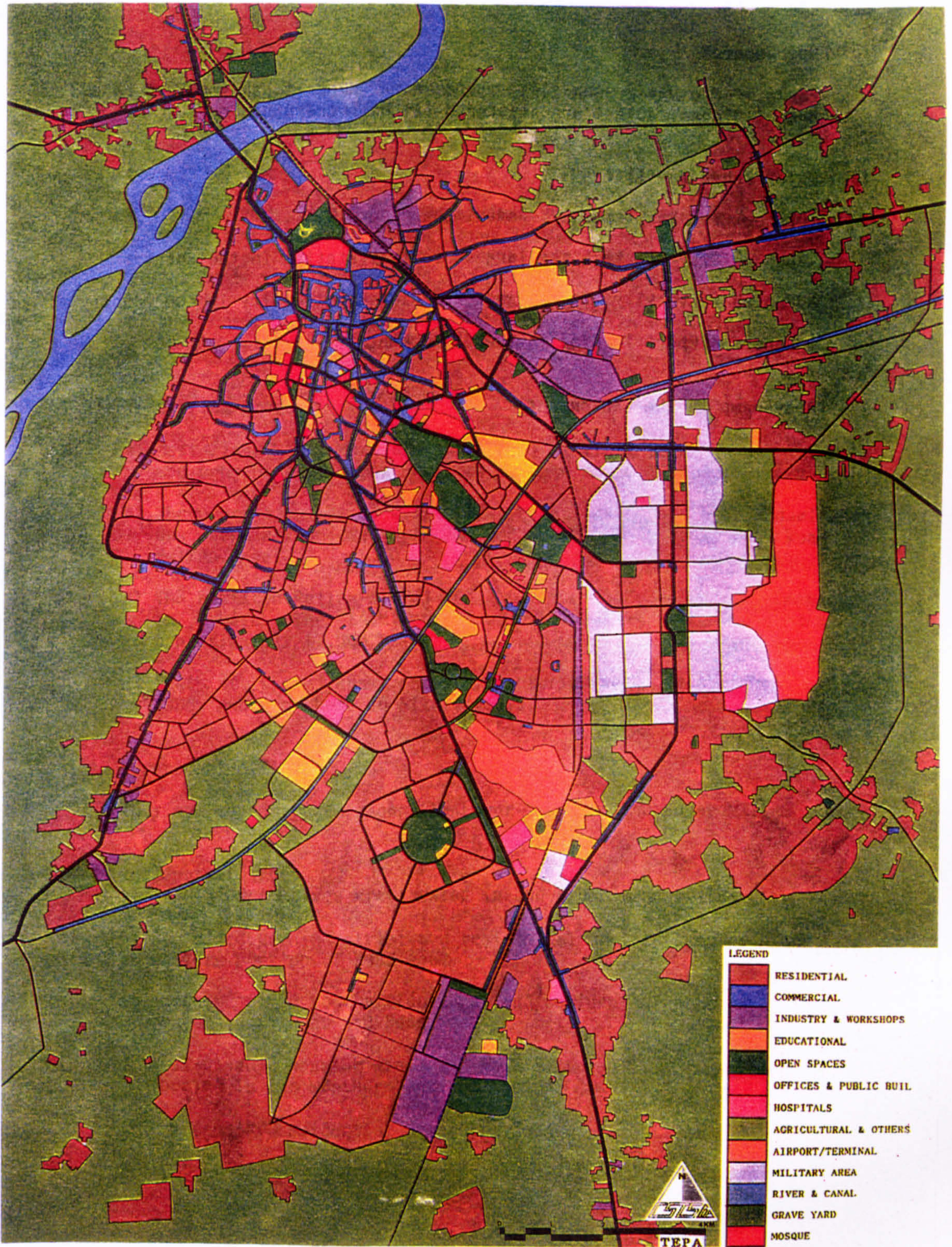
Lahore does not have a tightly defined central area but its predominant central activities are located around the old Walled City. The Mall is the centre for major purchase shopping, banking and entertainment, and the Walled City for trading. The more specialized bazaar trade is concentrated within and around the Walled City, while less specialized bazaars are to be found in all areas. Financial sector, commerce, offices, hotels, the law courts, government buildings and prestigious educational institutions are centred along a section of the Mall. However, considerable central office functions, shopping plazas and markets, and entertainment functions have also been developed in high-income planned residential suburbs and in the Cantonment area. In addition, some higher education institutions have also shifted from the central area to the south of the city, for instance Punjab University (New Campus), and Allama Iqbal Medical College (Figure 5.1).

Lahore has developed into a framework of land use patterns that require high levels of transport movement (Figure 5.3). Residential areas are located far from employment opportunities and educational institutions. Particularly for residents in southern part of Lahore, trip lengths have increased and opportunities for non-motorised transport such as cycling and walking have consequently reduced. The unbalanced shape of the city also adds to difficulties in meeting travel demands. It also results in unidirectional flow of traffic during peak hours with a concentration of movement in the central area contributing to congestion.

5.2.4 Road network

The road network in the city is presented in Figure 5.4. The main road network is more extensive within the city. It comprises two main radial roads to the north of the River Ravi, and three to the south. The roads to the north connect Lahore with the nearby cities of Sheikhupura and Gujranwala, in addition to forming part of the national highway network to Rawalpindi, Islamabad and Faisalabad. Multan Road to the south is also part of the national network, linking Lahore to the south of the country. The Grand Trunk (G.T) Road to Wagha, and Ferozepur Road, serve hinterlands towards border areas.

Figure 5.3 Land use pattern in Lahore (1990)



Source: JICA/TEPA, 1991

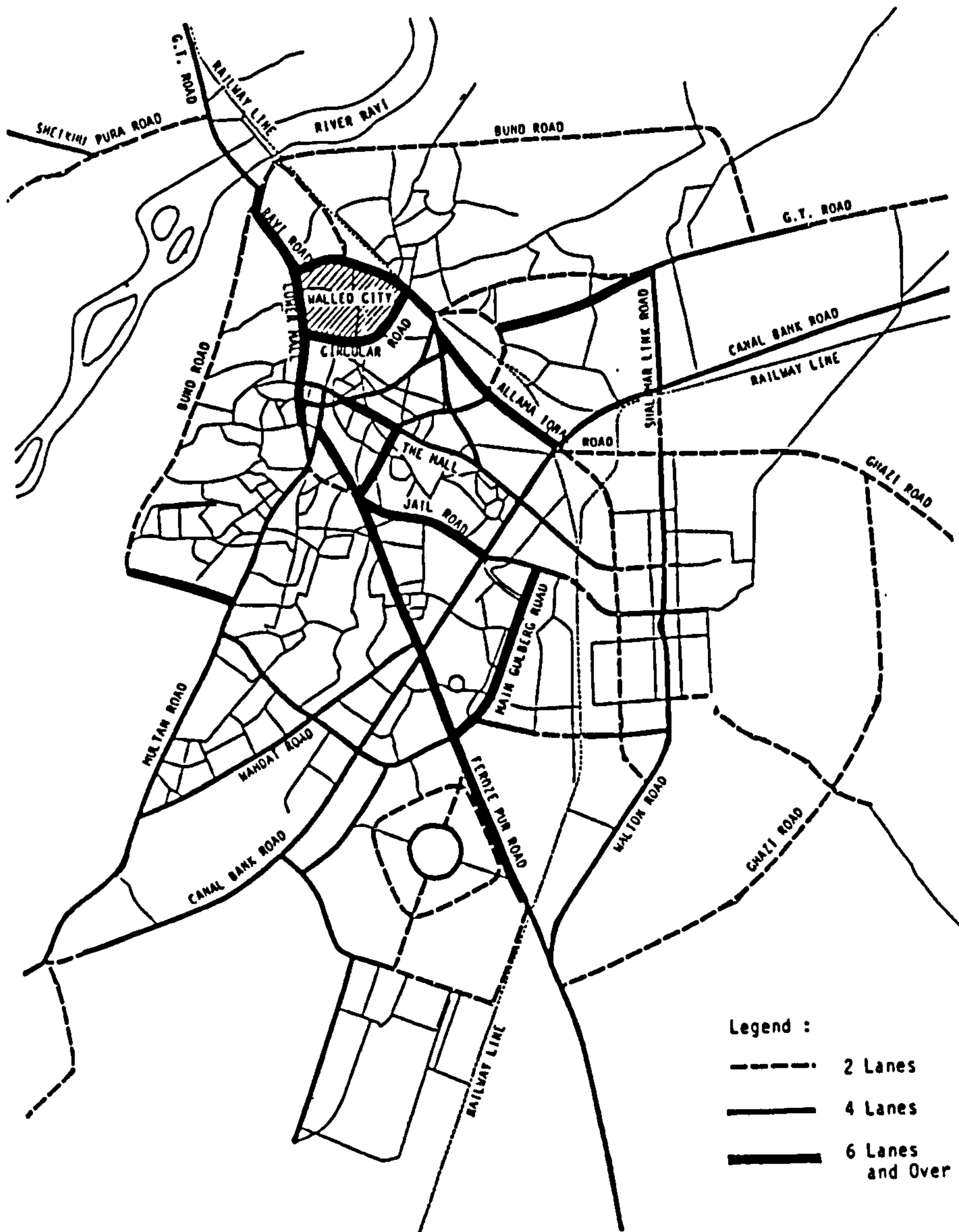
A network of secondary distributor roads, apart from the main strategic roads, provides access to residential, industrial, commercial areas and other facilities of the city. Many of these roads are built to generous proportions in the newly planned expansions to the south but in the central area and old built up parts of the city many distributor roads are inadequate in both width and alignment.

The internal road network in old and unauthorized sectors of the city has led to problems of accessibility and circulation. The absence of land use control in these areas has further exacerbated the problems. Encroachments on to the roads occur throughout the city which impede traffic flow and cause congestion, confusion, and danger. Usually pedestrians are badly affected as they are unable to use encroached footways.

The Lahore Development Authority (LDA) is responsible for maintaining only six roads, including the Mall, while the National Highway Authority (NHA) has only three - GT Road, Bund Road and Multan Road - under its jurisdiction. The Lahore Cantonment Board (a residential area administered by the army) is responsible for the maintenance of roads falling within its boundary. The Provincial Communication and Works Department is responsible for 21 roads in Lahore, while the biggest burden lies with the Metropolitan Corporation Lahore (MCL) - 972 residential roads inside various localities plus service lanes.

All the agencies (except for MCL) are working relatively efficiently in the provincial capital. As a result, the main road network is generally well developed and, with junction improvements and planned extensions in growth areas, can accommodate the existing and near future traffic flows. However, existing road capacity is generally poorly utilised due to poor road user behaviour and ineffective traffic management.

Figure 5.4 Road network in Lahore



Source: JICA/TEPA, 1991

5.2.5 Traffic engineering and management

The Punjab Government created the Traffic Engineering and Transport Planning Agency (TEPA) under the LDA in 1987. The main functions of the agency include the planning, design, and implementation of traffic engineering and traffic management programmes (LDA, 1987). The TEPA has undertaken minor traffic improvement schemes and major engineering projects. The officials of the TEPA include major engineering projects as measures for traffic management. However, these schemes are discussed separately.

Under the provisions of the Punjab Urban Development Project the TEPA has embarked on a programme of low-cost infrastructure improvements. These are aimed at improving junction capacity, junction control and street lighting. By December 1995, TEPA had improved 41 roads besides major engineering projects in the city. An illustration of typical junction improvement measures is presented in Plate 5.1. According to the Chief Engineer of TEPA, the agency under the future Lahore Transport Project intends to expand the existing programme: to improve public transport through bus terminal improvements, and to carry out major road infrastructure provision in the southern part of the city.

The current physical infrastructure for road based public transport is very limited and is confined to terminal provision at Lahore Railway Station and the provision of a bus station at Bhati Gate. Attempts have been made in various parts of the city to prohibit or segregate different classes of road users. The most notable initiatives are as follows: first, heavy vehicles are prohibited from using central parts of the city during day time; second, animal-drawn vehicles are prohibited from using the Mall; third, cyclists are segregated onto the service roads along the Mall; and fourth, around Circular Road animal-drawn vehicles are confined to a specially constructed service road. According to the senior official of the Traffic Police, none of the segregation schemes operates well. In all cases they are only successful during the periods that they are physically enforced by the Traffic Police.

The TEPA is also making major improvements in getting to grips with traffic engineering and control. The TEPA started working on a series of projects with funding arranged from the World Bank in 1991. This financial assistance was to end in 1995, but was extended to 1997.



Plate 5.1 A road junction improvement in Lahore



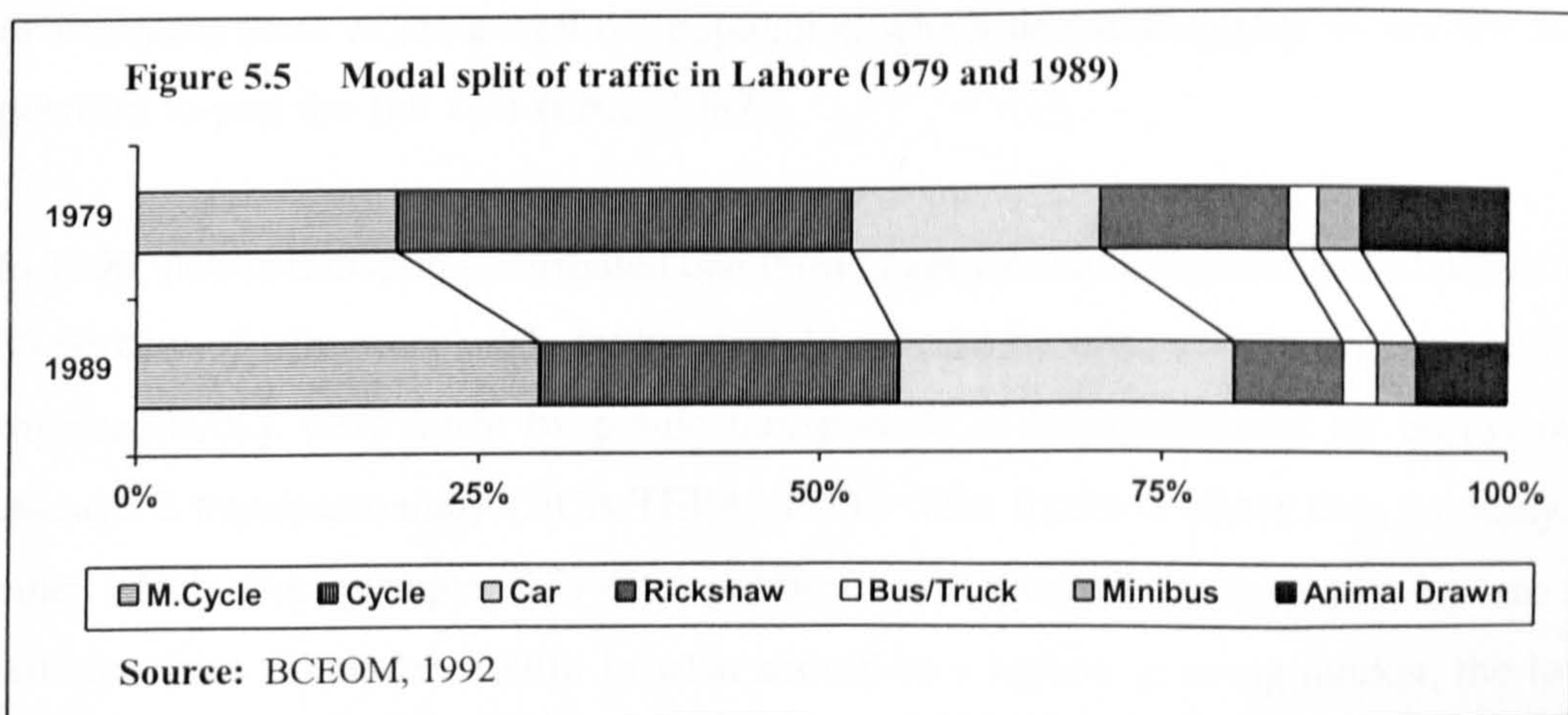
Plate 5.2 A newly built under pass on Jail Road in Lahore

It had completed 21 major projects at a cost of over Rs 1314 million by the end of 1996. They include for instance, the construction of underpasses at the Mall-canal crossing, Jail Road-canal crossing etc. An illustration of these traffic engineering measures is presented in Plate 5.2. Another nine projects, joint ventures with the private sector, are also under consideration, including the Lahore Ring Road project, construction of parking plazas in the central area and along the Mall, and a new bus terminal at Shahdara (see Figure 5.5). No scheme has been undertaken specifically to achieve the efficient flow of public transport.

5.2.6 Road transport

Road users are generally male, and poorly educated about road use, both as pedestrians and as vehicle drivers. Vehicles are generally poorly maintained and they are noisy and polluting.

Motorization is still in its infancy in Pakistani cities, but the availability of motor transport has increased significantly in recent years. There were 2,017,307 registered motor vehicles in the country in 1986 whereas 3,329,888 motor vehicles were registered by the end of 1993 (GoP, 1994). From these figures the average increase in motor vehicles in Pakistan is estimated at 9 percent per annum. Figure 5.5 illustrates changes in the modal split of traffic between 1979 and 1989. By 1989 motorcycles had replaced bicycles as the largest share of the traffic volume (29.4%), with motor cars the third largest share at 24.6 percent (BCEOM, 1992). It must be remembered however that walking, omitted in these figures, remains by far the most common mode of travel.



Motorcycles have been the fastest growing type of vehicle in Lahore. The number of motorcycles increased at a rate of 19 percent per annum during 1974-1978 whereas the growth rate of cars was 13 percent (LDA/World Bank/IDA, 1980). The absolute increase that has occurred in road transport in Lahore is evident during the past few years. An average of 25,000 new vehicles are being added each year to Lahore's traffic. According to data provided by the registration office, in 1995-96, 16872 two-wheelers and 9987 four-wheelers were registered in the city. The growth in number of motorcycles and cars is likely to continue in future and will pose serious problems of traffic congestion on already clogging roads. At December 1994, the total number of registered vehicles was 583,892. Of this total, 468,496 (80%) were private vehicles and 115,396 (about 20%) were public service vehicles (Government of Punjab, 1995).

5.2.7 Travel patterns

Over 10 million person trips were made daily by all transport modes in the LMA in 1990. Table 5.1 presents the proportion of all the trips undertaken by the major travel modes in 1990. Motorized traffic is growing rapidly, but walking is still the main means of travel. The bicycle is very important because it provides flexible transport for people who cannot afford to purchase a motor vehicle or travel by public transport (JICA/TEPA, 1991). Many people consider that bus services are inefficient, uncomfortable, and unreliable, and prefer to use bicycles or private motor transport if it can be afforded (see section 6.3). As in other cities of Pakistan, there exists a well-off population which demands quality of service and is in a position to pay the full cost (Idris, 1987).

In 1990, public transport contributed one third of personal motorized trips in Lahore. Of these, 83 percent of trips were made by bus and 13 percent by taxi services respectively. Only 0.3 trips/capita/day were made by public transport (0.26 trips/capita/day by buses) out of the average 2 trips/person/day (JICA/TEPA, 1991). This figure is lower than in many cities in other LDCs. For example, 0.37-0.94 public transport trips per capita per day are found in African cities (Maunder, 1990). In what should be a rapidly growing market, the low use of public transport in Lahore, affirms the inadequacy of services (Table 5.1).

Table 5.1 : Modal split of trips in Lahore, 1990

Transport mode	No. of trips per day	Percentage
Walk	5,121,626	52.57
Bicycles	698,681	7.17
Public transport*	1,410,237	14.48
Private vehicles**	2,507,148	25.73
Other modes	4,654	0.05
Total	9,742,346	100.00

Source: Adapted data from JICA/TEPA, 1991

* Includes tongas

** Includes motorcycles

About 15.1 percent of all the trips are made for work and 15.2 percent trips were to educational institutions. To home trips represent the largest proportion of all the trips, accounting for 46.7 percent. Private trips (include shopping, social, recreational and religious trips) account for about 20.7 percent. Business trips comprise only 2.3 percent of all the trips (JICA/TEPA, 1991).

Walking is reported to be the main mode in Lahore, with 52.57 percent of all the trips made on foot in 1990 (Table 5.1). Trips made by walking are short with average travel time of 10.8 minutes. Of trips made by walking, 62 percent are made within 10 minutes (JICA/TEPA, 1991). In particular, walking is a common mode in low income areas. The household survey conducted in Baghban Pura showed that 42 percent of the total trips were made on foot for different purposes, including shopping (28%), education (27%) and work places (17%). Thirty percent of the total trips were reported by bus services largely for social (62%), recreational (14%) and work purposes (13%). Tongas were also used for 15 percent of the total trips, mainly for social trips (Table 5.23).

Conversely, in middle and higher income areas, the majority of the trips are made by motorised vehicle. The household survey in Jauhar Town shows that 54 percent of the total

trips were made by car and taxi, largely for social (33%), shopping (27%), and recreational (25%) purposes. Two-wheelers (mainly motorcycles) were used for a further 22 percent of the total trips, mainly for shopping (34%), social (22%) and work (17%) purposes (Table 5.10).

5.2.8 Public transport services

Lahore offers a variety of public passenger transport services. Rail makes an insignificant contribution (0.57% of trips) to movement within the LMA. At present public transport in Lahore is exclusively provided by private sector operators. The private sector operates primarily 15-20 seater minibuses (known locally as wagons). There are a small number of privately operated 30 seater midibuses and full size single-deck buses in limited areas. The private sector also operates suzukis (10 seater minibuses) on a few routes. In addition, the Model Town Society also operates a small number of full size buses which ply to and from the central area and the separately administered, middle class, Model Town area (see Figure 5.2). The buses operated are old and of poor quality, and the society has not been able to invest in new vehicles as it is not earning sufficient revenues as a result of regulated fares. The publicly-owned Punjab Road Transport Corporation (PRTC) provided full size single-deck bus services until June 1997. Regular taxis/yellow-cabs, autorickshaws (3-wheel Vespa motorcycle engine powered vehicles), tongas (horse drawn carts) offer contract carriage services. Table 5.2 shows an inventory of the road public transport modes and passenger seats in the city.

Table 5.2 : Road public transport inventory in Lahore (1996)

Transport mode	Number of vehicles (1)	Passenger seats (2)	
		Number	Percentage
Bus Services (all)	-	118,288	67.1
. PRTC Buses	24	1680	0.9
. Private Buses	326	19560	11.2
. Minibuses	4781	86058	48.8
. Midibuses	270	8100	4.6
. Suzukis	289	2890	1.6
Taxi Services (all)	-	58008	32.9
. Taxis/yellow-cabs	3021	12084	6.9
. Autorickshaws	10842	21684	12.3
. Tongas	4040	24240	13.7
Total	-	176,296	100

Source:(1) Data collected from the RTA Lahore, 1996

(2) Seating capacity x No. of vehicles

Own-account services: Both private companies and government institutions operate their own full size buses, midibuses and minibuses, with the main purpose of providing easy travel for their employees/students. The private companies include major industrial and commercial establishments, for example Ittefaq Group Limited, and the government institutions include universities, colleges, Pakistan Railways, the Water and Power Development Authority, and the Telephone and Telegraph Department etc. There is no recently recorded estimate of extent of these services for Lahore, but Armstrong-Wright (1993) reports the use of 1000 vehicles in Karachi.

These services are exempted from government regulations, with routes, fares and frequencies determined by the institutions themselves. In the case of private companies and government departments, the employees using these services are not paid their monthly travel allowance (see chapter 4, section 4). However, students are charged nominal fares which vary from one educational institution to other. For instance, the bus services of the University of Engineering and Technology charge a fare of Rs 0.25 per student per trip whereas the Punjab University

buses charge Rs 1.0 per student per trip.

5.3 Regulatory Framework

Regulation of road based public transport operations is essentially the responsibility of Regional Transport Authority Lahore. The only exceptions to this are tongas which are controlled by the MCL. The various regulations applied to private sector public transport services and their administration are described in the following sections.

5.3.1 Administration

The PTA is empowered to define routes for stage carriage services in the entire province. In Lahore however, the PTA has authorised the RTA to define routes lying in its jurisdiction. All the routes in Lahore have been defined by the RTA. Under section 254 of the MVO, the District Magistrate is empowered to declare bus stops in the urban area, while outside it the RTA is competent to pass such orders, in consultation with the District Magistrate.

All kinds of route permits in respect of buses, wagons, trucks, suzukis, autorickshaws and taxis are issued and renewed by the Secretary RTA after realizing the requisite permit fee. In theory, the RTA may cancel/suspend a route permit for a such period as it thinks fit on the breach of any condition of the permit, for instance in response to a complaint from the general public or in the case of an accident. In practice the Chairman RTA cancels permits in the case of fatal accidents and the minor accidents and general complaints are disposed of by the Secretary RTA, generally by imposing fines on defaulters. The composition of the RTA Lahore is: Divisional Commissioner Lahore (Chairman of the RTA), Deputy Inspector General Police (member), Superintending Engineer Highways (member), Chief Engineer TEPA (member), and Secretary RTA (member).

The Divisional Commissioner and the Secretary are mainly responsible for all matters regarding the regulation of public transport. Both the officers are from the civil service and employees of the Provincial Government. Generally, they have no background or training in dealing with transport issues and the RTA has no technical staff to assist them. Moreover,

they are frequently transferred. Secretaries and Commissioners have been changed 3 times for RTA Lahore during 1994-1996. As a result, these officers deal with public transport issues on an ad-hoc basis. The Secretary of the RTA is appointed without considering his competence to run the affairs of transport. For instance, the Secretary appointed in 1996 previously worked in the fisheries and finance departments.

5.3.2 Fare regulations

Fares for road based public transport are determined by the Provincial Government. Average fares for minibuses (Rs 0.33/km) are fixed higher than for full size buses (Rs 0.26/km), with the average fare for suzukis fixed at Rs 0.24/km. Concessionary fares are allowed for students. Students are allowed to travel on full size buses and midibuses by paying a nominal fare of Rs 0.25 within Lahore. Private sector operators receive no compensation for these concessions, but they do not apply on smaller size bus services (10-18 seater vehicles). It is therefore hardly surprising that few full size buses and midibuses are operated on routes which would be much used by students.

Generally fares are set without employing any realistic criteria and fare levels tend to be kept below economic levels. In interviews conducted by the researcher in 1995, both the public and the private sector operators were not satisfied with the present structure of fares. The operators admitted that the low fares have significant effects on service quality. The service offered to the passengers is very basic, with cheap, poorly maintained vehicles forming the majority of the bus fleet. The bus operators attempt to maximise revenue by ensuring that their vehicles are always full. The consequence of this is that vehicles spend a long time stationary at bus stands and, once full, race each other to the next stop to find new passengers.

In addition to low fares, the uneconomic student concessionary fare has significantly affected the viability and quality of public transport services. The concessions affected the publicly owned corporation more than private operators since a higher proportion (20-30%) of its passengers were students (PRTC, 1992). A similar situation is reported for the KTC (KDA, 1989). The Corporations used to receive a subsidy/loan to offset this concession whilst private

operators do not.

Fares for bus services are relatively low in Pakistan as compared with other LDCs (see World Bank, 1986:47). The price of spare parts, oil etc has increased over 15 fold from 1979 to 1995, whereas fares have increased only about five fold over the same period. In the face of such low regulated fares, it is questionable how the public transport market is feasible for private operators. In theory some operators should have to leave the industry but in reality the number of public transport vehicles is increasing albeit at slow rate. This is because the operators seek to reduce their costs and standards of service in order to continue operating. Moreover, there is a limited supply of route permits by the RTA, and operators maximise their revenues by overloading.

5.3.3 Quality controls

Quality controls are applied in the form of checking standards of public service vehicles (PSVs) and licensing the PSV drivers. The city of Lahore has been divided into four zones on the basis of the number of PSVs. A Motor Vehicle Examiner (MVE) is responsible for conducting fitness test for vehicles in each zone. The MVEs are controlled by the PTA and RTA. They examine vehicles and issue "Certificate of Vehicle Fitness" for every six months.

Chapter VI of the Motor Vehicles Rules (1969) specifies quality control standards and a comprehensive procedure for issuing a vehicle fitness certificate. The MVEs are required to examine, for example, front and rear lights, direction indicators, steering, brakes, silencers, safety glass, mirror, tyres, seating room, reversing, width of doors, driver's seat and even paint of vehicles. The MVEs do not always enforce the quality control requirements and vehicles are sometimes not inspected. For instance, according to data collected from the PTA, a total 19,676 vehicles were granted 'fitness certificate' during January to July 1995 by all the MVEs in Lahore. This indicates that each MVE took about 13 minutes per vehicle (on average) to examine its 'complete mechanical fitness'. This calculation is made on the basis that each MVE continuously examines vehicles for 8 hours per day! The private operators have no complaint against the MVEs except bribes. Operators in interviews conducted by the researcher stated that by paying bribes to the MVEs, their vehicles are not thoroughly

examined, but if they do not pay bribes, the fitness certificate is issued after a number of vehicle examinations conducted over a period of 2-3 weeks. The senior officials of the Traffic Police, in their in-depth interviews, also admitted that there are loopholes in the existing system and that they were not satisfied with vehicle examination procedures.

The functioning of public transport vehicles is not satisfactory as the full size buses, midibuses and minibuses used are old and in deteriorating condition, generally having been passed on to urban areas when retired from inter-city operation. According to the officials of the Traffic Police, they frequently find the following mechanical deficiencies in public transport vehicles seats torn-up, windows broken, lights missing, engines emitting smoke and brakes not properly connected. The services provided using these vehicles are neither reliable nor comfortable. One of the reasons is that quality controls are not strictly enforced.

Drivers in general have a poor training and education in traffic rules and regulations. A significant problem is caused by the fact that many public transport drivers are not qualified. It is also common practice to stop anywhere to drop and pick up passengers, even in the very middle of road intersection. Where bus bays exist drivers tend to stop in the street, intentionally blocking their competitors. This behaviour causes both accidents and congestion (see sections 7.5-6).

There is a regulation that each public transport driver must hold a PSV licence. In reality, interviews conducted with police officials in 1995 showed that only about 20 percent of public transport drivers in Lahore hold PSV licences. In other cities in Pakistan estimates are 40 percent in Quetta, 30 percent in Peshawar and 15 percent in Islamabad/Rawalpindi (Traffic Police verbal estimates in interviews). The private sector operators to a large extent cut costs by employing non-qualified drivers who are paid less. According to the police, drivers with a PSV licence are involved in fewer traffic accidents.

5.3.4 Route network regulations

The RTA Lahore itself defines the route network for the city and sets limits to the number of permits available on each specified route. The RTA used to determine the routes for private sector operation in consultation with PRTC. In order to run a stage carriage bus service, private operators are required to apply for the grant of a licence for the intended route and a permit is issued for each individual vehicle allowed to operate the route. The applicant must furnish documents related to vehicle registration, fitness and insurance policy and pay an annual licence fee. Vehicle types are also specified by the RTA for various routes. There is no monitoring of operator performance by the RTA after a permit is issued.

Prior to 1985, policies regarding entry were relatively liberal and the number of minibuses operated grew rapidly. To address growing congestion problems, which are blamed partly on minibuses, the RTA has implemented more restrictive policies over recent years. It has limited the issue of route permits for minibuses as follows:

- a. in 1985, only new vehicles (of the current year model) were granted licenses to operate,
- b. in 1989, this policy was revised to permit vehicles up to two-years old;
- c. in 1992, the following amendments were made:
 1. on routes for which 250 or more route permits have been issued, further permits were banned.
 2. on routes having 100 or more permits, only the latest model vehicles would be granted permits.
 3. on routes having above 50 but below 100 permits, vehicles up to two-years old would be given permits.
 4. on routes having less than 50 permits, vehicles up to four-years old would be allowed.

Generally, the private operators were not satisfied with the existing quantity controls and the bureaucratic procedures of the RTA. In their interviews operators were asked if they had faced difficulties in obtaining a route permit. As one replied "money solves all the problems".

As a result, they were operating on their own choice of routes. The main reasons for the selected route were that it was profitable due to more passengers and roads being in good condition. Those operators who did not pay money to the officials were operating on less profitable routes with poorer road conditions.

5.4 Public Sector Services

5.4.1 General description

The Punjab Road Transport Corporation (PRTC) was in the past the sole public sector organisation directly involved in the provision of public transport services in Lahore. The Corporation was established in 1977, and held a monopoly over public passenger services on 40 routes within LMA (LDA/World Bank/IDA, 1980) as well as serving more distant localities.

Although private services were permitted from 1972, and private full size bus services were allowed from 1977 on certain routes in the north and east of the city, there was continued public dissatisfaction with the services provided in the 1970s by both public and private sectors. In view of this the FG proposed a substantial increase in the number of buses in major cities, including Lahore (GoP, 1977); and in 1979, Volvo was persuaded to propose a comprehensive five year programme to develop public transport in Lahore. This involved assistance in planning, management and technical matters, and the delivery of 750 new chassis (Hansen, 1981). Accordingly, 49 routes were designed and implemented in 1981. The new services were reported to perform much better initially than the previous services (Jenkins, 1982), but gradually the performance of the PRTC as operator declined (PRTC, 1992). There had been profound changes in its organizational structure since 1983.

- a. Federal subsidies were stopped in 1983 due to defederalization. As a result, the Corporation was placed under the control of the PG which continued to grant subsidies for its operation.
- b. In 1985, intercity and urban operations were amalgamated.
- c. The PG was not willing to continue to give subsidy/loan to make-up all of its losses.

In 1993, Government offered a golden handshake scheme to employees. Out of 6521 options only 1579 employees were paid their pension/gratuity and additional one month salary by the end of 1995.

- d. In June 1997, the government decided to disband the PRTC.

5.4.2 Regulation of services

The intended role of PRTC in Lahore was seen to be to provide mass transit services through the intensive operation of high capacity buses (see Plate 5.3) along the main corridors. Its services were protected from competition through the Motor Vehicles Ordinance which gives priority to publicly-owned buses over private operators in the allocation of routes. In addition, its services were not subject to formal regulatory controls except for fares. The Motor Vehicles Act (1973) states that:

"The Corporation may operate motor transport on any route it may think fit, and where it so operates such transport, the Provincial and Regional Transport Authorities shall.... have no jurisdiction in relation to that transport. The Provincial Transport Authority or Regional Transport Authorities shall not grant or issue stage carriage permits.... unless an offer has first been made to the Corporation to operate its services on such routes" (Motor Vehicles Laws, 1992:47).

The PRTC was effectively self-regulated, with the RTA and traffic police having no jurisdiction over its vehicle inspection and route permits. Despite these advantages the facts about the PRTC are simple and brutal.

5.4.3 Operational performance

With the induction of new buses during 1981-82 the ratio between operating revenue and costs was 0.55 in Lahore. Later in the 1980s, costs per seat-km were estimated at more than twice those of private operators (Idris, 1987). The cost of operation was also more than for bus operations in a number of other LDCs (World Bank, 1986). Revenue collected was less than half of operating costs, although PRTC buses carried a large number of passengers and

were grossly overloaded during all times of operation. Private operators with full size buses, by contrast, were making profits on the same routes, and with the same fares.

Over recent years the performance of the PRTC drastically declined. In 1995, it operated only 24 buses on six routes in Lahore and carried roughly 17,000 passengers daily (RTA, 1995), whereas in 1990 some 53,700 passenger seats were available (JICA/TEPA, 1991), and back in 1979 some 105,000 passengers were carried daily (LDA/World Bank/IDA, 1980). A comparative performance of publicly-owned urban bus corporations in various provinces in Pakistan is presented in Table 5.3.

Table 5.3 : Operational performance of public bus corporations in Pakistan: a comparison

Operational criteria	1990		1994		
	KTC	PRTC	KTC	PRTC	GTS
Total kilometres (in millions)	26.56	20.17	13.76	2.86	4.82
Total revenue (millions Rs)	111.24	60.59	89.16	10.40	22.02
Total expenditure (millions Rs)	216.06	246.35	180.85	210.39	41.24
Average income per km (Rs)	4.19	3.00	6.48	3.64	4.57
Average cost per km (Rs)	8.13	12.22	13.14	73.56	8.56
Average loss per km (Rs)	3.94	9.22	6.66	69.92	3.99

Source: Data collected by the researcher in 1995

The comparison of operational performance shows that the PRTC had the worst performance when compared with the Karachi Transport Corporation (KTC) in Karachi and the Government Transport Service (GTS) in Peshawar. The average cost incurred per km was almost double the average income per km for the KTC and GTS, whereas the PRTC average cost per km was four times greater than the average income per km in 1990. The average cost/income per km ratio increased to about 19 times in 1994. These high expenditures for the PRTC were primarily due to over manning and cuts in service levels (see section 5.4.4).

5.4.4 Reasons for terminal decline

Reasons for this collapse as stated in an RTA working paper are the low fares; increased operational costs due to traffic congestion; the student concessionary fare (students constitute about 30 percent of passengers on PRTC buses); and rising costs of inputs such as spare parts and the capital cost of vehicles (RTA, 1995). Most of these are factors which are faced by bus services in many cities in LDCs (see chapter 3, section 2). However, the Corporation confronted other more grave problems (PRTC, 1994) which included:

- i. over staffing - it had no less than 189 "employees" per operating bus! (estimated in June, 1995);
- ii. an old and dilapidated fleet - comprised mainly of the large Volvo buses from the early 1980s;
- iii. un-healthy union activities - all unions are affiliated with political parties. Indiscipline and lawlessness on the part of unions paralysed the Corporation, creating a very difficult position for the management at all levels;
- iv. for political reasons, it had not been allowed to manage its operations on an ordinary commercial basis; and
- v. extensive pilferage.

In his interview with the researcher in December 1996, the provincial Minister for Transport of Punjab also held the unions responsible for the sorry state of affairs of the PRTC. He remarked that *"all the government efforts had proved fruitless due to emergence of pressure groups from within PRTC workers. He said these groups had destroyed the whole system and made the government think about other options"* such as privatisation of the corporation and the lay off of its staff through a golden handshake scheme. He articulated that an immediate decision was required about the fate of the corporation because the government had to give an annual grant of Rs 400 million for running a few buses. He further stated that the PRTC owed Rs 7 billion to the Punjab Government and Rs 1.7 billion to various banks (Interview of the Minister Transport, 16 December 1996).

Due to the above problems, the corporation's services are now non-existent. Although PRTC had ambitions to reactivate its services with outside international help and subsidies/grants, the Provincial Government was no longer willing to give additional support. Recently, in June 1997, the Minister for Transport declared in a session of the Punjab Assembly that the government has decided to abolish the PRTC. The Minister emphasised that all the previous efforts to overhaul the PRTC had failed to produce the desired results. He repeatedly said that the government is fully alive to the people's transport problems, and will replace the present system with an appropriate transport system. The Punjab Assembly unanimously endorsed the dismantling of PRTC and a golden handshake scheme (redundancy payments) for its employees (*The Nation*, 10 June 1997). In July 1997, the PRTC buses were sold to the Transmobile, a Karachi-based transport company, through an open bid (*Daily Jang*, 27 July 1997, and also see Appendix-6).

5.5 Private Sector Services

5.5.1 Stage carriage services

1. Full size bus services: The private sector operates some full size buses with a capacity of 52-60 seats. RTA data indicate that at the end of 1996, a total number of 326 route permits were issued to bus owners but there had been no increase in the number of buses during 1989-95. The RTA has defined 20 routes in the north-east part of Lahore for these buses but operators have applied for only nine routes. The functioning of these buses, in particular compared with minibuses, has not been satisfactory, as the vehicles used are old and in deteriorating condition, having been passed on when retired from inter-city operation. Usually passengers are reluctant to travel on them because they are neither reliable nor comfortable. They tend to be used by longer-distance passengers who have baggage and enough time, and cannot afford higher fares.

To combat growing problems of congestion and overcrowding, the RTA introduced minor modification within the existing regulations in association with the Lahore Urban Transport Project (LUTP) which commenced in May 1995 with the collaboration of private operators. This pilot project allowed the operation of full size buses on a few additional routes, along

major corridors in previously restricted areas. The buses used under this project were in relatively good condition (see Plate 5.4). Initially, the RTA provided some temporary protection for LUTP services from undue harassment of the traffic police, and temporary route permits were issued for 114 buses on specified routes. However in March 1996, the RTA granted permanent status to 7 routes for full size buses after examining their operation for about 9 months. Fares were the same as for other full size buses except for the student concessionary fare which was increased from Rs 0.25 to Rs 1.00. These full size buses were in competition with minibuses on the same routes.

LUTP, operating essentially under the old regulatory regime, has not achieved its objectives. Improvements in service provision resulted but they were relatively minor. For instance, Khanzada (1996) reports that the LUTP services were efficient and reliable compared with full size bus services operating on other routes in Lahore. The following are the principal reasons given by operators and RTA officials for a little success of the project. First and foremost the RTA has not felt able to raise fares for services under the LUTP, which resulted in marginal profitability. Temporary route permits were issued to some inter-city operators who found they earned less revenue while operating on LUTP urban routes than they were earning previously. As a result, they withdrew buses and restarted operation on their old inter-city routes. Secondly, full size buses could not compete with the cowboy-style of driving and greater manoeuvrability of minibuses, and could not attract sufficient passengers on routes where minibuses were present in large numbers. Finally, the Commissioner who initiated this project was transferred from Lahore to another city, and the remaining RTA officials have not exerted efforts to improve or sustain it. However, two significant achievements of the project must not be overlooked. First, a shift in passengers' opinion has been observed. They are generally willing to travel on these full size buses whereas they have been reluctant to use full size buses in the past. Second, the improved operation of services under the LUTP has provided justification for permanent routes for full size buses in previously restricted areas (Russell and Anjum, 1996). More recently, the LUTP services have been reported to join gradually the services operated under an NGO control (see chapter 7, section 4.6).



Plate 5.3 A Volvo bus under the terminated PRTC operation



Plate 5.4 A full size bus under the LUTP operation

2. Midibus Services: Privately operated midibuses (vehicles with 25-30 seats) were introduced in the early 1970s. In 1996, 270 midibuses were operating on 11 routes. The operation of midibuses has steadily declined over recent years (Table 5.4). Most of the vehicles currently operating are again older models, in relatively poor mechanical conditions, notwithstanding the six-monthly checks which are supposed to be made by the MVE.

3. Minibus Services: The public transport market in Lahore is dominated by minibuses (normally vehicles with 15-20 seats) and the operation of minibuses has grown steeply. The total number of minibuses increased at a rate of 17 percent per annum during 1979-85, before the RTA introduced the more restrictive conditions described above from 1985 onwards. Consequently the growth rate for minibuses fell to 6.7 per cent per annum during 1985-90. In addition to these restrictions, there existed a continuing requirement for a no objection certificate from the PRTC before a permit was issued to a private operator. In effect PRTC enjoyed a power of veto. PRTC used the power of veto over routes for its own operation, but the exercise of this power has now ended as it is no longer existing (see section 5.4). Despite the tighter restrictions on permits from 1992, the number of minibuses operating in the city has again grown rapidly over the last few years (Table 5.4).

There are presently 63 RTA defined routes for the operation of minibuses. However, only 45 have been taken up by the operators with no applications for the remainder. It is said that these routes are not profitable and/or not suitable for minibus operation. From an analysis of the permits issued, six routes are fully subscribed (250 permits per route), for which no more permits are to be issued, while there is an average of 82 permits across the other 39 operated routes.

The fully subscribed routes are on the main arterial roads, such as Multan Road, Ferozepur Road, and G.T Road (Figure 5.4), while routes in the high-density areas with a poor road network (eg north of Railway Station, and west of the secretariat) and cross-town routes in the south are not considered commercial propositions. Private operators were not consulted in defining the route network, so that one-third of the routes defined by the RTA are not operated, and many areas are not properly served because of the inadequacies of the network. The operators, in their in-depth interviews conducted by the researcher in 1996, emphasised

that if they had been consulted in formulating the route alignments, no route would have been left un-operated.

4. Suzuki Services: A similar picture applies to suzuki operation. Stage carriage services by suzukis were permitted in 1979 on 18 routes, but only nine routes were taken up. These small vehicles operate on shorter-distance routes with average route length of eight km. The official capacity of these vehicles is 10 seats, and they are suitable for areas with narrow streets or where passenger demand is low. In 1996, suzukis were operating on only three routes out of 19 defined by the RTA. The primary reason for such limited operation is again the fare and route structure regulations.

Table 5.4 illustrates trends in the provision of private stage carriage services.

Table 5.4 : Private stage carriage provision in Lahore (in vehicles)

Year	Full Size Bus	Midibus	Minibus	Suzuki
1979	100	-	609*	25
1985	179	80	1238	362
1989	260	568	1621	213
1990	260	499	1651	225
1991	260	383	2179	253
1992	260	369	2731	240
1993	260	381	2860	243
1994	260	270	4631	287
1995	260	270	4813	289
1996	326	270	4781	289

Source: Data collected from the RTA Lahore in 1995 & 1996

* Includes midibuses

5.5.2 Structure of private bus industry

A significant feature of the private sector operation in urban areas of Pakistan including Lahore is that there is no large scale bus operator. Most of the owners have one or two buses. This results in excessive competition to acquire route permits on the busiest routes where there are large number of passengers. As a consequence, there is inadequate or practically no service on the less profitable routes, and the prime routes are the subject of adverse and ugly competition.

Generally it is considered that most individual buses and minibuses are owned and operated by the same person or persons (drivers and conductors) in Pakistani cities. However, evidence gathered from Lahore suggests this is true in case of full size buses, but less true in case of minibuses because only about 30 percent of minibuses were found to be owned and operated by the same persons. About 10-15 percent of minibuses are owned by operators having more than one minibus. Some operators or "keepers" purchase vehicles using funds borrowed from money lenders. Most "keepers", even with old vehicles, are therefore in debt. Money lenders insist that vehicles be registered under names they choose. They normally use bogus names, preferring not to use their own names for tax and other reasons. This is essentially a form of leasing although there is usually no written agreement between lender and keeper of the vehicle.

It was also reported by the drivers to the researcher that about 40 percent of the minibuses operating in Lahore are owned by policemen. The policemen have not registered the vehicles against their own names but they have arranged surrogate owners. The Nation has reported that 50 percent of the owners of minibuses in Lahore are policemen/or their relatives (*The Nation* 27 June, 1997).

Under this situation, there may be no legal owner but the money lenders and policemen are the de-facto owners. Money lenders repossess vehicles if the keeper falls behind in his payments. For obvious reasons, obtaining information about policemen or from money lenders is difficult, and therefore definite conclusions cannot be drawn about the true ownership structure of the industry. The RTA has no proper record of the formal ownership.

This fragmented structure of the private bus industry dictates reckless operating practices. Some of the drivers have to pay their monthly instalments to the lenders or daily fixed cash to operators, and some drivers know that owners of their vehicles are influential policemen. As a result, they are involved in racing to earn more revenue. They fearlessly disobey traffic signals and other norms of good road behaviour, as some of them are sure that they will not be booked for these traffic offences (The Nation 27 June, 1997).

5.5.3 Cooperation among operators

Operators frequently attempt to collaborate to limit entry and maintain fares. Such institutions are common in most LDCs. Associations are driven primarily by self interest. Some of the ways in which they may pursue that self-interest are in the public interest (Gwilliam and Scurfield, 1996). For example, in Buenos Aires, operating franchises are only granted to legally constituted cooperatives, who perform the function of planning, scheduling and controlling operations on their routes and they maintain a high quality of service (see chapter 3, section 4.1). In Pakistan, the operators' associations work only for the interest of their members not for the public interest. Full size bus, minibus and suzuki operators' cooperation exists in the form of owners' unions/associations. The following owners' associations were working in Lahore in 1996.

- **Minibus owners' associations:** A large number of minibus owners' associations are working in Lahore under different names. Each association is comprised of owners on particular routes. These associations are: (1) Local Minibus Federation (2) Bismillah Local Minibus Owners Federation (3) Cantt Minibus Owners Association (4) Ittefaq Lahore Minibus Association (5) Peoples Unity Owners Association (6) Ghausia Cantt Miniibus Federation (7) United Minibus Council.

- **There is only one association of full size bus owners; the Local Bus Owners Association.**

- **Similarly there is a single association of suzuki owners; the Suzuki Owners Union.**

All these associations are registered under the Societies Act and primarily they look after the interests of their members, rather than the needs of the passengers. Their main function is to collect specified daily levies from each operator for the right to operate. These levies, which

amount to some 10 percent of revenue (TEPA, 1993), are used to provide the drivers and operators with a degree of immunity from officialdom and protect them from police action. As a consequence, most of the drivers and operators have no insurance, no road tax or driving licence. In addition, many of them have little regard for basic traffic laws. Each operator pays the association Rs 60/vehicle/day. The following are the specific aims of the associations:

1. to liaise with Government,
2. to foster cooperation between members,
3. to appear in the court on behalf of operators/drivers
4. to negotiate and lobby for fare increases

Generally the management of terminals and dispatching of vehicles is not included in the aims of these associations and dispatching is organised separately for each bus or minibus route. Practices appear to vary, but in all cases timekeepers are present at both terminals of each route. These timekeepers are employed by a committee. The committee comprised of well reputed operators nominated by consensus of the operators of the specific route. When the timekeepers are absent, drivers apparently organise themselves. The timekeepers:

- a) dispatch vehicles in order of their arrival at the beginning of the day but with no scheduling; and
- b) are paid Rs 2-3 per each trip per each bus or minibus or suzuki.

5.5.4 Contract carriage services

Contract carriage is characterized by the variety of popular services it offers. These consist of taxis/yellow-cabs, autorickshaws, and tongas. Provision and use of these services have been growing over recent years, with the exception of tongas. Contract carriage services are also controlled by the RTA. Fares are officially determined by the Provincial Government. Current regulated fares and the growth of these services are presented in Table 5.5.

1. Autorickshaws: These are the cheapest form of motorized contract carriage service. An autorickshaw is 3-wheel vehicle powered by a Vespa Scooter engine, which carries two passengers in a semi-open compartment and is fitted with a fare meter. Although officially

determined by the Provincial Government fares are generally bargained for with passengers, and there is weak control over fares. Both the PTA and RTA are responsible for keeping checks on fares in the city. However, the Secretary of the PTA says that the authority is too fully occupied with checking wagons in the city. So far as the rickshaw fares are concerned, he adds that passengers themselves prefer a negotiated fare, fearing that they would end up paying more travelling by a tampered meter. The tampered meter problem has never been dealt with effectively.

Rickshaws are popular for short journeys, particularly when and where bus services are inadequate and unreliable. It is unlikely that rickshaws are used much for longer journeys because fares rise more steeply with distance than for bus or minibus. The number of rickshaws has grown rapidly, doubling in the last 15 years. To operators the rickshaw has been a more attractive proposition than conventional taxis, until recently.

Table 5.5 : Contract carriage services in Lahore

Type of mode	Fare (Rs/km)		No. of vehicles		
	1979	1996	1979	1990	1996
Taxi/yellow cab	1.20	5.00	450	483	3021
Auto-rickshaw	0.80	2.00	5000	7317	10842
Tonga	0.25	1.00	4300	4040	4040

Sources: (data collected): Fares from PTA, 1996
M.vehicles from RTA Lahore, 1996
Tongas from MCL, 1996

2. Taxi/yellow cabs: Taxi/yellow cabs provide higher quality service and are popular for longer distances because cabs carry four passengers and then become cheaper than rickshaws in cost per head. The RTA has no policy to limit the number of taxis and the yellow cabs are very frequently used by residents of the more affluent southern areas of Lahore, because of their efficiency, comfort, privacy and reliability. Yellow cabs have provided comfortable and efficient services primarily because the vehicles are new and some are fitted with air-conditioners (with a premium fare of Rs 6/km). Despite comparatively high fares yellow cabs

are now posing a serious challenge to auto-rickshaws, as illustrated by the growth in use since their introduction in 1992 (Table 5.5). Their introduction was subsidized through a cheap loan scheme for new vehicles, which has now been withdrawn, and it has to be seen whether the quality of the services will be maintained by the operators.

3. Tongas (horse-drawn carts): These have traditionally operated up to five km from the central walled city and in peripheral areas, offering low fare scheduled or taxi type services in areas with poor road conditions that are difficult to serve by other modes. The MCL is authorised to issue operating permits and to fix the rate of fares for non-motorized public service vehicles (LGO, 1979: Section 85). In practice the MCL usually do not fix fares and tonga drivers themselves determine the fares for their own routes. Being a slow moving vehicle the tonga contributes to overtaking movements and traffic congestion, particularly on main roads. On some important roads their operation has been prohibited, and the Government has a policy to limit the number of tongas in the central area of the city. Consequently, the number has been stagnant at 4040 tongas over the last 10 years. However, the overall number of tongas in the entire LMA has grown from 9000 in 1980 (Jenkins, 1982) to 15000 in June, 1995 (RTA, 1995). This growth may suggest that public transport (bus) services are inadequate in peripheral areas as well.

5.6 Evidence on Demand from Household surveys

Household surveys were conducted in two distinct areas with different income groups, namely: Jauhar Town and Baghban Pura. In total, about 1400 persons (above 5 years age) were interviewed from 220 households. These surveys were carried out in November 1996.

Jauhar Town: It is located along the Canal Road in the southern part of Lahore where a large number of private and public sector planned housing schemes have been developed. Most of these schemes are of low density and accommodate middle and high income families. Jauhar Town was launched by the LDA in 1980s. The town has been developed into two phases. Infrastructural development in phase-I was carried out by the LDA and completed by the end of 1980s. In total 8972 residential plots were allocated in Phase-I and about 30 percent of the houses have been built and occupied. However, house building in Phase-II is

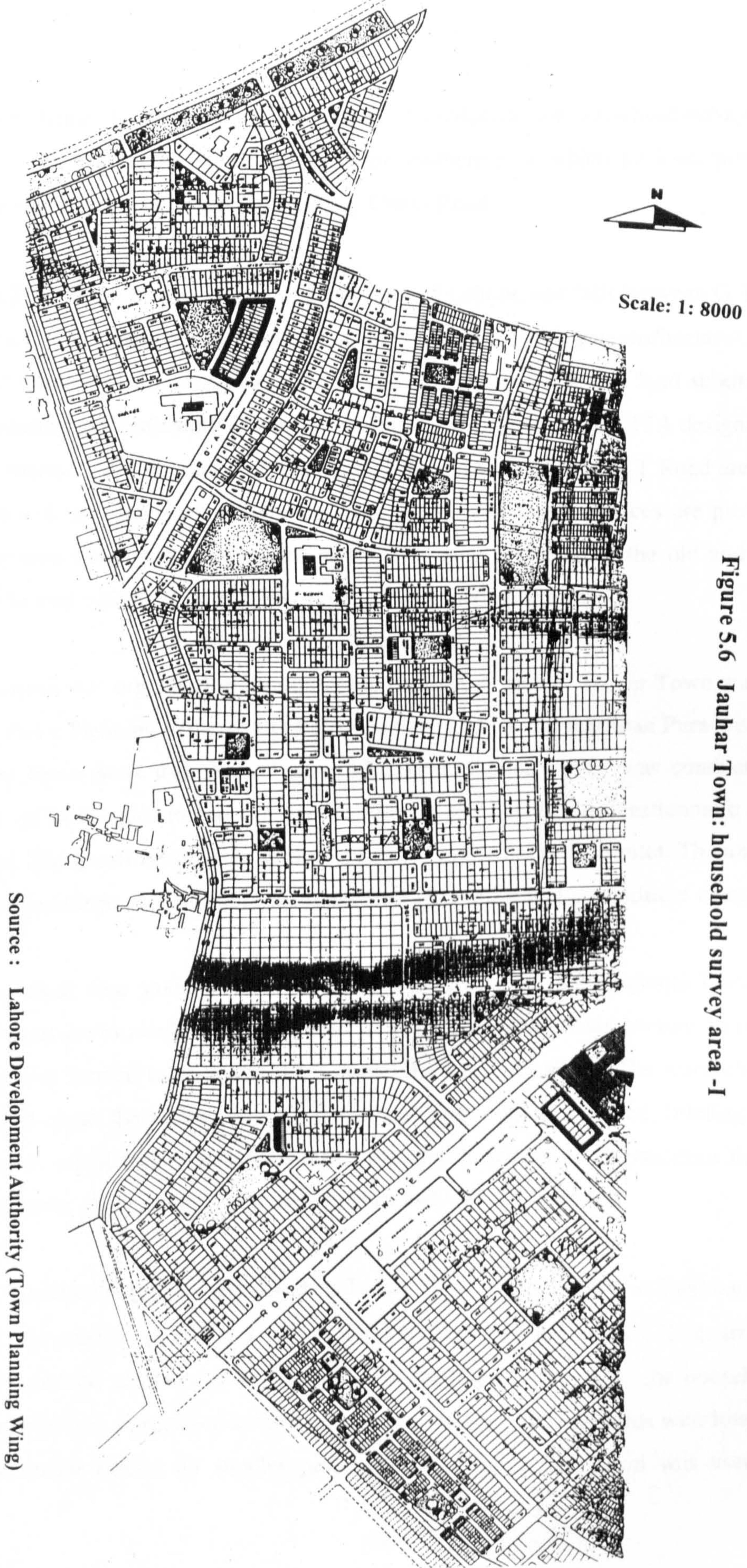


Figure 5.6 Jauhar Town: household survey area - I

Source : Lahore Development Authority (Town Planning Wing)

at low pace. Jauhar Town phase-I was selected for conducting the household survey. This area is typical of the planned housing schemes in the southern area, which are inadequately served by public transport services operating along Canal Road.

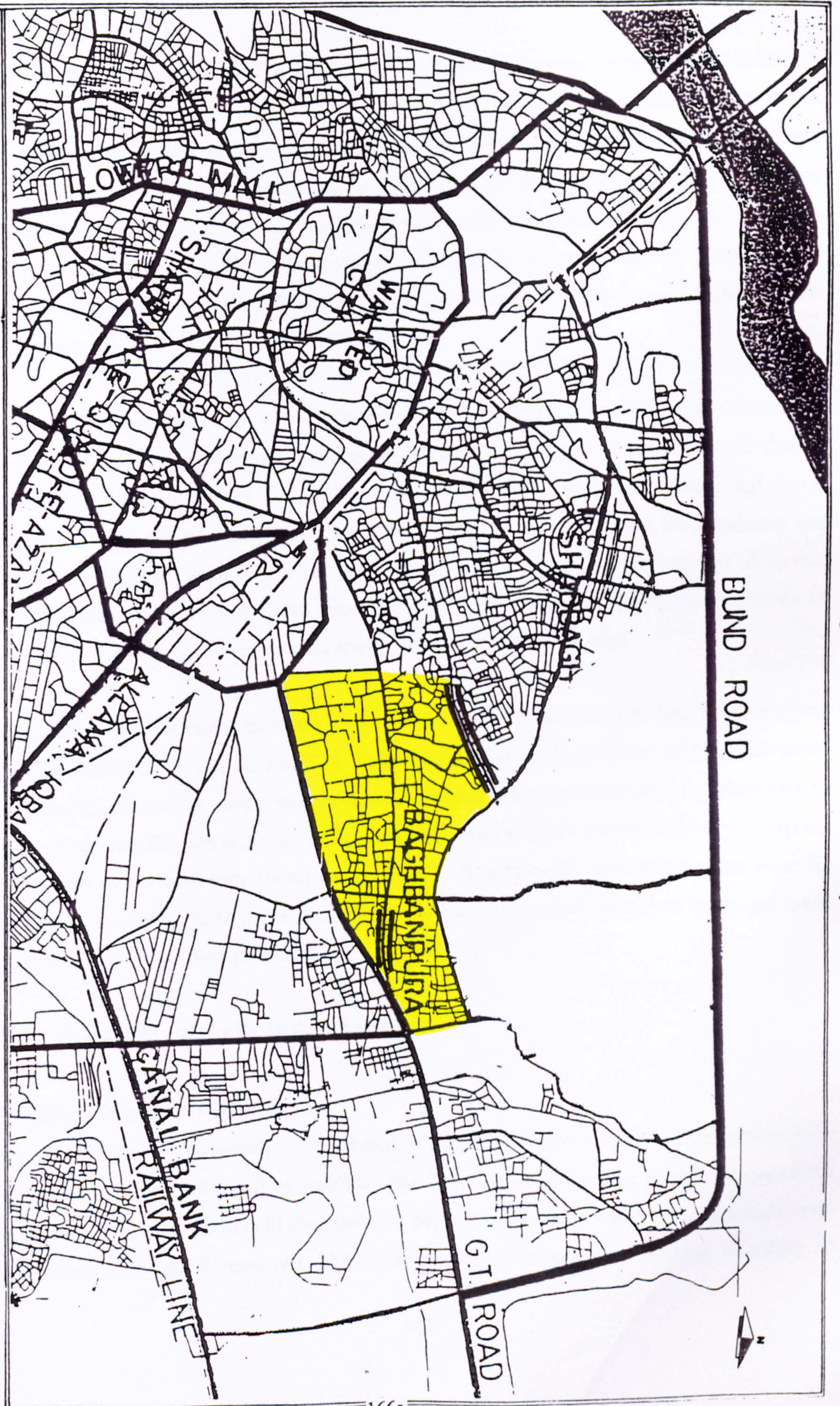
Baghban Pura: It is located in the north-east part of Lahore, and falls between G.T Road and Bund Road. This area is characterised as high density (114 persons/hectare), poor and congested road network, mostly with unplanned and illegal residential land subdivision, and accommodating predominantly low income families. A majority of the RTA designated public transport routes in this area are not operated. Only areas adjacent to G.T Road are served by minibuses and in some parts of the area some suzuki and tonga services are provided. The remaining area has no public transport at all. This area is typical of the old and congested areas of the city which accommodate mostly lower income groups.

The field work was organised in the following manner. A map of Jauhar Town was obtained from the Town Planning Wing of LDA (Figure 5.6), and for the Baghban Pura area, the map printed by Feroz Sons was used (Figure 5.7). Then a pilot survey was conducted by the researcher in both areas to test the applicability of the household questionnaire drafted in Edinburgh. The questionnaire was slightly amended in the light of the pilot. The amendments included adjustments to household income categories and travel expenditure categories.

Later, five final year students from the Department of City and Regional Planning were requested to assist in conducting household surveys. So a team of six persons headed by the researcher was formed to carry out the household survey in Lahore. The research assistants were trained about the various aspects of survey. The training included; briefing about the questionnaire, translation of questions into Urdu and Punjabi, how to introduce the research and the purpose of the survey, and how to start and end the interview.

Selecting households to be interviewed in Jauhar Town was easy but in Baghban Pura was a complicated process. In Jauhar Town, residential plots varying in size (72 square meters to 420 square meters) are planned in different housing blocks. Generally, the households with higher income have constructed houses on larger plots and the households with lower income have constructed houses on smaller plots. The plan of Jauhar Town was used and the

Figure 5.7 Baghban Pura: household survey area -II



Source : Government of Pakistan, 1990

Scale: 1 : 80,000

households were selected randomly with different plot categories from different blocks in order to cover all income groups. However in Baghban Pura and its adjacent areas, it was impossible to interview pre-selected households since these areas are unplanned. An attempt was made to get an appropriate sample by identifying different housing clusters comprising various income groups. Then the households were randomly selected for interview, but was not possible to be sure how representative the sample is of income groups. However, the survey results are in line with the results of the household survey conducted by the consultants of JICA in 1990 (JICA/TEPA, 1991).

Interviews were conducted in afternoons and on week ends in order to interview all members of the households. Some information was obtained from the 'head' of the household such as number of vehicles owned by the household members, household income and travel expenditure. Consensus views of the household members were recorded about existing and future use of public transport services and the preferences given to various aspects of service quality. However, individual views were recorded where there were divergences of views or interest in services, for example concerning, work and education trips.

Although many household members of Jauhar Town were familiar with English they opted that the questions should be asked in Urdu. In Baghban Pura, majority of the households preferred that interview should be conducted in Punjabi. The interviews were therefore carried out in Urdu and Punjabi and even in English (very few) to allow the interviewees to express their ideas in the way they found most effective. The research assistants handed over the completed survey forms to the researcher. The researcher checked the survey forms and made sure that they were filled properly.

5.6.1 Household survey in Jauhar Town

1. Composition of households

The composition of households is presented in Table 5.6. Survey results indicate there were 691 persons living in the 110 households interviewed, with an average household size of 6.3 persons. Of the total household members, 55 percent were male and 45 percent female, with 10 percent less than 5 years old. Thirty one percent members were working including 33

helpers who work at home, with an average about 2 persons per household. Fifty nine percent of the members were non-working including 188 (27%) students. In total, 404 (65% of the potential trip makers) members regularly made trips.

Table 5.6 : Composition of households

Number	Total	Less than 5 years old	5 years & above	
Sex			Working	Non-working
Male	378 55%	36	186	156
Female	313 45%	34	30	249
Total	691 100%	70 10%	216 31%	405 59%

2. Vehicle ownership

All the households surveyed in the Jauhar Town owned motor vehicles. The distribution of vehicles owned is presented in Table 5.7. Car ownership was predominant with 75 percent of the households owning cars, with 15 households owning two cars. Sixty percent of the households had motorcycles, with 9 households owning 2 motorcycles. There were 26 percent of households who owned bicycles in addition to motor vehicles.

Table 5.7 : Distribution of vehicles owned by the households

Vehicles owned	No of households	Percentage*
Car	82	75
Motorcycle	66	60
Bicycle + motor vehicle	29	26
Car + motorcycle	31	28
Miscellaneous	2	2

* Percentage of 91 households

3. Household income

The distribution of the household monthly incomes is presented in Table 5.8. It can be clearly seen that most of the households in this area are from middle and high income groups, as 56 percent of the households had monthly incomes in the range of Rs 5000 to 10,000 with 38 percent of the households having monthly incomes of more than Rs 10,000. Only 3 percent of the households reported monthly incomes up to Rs 5000. The average income of a household, in this area is estimated at Rs 10,235 per month, which is high when compared with the average income of a household in urban areas in Pakistan i.e Rs 6,114 per month in 1996. The income figure for 1996 is estimated by the researcher on the basis of an average income of a household in urban areas Rs 3,701 per month in 1990-91 (GoP, 1995a), considering 3.6 percent an average annual growth in of economy during 1991-96 and by adjusting the inflation.

Table 5.8 : Distribution of household monthly income

Income (Rs)	No of households	Percentage
5000	3	3
5001-10000	61	56
10001-15000	28	26
15001-20000	9	8
Over 20000	5	4
No response	4	3
Total	110	100

4. Monthly travel expenditure

Table 5.9 shows that monthly travel expenditure of the households in this area is very high. The average reported monthly travel expenditure of a household is estimated at Rs 1290. Forty six percent of the households spend in the range of Rs 500-1000 on travel and 26 percent of the households have a travel expenditure in the range of Rs 1000-2000 per month. Twenty two percent of the households spend over Rs 2000 on travel.

Table 5.9 : Distribution of monthly travel expenditures

Expenditure (Rs)	No of households	Percentage
500-1000	51	46
1001-2000	29	26
2001-3000	13	12
3001-4000	4	4
Over 4000	7	6
No response	6	6
Total	110	100

5. Main mode of travel of household members by trip purpose

Table 5.10 presents the distribution of mode of travel of household members by their purpose. Majority of the total trips (54%) were being made by car and taxi largely for social (33%), shopping (27%), and recreational (25%) purposes. Two-wheelers were used for 22 percent of the total trips, mainly for shopping (34%), social (22%) and work (17%) purposes. Fifteen percent of the total trips were made by bus services (including institutional buses) largely for education (40%) and shopping (28%) and work purposes (14%). Walking was not a common means of transport in this area. Only 9 percent of the trips were made on foot for different purposes with no work trips within the area.

Table 5.10 : Main mode of travel of household members by trip purpose

Purpose	Main mode of travel			
	Walk	2-wheelers	Car/taxi	Bus
Work	-	68 (17)	79 (8)	36 (14)
Education	22 (14)	41 (11)	23 (3)	102 (40)
Shopping	41 (26)	132 (34)	235 (25)	70 (28)
Social	84 (54)	83 (22)	309 (33)	31 (12)
Recreation	4 (3)	47 (12)	257 (27)	11 (4)
Other	5 (3)	15 (4)	33 (4)	6 (2)
Total	156 (9)	386 (22)	936 (54)	256 (15)

6. Reasons for not travelling in public transport

An overwhelming majority of the household members were not using public transport at all. Consensus views of the household members were obtained as to why some of them were not using public transport. Forty six percent of the households provided multiple reasons as illustrated in Table 5.11. Fifty percent of these households did not travel in public transport since their members were either using their own vehicles or institutional vehicles, and 7 percent of the households were travelling by other modes such as contract carriages. About one third of the households complained that the public transport is inadequate. Only 11 percent of the households did not like to travel by minibuses and buses because they could afford private vehicles.

Table 5.11 : Reasons for not travelling in public transport

Reasons	No of responses	Percentage
Inadequate public transport	52	32
Own vehicles	60	37
Don't like to travel by buses/minibuses	18	11
Institutional buses	20	12
Other	11	7
Total	161	100

7. Satisfaction with the provision of public transport

None of the households interviewed was satisfied with the provision of public transport with the exception of three who gave no opinion as they had newly moved in this area. Table 5.12. presents the reasons for their dissatisfaction.

Table 5.12 : Reasons for not being satisfied with the public transport

Reasons	No of responses	Percentage
Inadequate services	52	38
Long walking distance to bus stop	47	34
Buses are not reliable	28	20
other	11	8
Total	138	100

8. Inadequacy of bus services

The complaint about inadequacy of bus services was further clarified from the households. The households regarded bus services as inadequate on the grounds either of deficient route network or of poor quality services. Half of the households stated that bus services did not serve their destination and the area they live in. Half of the households cited poor quality services such as no timetables, limited number and bad quality of vehicles in use (Table 5.13).

Table 5.13 : Inadequacy of bus services

Indicator	No of households	Percentage
Don't serve destination	33	19
Don't serve the area of residence	51	30
No timetable	43	25
In-frequent	35	20
Bad vehicle quality	11	6
Total	173	100

9. Intention to use public transport

Table 5.14 shows that 83 percent of the surveyed households stated an intention to use public transport if it was adequately provided with 6 percent of households uncertain about using public transport. Twelve percent of households would continue to use their own vehicles and considered that these are quicker, more convenient and comfortable than any form of public transport and sufficient for the travel needs of their family members.

Table 5.14 : Intention to use public transport

Response	No of households	Percentage
Yes	91	83
No	13	12
Don't know	6	6
Total	110	100

10. Intended use of public transport

The purpose of households intended to use public transport is shown in Table 5.15. A majority of the households, 79 percent, reported they would use public transport for shopping purposes and 73 percent of households for work trips. Sixty five percent of the households would consent for their children to use public transport to and from their educational institutions.

Table 5.15 : Intended use of public transport

Purpose	No of households	Percentage*
Shopping	72	79
Work	66	73
Education	59	65
Social	23	25
Other	6	6

* Percentage of 91 households

11. Intention to use better quality services at higher fares

An overwhelming majority (92 per cent) of the households intending to use public transport were also prepared to pay higher fares for better quality services (Table 5.16).

Table 5.16 : Intention to use better quality services at higher fares

Response	No of households	Percentage
Yes	84	92
No	5	6
Don't know	2	2
Total	91	100

12. Choice to use various types of bus services

In 1996, fares for full size buses and minibuses from Jauhar Town to Anarkali were Rs 4 and Rs 5 respectively. A question was asked from respondents about the use of various type of better quality bus services at higher fares, i.e for full size buses (Rs 6) and minibuses (Rs 8) from Jauhar Town to Anarkali. No suzuki service was operating in that area, but willingness to use better quality suzuki as a feeder service, with fares Rs 2 from Jauhar Town to Niazbeg, was inquired. The responses are presented in Table 5.17. Ninety five percent of the households supported the use of minibuses at the given fares but 5 percent of households questioned why fares are more for minibuses than full size buses. Eighty eight percent of the households also showed their willingness to use full size buses at higher fares but 12 percent did not like to travel in these buses as they considered them slower than minibuses. Fifty seven percent of the households favoured the use of suzuki as a feeder service whereas 43 percent disliked to travel in suzukis because they are very slow, their seating arrangement is not convenient, and the vehicles are not impressive (see chapter 6, Plate 6.3).

5.17 : Choice to use various types of better quality bus services

Service	Responses (percentage)	
	Yes	No
Full size bus	88	12
Minibus	95	5
Suzuki	57	43
Total no respondents	84	

13. Importance of various aspects of a transport service

The importance given to various aspects of a transport service by the potential users is presented in Table 5.18. The majority of the households regarded a guaranteed seat and a timetable as the most and second most important aspect of a service. Hours of operation, service frequency and fares were of less concern to the respondents. The lowest ranking of fares again reflects willingness and ability to pay.

Table 5.18 : Rank order of importance of various aspects of a transport service

Service aspect	Importance					Total
	I	II	III	IV	V	
Guaranteed seat	76	8	-	-	-	84
Timetable	6	54	11	9	4	84
Hours of operation	-	10	39	28	7	84
Service frequency	2	12	32	30	8	84
Fares	-	-	2	17	65	84
Total	84	84	84	84	84	-

Note: I to V indicates rank order of importance given by the households

5.6.2 Household survey in Baghban Pura

1. Composition of households

The composition of households from the survey sample of Baghban Pura is presented in Table 5.19. There were 911 persons living in 110 households. Of the total household members, 56 percent were male and 44 percent were female, with 15 percent are less than 5 years old. Twenty six percent members were working with an average of over 2 persons per household. Fifty nine percent members were non-working including 212 (23%) students and school children. In total, 336 (about 44% of the potential trip makers) members regularly made trips.

Table 5.19 : Composition of households

Number	Total	Less than 5 years old	5 years & above	
			Working	Non-working
Sex				
Male	511 56%	72	221	218
Female	400 44%	71	3	326
Total	911 100%	143 15%	224 26%	544 59%

2. Vehicle ownership

Most of the households did not own motor vehicles. Table 5.20 presents that one in four households had no vehicle at all and the majority of the households (77 percent) owned bicycles. Nine percent of the households had other vehicles such as a suzuki or a tonga. None of the surveyed households owned a car in this area.

Table 5.20 : Vehicle ownership by the households

Vehicle owned	No of households	Percentage
None	27	25
Motorcycles	32	30
Bicycles	85	77
Miscellaneous	10	9
Total	110	

3. Household income

The distribution of the household monthly incomes is presented in Table 5.21. It can be seen that most of the households (61%) in this area were from lower income groups with monthly incomes of up to Rs 5000. Thirty six percent of the households had monthly incomes of more than Rs 5000. The average income of a household in this area was estimated at Rs 4480 per month, which is low when compared with the estimated average income of a household in urban areas in Pakistan i.e Rs 6,114 per month.

Table 5.21 : Distribution of household monthly incomes

Income (Rs)	No of households	Percentage
Up to 3000	39	36
3001-5000	28	25
5001-7000	17	15
Over 7000	23	21
No response	3	3
Total	110	100

4. Monthly travel expenditure

As the respondents in this area were from low and middle income groups so their monthly travel expenditure was low compared with the southern area. The average reported travel expenditure of a household was estimated at Rs 367 per month. Thirty nine percent of the households spend less than Rs 300 on travel and 31 percent of the households spent over Rs 500 on travel (Table 5.22).

Table 5.22 : Distribution of household monthly travel expenditures

Expenditure (Rs)	No of households	Percentage
Up to 300	43	39
301-400	18	16
401-500	15	14
501-600	12	11
Over 600	22	20
Total	110	100

5. Main mode of travel of household members by trip purpose

Table 5.23 shows the distribution of mode of travel of household members by their trip purpose. Walking was a common mode in this area. Forty two percent of the total trips were made on foot for different purposes including largely for shopping (28%), education (27%) and work places (17%). Thirty percent of the total trips were reported by bus services largely for social (62%), recreational (14%) and work purposes (13%). Tongas were also used for 15 percent of the total trips, mainly for social trips (60%). Two-wheelers were used for 9 percent, largely for work (38%) and social purposes (33%), and taxi trips (only 4 percent) were made on certain occasions largely for social and recreational purposes.

Table 5.23 : Main mode of travel of household members by trip purpose

Purpose	Main mode of travel				
	Walk	2-Wheelers	Car/taxi	Bus	Tonga
Work	143 (17)	68 (38)	2 (2)	77 (13)	16 (6)
Education	217 (27)	20 (11)	-	12 (2)	-
Shopping	222 (28)	15 (9)	2 (2)	51 (9)	47 (16)
Social	182 (22)	58 (33)	55 (68)	358 (62)	174 (60)
Recreation	51 (6)	16 (9)	23 (28)	81 (14)	53 (18)
Total	815 (42)	177 (9)	82 (4)	579 (30)	290 (15)

Note: percentages of column total are from the total trips made by all members

6. Reasons for not travelling in public transport

An overwhelming majority of the household members were not using public transport at all. Consensus views of the household members were obtained as to why some of them were not travelling in public transport. Thirty four percent of the households gave multiple reasons as illustrated in Table 5.24. Fifty nine percent of the household members did not travel in public transport since their area was not linked with route network. Fifteen percent of the households did not feel the need to use any transport as most of their activities were closely located. Six percent of the households complained that the available public transport (suzuki service) was always overloaded. None of the households quoted as a reason that they could not afford to use public transport.

Table 5.24 : Reasons for not travelling in public transport

Reason	No of households	Percentage
Area not linked with route network	96	59
Own vehicles	26	16
Institutional bus	2	1
Suzukis overloaded	10	6
Living close to their activities	25	15
Other	4	3
Total	163	100

7. Intention to use public transport

Table 5.25 shows that 89 percent of the surveyed households intended to use public transport if it was adequately provided, while 11 percent of households did not intend to use it because they were living close to relatives and their activities.

Table 5.25 : Intention to use public transport

Response	No of households	Percentage
Yes	98	89
No	12	11
Total	110	100

8. Intended use of public transport

The various purposes of households intending to use public transport are shown in Table 5.26. An overwhelming majority of the households intended to use public transport for social and work purposes. Seventy four percent of households indicated they would allow their children to use public transport to and from their educational institutions, and 52 percent of the

households intended to use public transport for shopping. Nine percent of households would use public transport for other purposes such as to attend government offices.

Table 5.26 : Intended use of public transport

Purpose	No of households	Percentage
Work	87	89
shopping	51	52
Education	72	74
Social	88	90
Other	9	9
Total	98	

9. Willingness to pay increased fares for better quality services

An overwhelming majority (94%) of the households intending to use public transport were also prepared to pay increased fares for better quality services (Table 5.27).

Table 5.27 : Willingness to pay higher fares for better quality services

Response	No of households	Percentage
Yes	92	94
No	6	6
Total	98	100

10. Choice to use different bus services at increased fares

No public transport service was directly operating in this area in 1996. However, government fixed fares for full size buses, minibuses and suzukis from Baghban Pura to Railway Station were Rs 2, Rs 2.5 and Rs 1.5 respectively. A question was asked from the respondents about their choice to use various types of bus services at increased fares, i.e for full size buses (Rs

3), minibuses (Rs 3.5) and suzukis (Rs 2.5) from Baghban Pura to Railway Station. The choices of the households are presented in Table 5.28. A majority of the households (61%) reported their choice to use suzukis owing to their proposed lower fares, quicker loading because of their lower seating capacity and the vehicles being suitable for the area, whereas 39 percent of households disliked to use suzukis because they are not suitable for ladies. Twenty one percent of the households showed their willingness to use minibuses as these are quicker than other modes, but 79 percent of the households did not like to use minibuses at increased fares. Only 12 percent of the households reported their choice to use full size buses and 88 percent considered that roads were not favourable for full size bus operation. There were also 19 percent of the households who were willing to use any of these services at higher fares.

Table 5.28 : Choice to use different services at higher fares

Service	Response (percentage)	
	Yes	No
Full size bus	12	88
Minibus	21	79
Suzuki	61	39
Any	19	-
Total no of households	92	

Note: Some respondents selected multiple services

12. Importance of various aspects of a transport service

The importance given to various aspects of a transport service from the potential users is presented in Table 5.29. The majority of the households were concerned about the provision of public transport rather than the quality of service. However, they considered the given aspects of a service in the following order of preference: service frequency, hours of operation, guaranteed seat, fares and a timetable. It is clear that rank order of preference for fares is low even in the low income area.

Table 5.29 : Rank order of importance of various aspects of a transport service

Service aspect	Importance				
	I	II	III	IV	V
Guaranteed seat	16	26	9	33	8
Timetable	-	-	14	19	59
Hours of operation	28	22	31	-	11
Service frequency	40	26	12	14	-
Fares	8	18	26	26	14
Total	92	92	92	92	92

Note: I to V indicates rank order of importance given by the households

5.6.3 Summary of survey findings

Following is a summary of findings of household surveys conducted from two selected areas in Lahore.

- An overwhelming majority of the potential users in both rich and poor areas were prepared to use better public transport services at higher fares. However, in Jauhar Town they were not willing to use better quality suzuki services as a feeder service. In Baghban Pura, a majority of the households were willing to pay higher fares for suzuki services and considered them suitable to operate in that area.
- A majority of the households in Jauhar Town regarded a guaranteed seat and a timetable as the most important and understandably second most important aspects of a service. Respondents in Baghban Pura area were more concerned about the provision of public transport in the first place. Even in lower income Baghban Pura only about 9 percent of households regarded fares as the most important aspect of a service.

- The survey shows that an overwhelming majority of the households in both areas intended to use public transport if adequate services were provided. In Jauhar Town use would be largely for shopping, work and education trips, whereas in the Baghban Pura area would largely be for social, work and education trips.
- None of the households in either area was satisfied with the provision of public transport; complaining about the inadequacy of number of buses, deficient route network and poor quality of services in Jauhar Town, and the lack of any or inadequate provision of services in Baghban Pura area.
- The average household size (8.3 persons) was larger in Baghban Pura compared with 6.3 persons in Jauhar Town. However, the average number of working persons was almost same in both areas i.e 2 persons per household.
- The survey shows that all the households interviewed in Jauhar Town own motor vehicles, and 75 percent of households had cars; whereas the vast majority of households did not own motor vehicles in Baghban Pura, but 77% had bicycles.
- A majority of the household members in Jauhar Town used their own vehicles for work, shopping, social and recreational trips. Bus services were used by only about 15 percent of the members. In Baghban Pura, most of the household members made trips on foot and used two-wheelers but about 30 percent used bus services, albeit they often have to walk for long distances to take the services.
- Forty two percent of the household members in Baghban Pura area go on foot for various trips including 17 percent for their work, whereas in Jauhar Town only 9 percent members go on foot for various trips and no one walks to their work place. This reflects the fact that Jauhar Town is far from work opportunities and other facilities. By contrast, these facilities are relatively at close or within the Baghban Pura area.

5.7 Resulting Public Transport Problems

5.7.1 Inadequacy of services

The quantity of public transport services is undoubtedly poor in Lahore and statistics confirm it to be so (Table 5.2). The 1996 survey shows that none of the households was satisfied with the provision of public transport; either in Jauhar Town or in the Baghban Pura area (section 5.6.3 above). Ahmad (1996) also affirms quantity problems of public transport in the city. He attributes the lack of services to inadequate private or state owned fleets, the limited number of buses, a route network not based on origin and destination surveys, inadequate incentives to private sector operators, high import duties and provincial taxes on public transport vehicles.

Private full size bus and midibus operations have not grown in line with the demand for public transport. The chief reasons are the regulatory restrictions imposed. Private full size bus routes have been restricted to only one part of the city until very recently. Midibuses have similarly been restricted to only a few routes. The low fare structure determined by the Provincial Government has led to marginal profitability. Uneconomic concessionary student fares are imposed and no compensating incentives or subsidies are provided. Since profitability is very low, the operators are not able to invest sufficiently in new vehicles, which has contributed to the very poor quality of operation. Vehicles are not replaced except when it is unavoidable and the mechanical condition of buses and midibuses is very poor and deteriorating. Moreover, owing to the unreliability and discomfort most passengers are reluctant to travel on these services, except for those who are captive users forced to trade off service quality against their transport costs (Asghar, 1994).

Minibuses are most commonly used by passengers because they operate on the majority of the routes in Lahore. They also operate at very high speeds with high frequencies at some routes. Travel on minibuses is usually considered dangerous but passengers travel in these services as they have no alternative cheap public transport. The number of minibuses was significantly increased during 1991-94. The main reasons for this increase were the inadequate number of publicly owned services and the availability of large number of subsidised

minibuses under PMPTS (see chapter 4, section 7.2). Otherwise, most of the operators purchase second hand low quality vehicles from the market at low price. However, this tendency is declining due to the RTA's more restrictive route permit policies (see section 5.3). Moreover, operators have not been able to invest in new vehicles particularly due to low fares structure. As a result, the growth of minibuses have slowed down from 1995. If the present trend continues there is a likelihood that the declining number of minibuses would further aggravate capacity problems.

There should be more successfully operated suzuki routes, because these vehicles are able to penetrate areas with a poor road network and their operation is also potentially suitable for low demand/low density areas of expansion. In theory the demand for this vehicle should have been greater in the large northern and western areas of Lahore, which are densely populated with a relatively poor road network, and there are many peripheral low-density areas which could also benefit from small capacity services. In practice the number of suzukis grew to 362 in 1985, then gradually decreased with a partial recovery over the last few years. The main reason for their limited operation is the fare and route structure regulations. In addition, suzukis are not a preferred mode of travel because of the tight seating arrangement, which is seen as particularly unsuitable for females.

5.7.2 Poor quality of services

Quality of service is undoubtedly poor in Lahore. Service frequency and reliability is very low for those who do not live near the route termini because buses do not generally leave until they are full. Drivers often do not complete the specified route, and tend to disappear in bad weather. Waiting times are often long away from the route terminal, and severe overloading is commonplace. Part of the problem however is that the existing buses are poorly utilised. There is usually no scheduling, and the buses spend a large proportion of the time stationary (wanting to fill up) in long queues at the terminals, providing no service to passengers. Passengers are not sure about the hours of operation.

The extreme conditions of discomfort are obvious. Ahmad (1996) states that the main problems of public transport in Lahore are: services of poor standards, uncomfortable,

irregular and unreliable. In common with most developing cities, overcrowded services is the norm in the Pakistani cities. Officially no standing passengers are allowed by regulation, but gross overloading is in fact common practice, with no effective enforcement (Plate 5.7). Routinely passengers are crammed into the buses, or they hang onto the outside, and then encounter an erratic journey in a road environment which is heavily polluted. Only young fit males are likely to travel on the bus services under these conditions.

Generally the elderly and women are constrained to use expensive modes (if they can afford to) due to the shortcomings of public transport. Women travelling in available public transport are vulnerable. Waleed (1996) states that the passengers, especially women, are facing innumerable difficulties on their way to educational institutions, shopping, offices and other work places. UNDP (1996) also reports that the number of females in the labour force has increased, but safe means of transportation to facilitate their mobility has been neither increased nor improved in Lahore. The travel problem of females is also realised in other cities in Pakistan. For instance in Rawalpindi-Islamabad, the authorities started a separate women transport service on one route in 1997 (see Appendix-6).

The PRTC services no longer exist and there is a limited growth in large bus services, but minibus services continue to grow rapidly (see Table 5.4). Overall journey speeds are faster than for larger buses, and occupancy is high throughout the day. There are arguments against minibuses in that they contribute to congestion in situations where demand would support large buses. In addition, other aspects of the quality of service provided by minibuses are not satisfactory, because there are no timetables to which drivers must adhere, and there is no control over the regularity of service. Drivers frequently operate irregularly and hold back their vehicles in order to get a bigger load. Route frequency is organized by the operators without regard to standards of service. As a result, passengers face the problems of undefined first and last departure times, with very poor services during off peak hours and at night, and overcrowded services in peak periods.



Plate 5.7a Travel in minibuses in Lahore



Plate 5.7b No luggage space in minibuses in Lahore

The quality issue of the public transport is repeatedly highlighted in the local and national newspapers (*Daily Jang*, June 23, 1996; *Nawa-e-waqat*, August 21, 1995; *Waqiat*, August 9, 1995). A passenger survey was conducted by the team of a daily newspaper at six bus terminal stations in September 1996. The survey reports that 55 percent of the passengers considered travel in bus services was uncomfortable and 45 percent complained about other aspects of service such as route shortening, delays at bus stops and overcharging etc (*Nawa-e-waqat*, September 20, 1996).

5.7.3 Spatial and social inequalities

In Lahore, generally routes do not penetrate in many areas - notably low-income areas where roadways are often narrow/poorly maintained; routes are predominantly radial and there is no good provision for other journeys. Many lower-income groups live in less accessible or outlying areas in north-east Lahore and in general their employment sources are located in the business and industrial areas along main roads, in the Walled City, and in Government and other offices in the central area. As a result, the urban poor have to travel long journeys to work or to search for work.

Conversely, most of the high and middle-income developments are relatively well served by the existing route network. At present, a large number of private minibus routes serve these areas and in the past the PRTC bus route network was also concentrated on these areas. Moreover, in rich localities like Iqbal Town/New Campus and Main Gulberg/Model Town, over 50% of the households have their own cars (JICA/TEPA, 1991).

It is of the utmost importance that residential developments in an urban area should be within reasonable walking distance of public transport services providing access to other parts of the city. In the LDC context, the reasonable walking distance in dense and low-density urban areas has been recommended as 300-500 metres and 500-1000 metres respectively (Armstrong-Wright and Thiriez, 1987). The available public transport services are unevenly allocated across the city, both socially and geographically. Figure 5.8 highlights those parts of the built-up areas lying more than 500 metres in a straight line from the nearest route, and shows the new planned and unplanned urban developments located at the fringe.

A summary of problems in areas inadequately served by the bus services is presented in Table 5.30. It can be seen from this that some of the most densely inhabited areas are not adequately covered by bus routes. In addition, peripheral locations are not well networked with services. As a result of poor public transport provision, people choose alternative modes of transport. Table 5.31 shows, for instance, that Kirshan Nagar and Baghban Pura accommodate relatively low income groups³, yet they have a much larger share of bicycle and motorcycle trips (around 50%) compared with bus trips (around 15%) (JICA/TEPA, 1991). The 1996 survey shows that an overwhelming majority of the household members in Baghban Pura were not using public transport at all. Fifty nine percent of the household members did not travel in public transport since their area was not linked with the route network (Table 5.24). The inadequacy of public transport services linking these areas means that the urban poor, even those able to afford public transport, are constrained to walk or cycle for long distances. The situation is even worse in Rawalpindi where 2/3 of the passengers have longer walking times than the maximum considered to be a reasonable level of service (GoP, 1995b).

3. Shahdra and Niaz Beg are peripheral areas with low income groups but their location along major roads provides the residents an opportunity to also use intercity bus services. Densities are shown low because Niaz Beg has rural character and Shahdra includes flood plains.

Table 5.30 : Summary of problems in selected areas
(see Figure 5.8 for location map)

Name of areas	Characteristics	Nature of services	Remarks
Baghban Pura and Shadbagh to the north within the confines of protective bund	High density, poor and congested road network, areas with 45% of the total as Katchi abadis, mostly illegal land subdivisions, and dominated by low-income groups. Over 50% trips are made by 2-wheel vehicles. Majority of the RTA designated routes are not operated in these areas.	Only G.T Road and its adjacent areas are served by buses. Inadequate services are provided by suzukis and tongas in some parts. Remaining areas have no public transport.	Suzukis can penetrate in these areas. Need to encourage suzuki operation.
Krishan Nagar, Sanda Kalan and its contiguous areas along with the western Bund Road	High density areas relatively close to central area. Mostly accommodate low-income groups. About 60% trips are made by 2-wheel vehicles and only 16% by bus services. Except for a few wide roads, the overall road network is congested.	In the past the PRTC buses used to operate in the area but presently suzukis operate along one major road only. Taxi services and tongas are used as substitute modes. Minibus operators are not willing to operate owing to traffic congestion.	Needs restructuring of routes and introduction of traffic management measures. Private operators need financial incentives through increased fares.
North of cantonment on either sides of UBD canal	Medium density, unplanned newly developed settlements, not properly linked with approach roads. Generally accommodate low-income households. About 45% of vehicular trips are made by motorcycles and bicycles.	Minibus services are inadequate and overcrowded because of limited supply. Suitable areas for suzuki operation but routes are not defined for suzukis.	Needs improvements to distributor road network and allocation of suzuki routes in these areas. Also needs increase in fares.
Sabza Zar and its adjacent areas along Multan Road	Low density, newly developed planned housing schemes, a large number of unplanned colonies and 'trapped' villages. Fairly well networked with wide roads. About 35% trips are made by 2-wheel vehicles and around 36% trips by bus services.	The inhabitants use bus services along Multan Road, have to walk for long distances. The RTA defined route for minibus operation is not yet operated because of low demand and low fares.	For the time being the suzukis could serve as feeders to Multan Road bus services, subject to increases in fares. With increased demand, however, buses could easily be introduced.
Expansion areas: include M.A Jauhar Town, Defence Housing Scheme, and a large number of private housing developments	Newly developed planned housing schemes with low density. Mainly accommodate middle and high income families, except for low-income families in 'trapped' villages. Fairly well-planned road network. About 60% of schemes are fully serviced with infrastructure but limited house building partly influenced by non availability of public transport.	Areas are served with minibuses and a few LUTP buses on through routes along main roads.	Needs forward route planning and better quality services with premium fares. Small capacity vehicles are potentially profitable to operate in these low density areas.

Source: Russell and Anjum (1997a)

Table 5.31 : Density, income, and modal component in selected areas

Name of area	Density (persons/hectare)	Household income (Rs/month)	Percentage modal component of trips (walking omitted)			
			Bus	Car	Tonga/Taxi	2-wheel
Walled City	266	3 412	40	25	5	30
Shad Bagh	250	3 554	14	8	20	58
Krishan Nagar	238	3 143	16	14	10	60
Niaz Beg	51	3 514	36	18	11	35
Baghbanpura	114	3 131	23	9	16	52
Shahdra	32	3 039	45	4	6	45
Township	75	4 832	20	30	3	47
Cantonment-North	62	3 047	25	20	10	45

Source: Data adapted from JICA/TEPA, 1991

(Density is given for the population of 5 years old and above)

Reasons for this spatial inequality in the provision of public transport in Lahore are non-operation of routes, fare regulation, inappropriate and deficient route definition and coverage, poor and congested road networks in some areas, the inability-to-pay of low-income groups, and the lack of suitable financial incentives for private sector operators. The relative importance and combination of these factors vary from area to area. A detailed analysis has been made in two distinct areas to identify their incidence and relative importance more closely (see section 5.6).

5.7.4 Environmental degradation

Apart from the general aspects of pollution which cause concern in every city of the world is traffic noise and vehicle emissions. Similarly in Pakistani cities, air pollution is principally caused by motor vehicle emissions. For instance a study conducted on air pollution in Lahore in 1983 reports that motor vehicles are major sources of hydrocarbons (89%), carbon monoxide (92.7%) and nitrogen oxides (63%). Fifty percent of total sulphur oxides emissions also come from motor vehicles (Tariq et al, 1983). The last decade has seen unprecedented growth in the number of motor vehicles in Lahore (see section 5.2.5). Traffic densities are high and vehicle speeds low, leading to a high level of emissions per unit distance travelled.

Due to environmental pollution (air, noise, water and solid waste), Lahore (once known as the city of gardens) has now become the city of problems. A high air pollution level (495 micrograms per metre cube) is found in Lahore compared with other LDC cities; Dehli (448), Jakarta (230), Bangkok (153), Kuala Lumpur (151) and Tehran (130) (World Bank, 1992).

Air pollution problems have been increasing over the past few years and are set to prevail in years to come. Lahore and other cities of Pakistan have three particular causes of increased pollution. These are the high usage of modified motorcycles and autorickshaws; the use of adulterated fuel; and poorly maintained vehicles. The motor vehicle fleet in Pakistan is much older than those in developed countries and less well maintained. As a result, the pollution caused by emissions is greater. According to the National Conservation Strategy estimate, an average Pakistani vehicle emits 20 times the hydrocarbons, 25 times the carbon monoxide and 3.6 times the nitrous oxides (in grams per km) compared with the average vehicle in the U.S.A (GoP, 1991).

Gwilliam (1997) indicated that public transport vehicles have been among the most polluting contributors in many of the developing countries. The vehicles produce large amounts of annoying diesel fumes because of poor maintenance, poor quality fuel and aggressive driving. The situation is similar in Pakistani cities where a large reliance is placed on buses, and to a lesser extent autorickshaws for urban transport, and emissions from both are heavily polluting due to the fuels used and the age, overloading and poor maintenance of vehicles (EPA/World Bank/ADB, 1993). There is a commonly felt concern that private sector operators are less concerned with environmental issues than the public sector. In Lahore, Traffic Police officials, in in-depth interviews with the researcher, stated that the engines of 95 percent of autorickshaws and 75 percent of wagons are not in order. Vehicle engines are not properly tuned and are rarely regularly serviced. An owner will wait until something goes seriously wrong with his vehicle before taking it into a workshop. One of the results is a high carbon monoxide and unburnt hydrocarbon content in the exhaust. On the other hand, the public transport operators, in their interviews with the researcher, alleged that substandard oil is the main cause of air pollution in the city. They further added that many oil filling stations sell substandard fuel. Regular petrol and diesel may have kerosene oil added to them as it is cheaper than petrol and diesel, and premium petrol may be blended with regular.

MVEs, in interviews conducted by the researcher, claimed that all public service vehicles are issued fitness certificates after a complete vehicle examination. However, they admitted that on recommendations from above (senior officials), some quality control conditions were relaxed when issuing fitness certificates to the LUTP buses.

It was explained to the researcher by one of the MVEs in Lahore that the rickshaws are powered by two stoke engines which are badly maintained and which use an inferior quality of oil. The engines emit a lot of smoke and fumes and unburnt oil clogs the silencer. The silencer is, therefore, often modified or removed, leading to an increased noise output. He described that the present rickshaw engines are assembled by local manufacturers such as Rocket and Super Star rickshaw in Hyderabad, Pak Hero and Vicky Master rickshaw in Lahore. The quality of these locally assembled rickshaws is not good compared with imports. For instance, the 1979 model imported rickshaws emit less smoke than the brand new locals. The MVE further added that rickshaw drivers mix mobil oil in petrol to increase its viscosity (which helps to increase the power of engine) and then overload their rickshaws. As a result of more combustion, more smoke is emitted.

There are three agencies responsible for keeping checks on smoke emitting vehicles operating in Lahore; namely the Traffic Police, the MVEs and the EPA. But there is an inherent unwillingness of government officials to take action against polluters. All the authorities seem too preoccupied with their other assignments. Traffic Police data show that 22.5 percent of vehicle bookings were made on pollution grounds out of a total 341,044 bookings made in 1994. The latter figure is estimated at 0.58 booking per motor vehicle per annum which is very low in the wake of worsening air pollution in Lahore. The percentage of bookings on pollution grounds seems reasonable but the booking level for overall offences seems very low.

5.7.5 Traffic congestion

The rapid growth in motor vehicles in Lahore combined with ineffective and inefficient traffic management and weak enforcement have resulted in growing traffic congestion. Because of insufficient resources, and different priorities among law enforcers, the degree of enforcement has been minimal. Reasons for the scale of congestion problems include mix of motorised and

non-motorised traffic; encroachment onto the carriageway by traders; unruly behaviour of drivers; inadequate space assigned for bus stops; poor signing, road marking, dilapidated roads and the absence of traffic management measures; and the general lack of provisions for pedestrians (Plate 5.5 and 5.8).

Illegal encroachments on all major roads, are a source of great distress to other road users. These are in the form of temporary shops on walkways forcing pedestrians onto carriageways, exhibition of goods within the carriageways, illegal road side parking and repair of vehicles on the roads. The existence of encroachments is a result of weak development control by the controlling agencies. The daily newspapers report that encroachers, hawkers, and even beggars in the city have to pay a certain percentage of their earnings to officials to stay in the business. A similar situation prevails in other cities of Pakistan. For instance, a study conducted by an NGO estimates that each month about 110 million rupees are extracted in bribes by various government officials from encroachers in the city of Karachi (Jillani, 1997). These encroachments have substantially reduced the road space and increased the congestion in the city of Lahore.

There is a requirement that all new commercial/office buildings should have parking space. The builders are required to have one car parking space per 1000 sqft gross floor space of the buildings located in the city, and 500 sqft gross floor space of the buildings located in the outskirts. They are also required to give provision for one parking space for motorbike/scooter per 250 sqft and one bicycle parking space per 300 sqft gross floor space of their buildings (LDA, 1986). Generally builders have not been required to strictly observe these conditions. For instance, some builders along the Egerton Road and Jail Road have only provided half of the requisite parking space. The result is even more chaos on these roads mainly due to illegal on-street parking.

Although TEPA has undertaken many road improvement schemes in Lahore but no traffic management scheme has been undertaken for an efficient operation of public transport (see section 5.2.4). As a result, the bus services are suffering from congestion and delays due to a lack of priority measures for buses. Most delays occur at bus stops and junctions rather than along running sections of roads. To deal with this problem, there is a dire need for the

introduction and enforcement of effective traffic management measures which give priority to public transport where appropriate.

In Lahore the congestion problem is intensified by the uncontrolled behaviour of drivers and the laxity of licence holder requirements. Inappropriate activities by unruly drivers such as speeding, queue jumping, red light offences, and improper stopping and parking have aggravated traffic congestion problems. They also undermine the implementation of traffic management measures and increase transport problems in general.

The minibuses themselves also contribute to the chaotic situation. This adds to the reasons why public transport services are generally not considered a reliable mode. The actions of minibus drivers are well described by a group of planning students in a project report in 1992: *"Drivers of minibuses and wagons have been found to be engaged in racing and chasing and other undesirable practices. The majority showed a complete lack of consideration for other road users, particularly for pedestrians and cyclists, and a remarkable lack of awareness of the danger of their actions to their passengers....Their practice is to rush for passengers right at the junction corner, and... without making a queue, the vehicles block the road for other modes and result in chaotic and hazardous conditions at junctions. Moreover their habit to stop where they please or when their passengers demand, increases chances of conflict with pedestrians who are forced to walk on roads....They overtake other vehicles on the nearside and tend to make no signals at all... They have been found to change sides of the road just before they arrive at a junction at which they wish to turn, and edge to the front by overtaking the stationary vehicles at the junction"* (Hameed et al, 1992).

A similar situation exists in other cities of Pakistan as well. In Multan for instance: "The small public service vehicles are today causing serious disturbances to traffic at their favourite stopping points in and near junctions, where competition for passengers can be observed." (IDA/World Bank/MDA, 1990).



Plate 5.5a A lack of organisation for bus stops in Lahore



Plate 5.5b A lack of organisation for bus stops in Lahore



Plate 5.6a A disorganised bus terminal in Lahore



Plate 5.6b A disorganised bus terminal in Lahore



Plate 5.8a Illegal parking in Lahore



Plate 5.8b Illegal parking and turning in Lahore

The following are the main problems that can be identified from the above situation: first, a lack of understanding on the part of most drivers of basic traffic rules; second, a general lack of planning control, that leads to encroachments of walkways and carriageway, and the construction of new developments without adequate provision of parking; third, the absence of, or sub-standard nature of traffic signals; fourth, a general lack of maintenance of the existing road infrastructure; fifth, inadequate provision of bus stops; sixth, the weak enforcement of on-street traffic regulation.

5.7.6 Road safety

Generally there is an insufficient and inadequate driver education and training in Pakistani cities including Lahore. Public transport drivers told the researcher that they learned driver training either from professional drivers or their relatives/friends. They got their first driving licence at the age of 19-25 years after appearing in the driving test. There were drivers who got a licence without appearing in the test, by paying bribes or by applying political influence. Generally, the public transport drivers do not have PSV licence (see section 5.3.3).

A senior official of the Traffic Police stated to the researcher that a PSV licence is granted to drivers on the recommendations of a committee comprising senior officials of the PRTC, the RTA and the Traffic Police. He admitted that sometimes the procedure is violated, and licences are issued on the recommendations of transport associations or influential political leaders. He further stated that road safety in Lahore is poor but the Traffic Police is not alone responsible for this. Other agencies responsible for the enforcement of safety regulations are the RTA, the TEPA and the MVEs.

Most of the road accidents in Pakistani cities, as elsewhere, occur due to the negligence of the road users. The NTRC analyzed reported accidents occurring (during 1986-87) in the provinces of Punjab, NWFP and Azad Jammu Kashmir. Out of total 344 accidents, 71 percent occurred due to speeding, 18 percent due to overtaking, 6 percent due to wrong turning and 3 percent due to failing to stop vehicle at a stop sign/signal. Only 2 percent accidents occurred due to other reasons such as bad road surface condition (Khan, 1990). A high proportion of the accidents occurred in rural areas and on inter-city highways, where drivers

do not bother to obey speed limits.

A study of road accidents in Islamabad in 1990, revealed that a primary cause was the negligence by the drivers in wrong turning and overtaking (Swati and Khan, 1990). The negligence of public transport drivers is partly attributable to excessively long working hours. Generally the drivers work long hours in a demanding street environment, for low wages; typically Rs 120-150 for a 14-hours shift. Usually they start their service operation at 6.0 am and finish at about 10 pm.

The overloading of minibuses, which are sardine-packed with passengers during peak periods, adds to the dangers of travelling in these vehicles. The waiting passengers always try to board the bus arriving first. This is partly due to passengers' inability to predict the arrival of the next bus because timetables are not available. Minibus drivers seldom use the bay (where provided) for boarding and alighting passengers. Their vehicles then not only impede the flow of traffic, but also create difficulties and impose danger to passengers boarding and alighting (see Plate 5.5).

The rate of deaths in road accidents in Lahore rose by 13.4 percent per annum between January 1992 and June 1996. During this period, 926 fatal and 1452 non-fatal accidents took place in Lahore and as many as 993 persons were killed and 2265 injured (Traffic Police, 1996). Public service (passenger and goods service) vehicles are often involved in accidents. The Traffic Police data confirm that the accident rate for these vehicles is very high. In 1994, 714 road accidents were recorded in Lahore. Of this total, 190 were fatal and 332 were non-fatal accidents, and in 192 accidents property was damaged. 191 persons were killed and 515 were injured in these accidents. A breakdown of the type of vehicles involved in road accidents in Lahore is given in Table 5.32. The number of public service vehicles was only 20 percent of the total motor vehicles (see section 5.2.6), but they were involved in 44 percent of the total accidents. Of these public service vehicles involved in accidents, the great majority were minibuses (72%).

Table 5.32 : Vehicles involved in road accidents in Lahore in 1994

Vehicle involved in accidents*	No of accidents	Percentage
Minibuses	228	32
Other public service vehicles	89	12
Private vehicles	397	56
Total	714	100

Source: Data collected by the researcher from Traffic Police Lahore in 1995

* Includes motorcycles but not bicycles

Public service vehicles were involved in 85 percent of the total deaths in road accidents. Of these, minibuses were involved in 54 percent of the total deaths. Private vehicles in the same year, although 80 percent of the total motor vehicles, were involved in only 15 percent of the total fatalities in road accidents (Table 5.33).

Table 5.33 : Types of vehicle involved and persons killed in Lahore in 1994

Vehicle involved in accident	No of persons killed in accidents	Percentage
Minibuses	86	40
Other public service vehicles	76	45
Private vehicles	29	15
Total	191	100

Source: Data collected by the researcher from Traffic Police Lahore in 1995

The analysis of the road accidents, discussions with Traffic Police, and personal observations results in the following conclusions related to the poor road safety record in Lahore. These are: insufficient and inadequate driver education and training, long working hours (12-16 hours per day), bad driver/road user behaviour, and very selfish attitudes by all types of road

users, poor traffic management, and poor traffic supervision and control.

5.8 Conclusions

The current situation of public transport in Lahore demonstrates that the bus services are of low-quality, unsafe, unreliable, inefficient and inadequate to accommodate growing demand. The main reasons include the inappropriate regulatory control and planning of public transport. The RTA Lahore seems to address other problems at the expense of providing services. For instance, to ameliorate congestion, the RTA in the city simply imposed limits on the number of minibuses allowed to operate on certain routes, resulting in under provision and overcrowding. Meanwhile congestion problems require better traffic management, including bus priorities and the enforcement of traffic rules.

Traffic congestion and poor road safety in Lahore are results of poor driver education and training, bad traffic behaviour of all road users, insufficient education and training of traffic and transport planners, inadequate traffic management and weak enforcement of quality controls and traffic regulations.

Analysis of the existing situation in Lahore reveals that many allocated routes are not taken up by the operators because they are not considered profitable. As a result, many areas are either not served at all or are deficient in public transport services. Fare controls have been implemented without regard to the effects on operators' ability to provide services or to invest in and maintain vehicles.

Investment in new public transport vehicles in Lahore is in consequence generally low. Private bus operation is financially unattractive, with an industry structure dominated by very small operators. The private sector is in no position to purchase new, and especially new full size, buses for urban operation. In the past the public sector was able on occasion to introduce new full size buses through foreign aid and purchase by Federal grants, but publicly owned services no longer operate.

The household survey conducted in Lahore demonstrates the inadequacies of public transport

services, and household members dissatisfied with present service levels and their quality. The survey also indicates that there is a demand for better quality services at higher fares, from both wealthy and average household income areas.

Chapter 6 Public Transport In Faisalabad

6.1 Introduction

In the city of Faisalabad the government has channelled the regulation of public transport through the Faisalabad Urban Transport Society, a Non-Governmental Organization (NGO) formed for this purpose. The Society started stage carriage services, with the active participation of local private operators, in 1994. It has assumed delegated responsibilities for the quantity, quality and fares regulation of services under its control. This chapter evaluates the overall public transport situation in this city with particular reference to the services offered and their effectiveness under the new form of regulation and control. The analysis is based primarily on the results (a) detailed discussions with officials of the Society (b) personal observations of the researcher (c) in-depth interviews conducted with government officials associated with public transport regulation, operators and passengers (d) public transport users surveys. In addition, secondary data sources have also been utilized.

In section 2 background information and the current situation of public transport in the city of Faisalabad are presented. Section 3 provides an account of the formation, organisational structure, objectives, and operational characteristics of the Society. The regulatory regimes and their enforcement by the Society have been analyzed in section 4. Section 5 describes the vehicle ownership pattern, with categories of vehicle owners operating under the Society's control. The details and views of operators in each vehicle owner category are further illustrated with selected case studies in this section. In section 6 the analysis of the public transport user surveys is reported. This section compares user views about the stage carriage passenger services currently offered under two different regulatory regimes. The impact of regulation and enforcement on the performance and quality of services offered by the Society is evaluated in section 7. The final section presents the overall conclusions of the analysis.

6.2 The City of Faisalabad

6.2.1 General presentation

Faisalabad, previously known as Lyallpur, is one of the cities which was founded in the colonial period. It was built in a square form with eight bazaars radiating from the central clock tower. The city is located on the fertile plains of the Punjab (see chapter 4, figure 4.2) and well connected with the rest of the country by a network of air routes, railways and highways. It is now one of the fastest growing cities in Pakistan and is a large industrial centre. It plays a considerable role in the national economy. In terms of value added agriculture, Faisalabad district ranks third in the country (GoP, 1987).

6.2.2 Socioeconomic characteristics

Socioeconomic characteristics influence the number of trips generated in a city. A travel study of three Indian cities found that a 10 percent increase in household size was associated with a 6 percent increase in household trip making (Fouracre and Maunder, 1987). In his travel study of Kumasi, Takyi (1991) has also suggested that increasing family size is associated with a greater likelihood of using public transport, though this is probably because most larger families have lower per capita incomes.

The population of Faisalabad is increasing rapidly. This city set a record in the demographic history of Pakistan by registering a population increase of 508 percent during the period 1941-61. This increase was mainly due to influx of refugees from India and from the industrialization boom of the 1950s (GoP, 1981c). The population growth rate has been reported at 4.6 per cent per annum during 1972-85 (FDA, 1986). The estimated population of the city was 1.63 million in 1994. It is expected that the city's population will reach 2.5 million by the end of the year 2000 (EPAP/World Bank/ADB, 1993).

As in many developing countries, households consisting of extended families are common in Pakistan. A recent study reports an average household size of 7.5 persons for Faisalabad in 1996 (FDA, 1997) which is quite large compared with average household size of around 5-6

persons for cities in developing countries reported by Fouracre and Turner (1992). No up to date figures are available about the employment pattern, but an FDA study showed that about 23 percent of the total population was employed in the city of Faisalabad in 1985 (FDA, 1986).

Household income is clearly a major determinant of modal choice. It sets the limits on how much of a particular mode they can afford in order to achieve their desired level of travel. Table 6.1 presents the monthly income of the households in Faisalabad. One third of the households are from low income groups with monthly incomes of up to Rs 3000. Forty seven percent of the households are from middle income groups who have monthly incomes in the range of Rs 3001-7000. Twenty percent households are from high income groups with their monthly incomes over Rs 7000. The average income of a household in low-income areas involved in the Faisalabad Area Upgradation Project (DfID funded project for the upgradation of low income areas) in 1996 is reported at Rs 4460 per month (FAUP, 1996). The average monthly income of a household in the city as a whole is estimated at Rs 4930 in 1996 (FDA, 1997), is lower than the estimated average income of a household in all urban areas of Pakistan i.e Rs 6,114 per month in 1995 (see chapter 5, section 6).

Table 6.1 : Household monthly income in Faisalabad

Monthly income (Rs)	No of households	Percentage
UP TO 2000	317	10.4
2001-3000	694	22.7
3001-5000	980	32.1
5001-7000	453	14.8
7001-10000	353	11.6
10001 & Above	255	8.4
Total	3052	100

Source: Data adapted from FDA, 1997

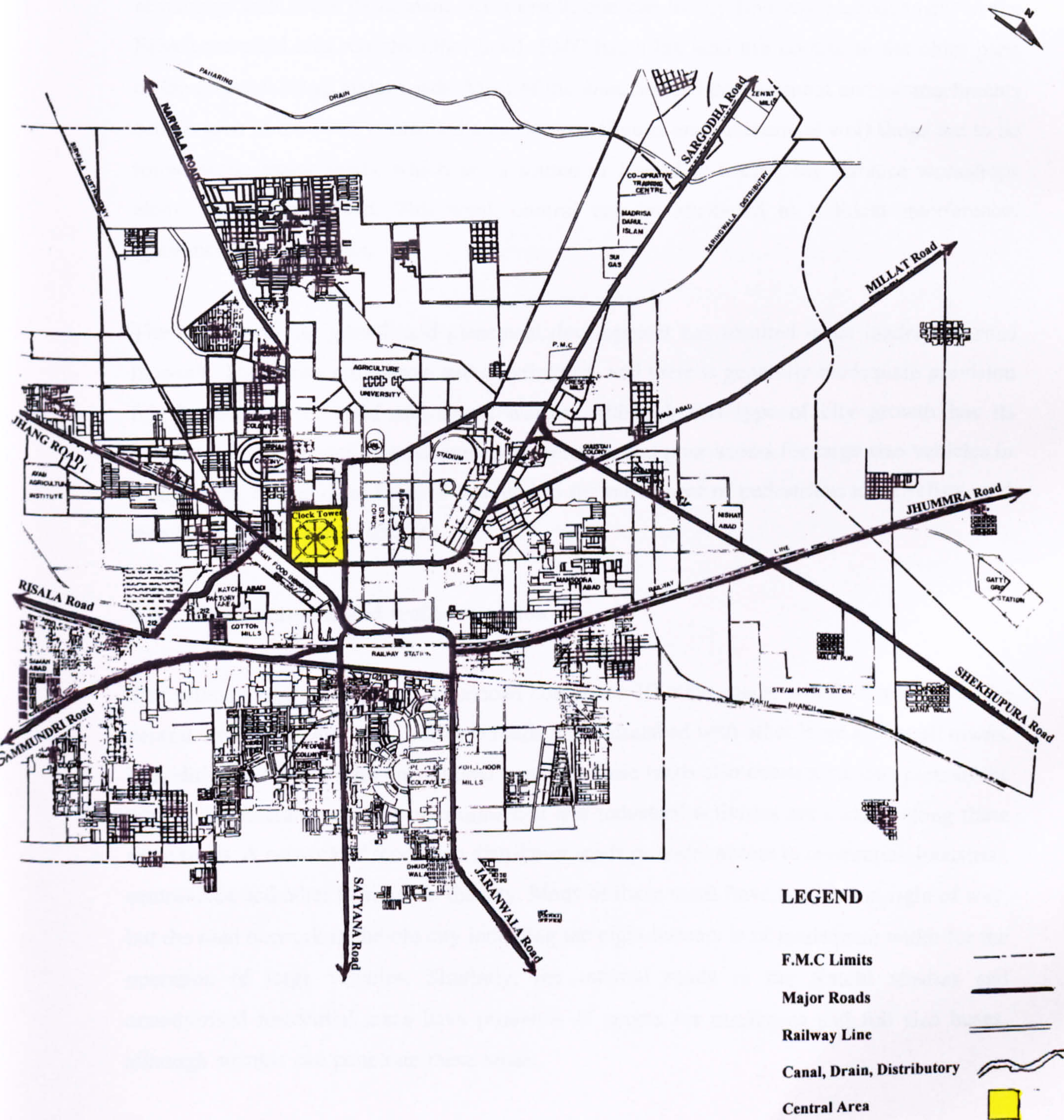
6.2.3 Land use and control

Faisalabad has a clearly defined central area which is the old part of the city. It was planned in 1895 on a parcel of land measuring 110 acres. Most of the commercial activities are located in eight bazaars. Some of these bazaars are well known due to specialised and wholesale business, such as rail bazaar which has predominantly cloth business. The financial sector, commerce, goods forwarding agencies, offices, the law courts, administrative buildings and inter-city halt points (places where passengers board in buses and minibuses) are situated around Circular Road. However, considerable central office functions, shopping plazas, markets and entertainment functions have also been developed along all primary roads. Higher education institutions such as Punjab Medical College and Agriculture University are located along Sargodha Road close to the central and Civil Lines area (Figure 6.1).

Textile based small industries are scattered in all parts of the city, except for some concentration in the factory area in the south of the central area. A large number of small scale industries are located in the residential areas of Abdullah Pur, Ghulam Muhammad abad and Satiana Road etc (Figure 6.1). Large scale manufacturing industry is mainly located along major roads. The dispersed industrial location is a result of non-existence of any development plan, and a lack of land use control in the city prior to the inception of Faisalabad Development Authority (FDA) in the mid 70s.

Residential areas exist within mixed use developments particularly in the old part of the city. Katchi abadies (squatter settlements) and other unauthorised colonies are to be found all over the city. Planned residential neighbourhoods also exist, which have been developed either by the public sector or by the private sector. By 1993, the FDA had been able to complete 7 site and services schemes and the private sector had developed 29 site and services schemes (Siddique, 1994).

Figure 6.1 The city of Faisalabad



Source: Faisalabad Development Authority, 1986

Scale: 1 : 80,000

FDA and FMC are responsible for exercising development control in Faisalabad. Both the agencies have a specified area of jurisdiction but usually conflict over the boundaries. The development of unapproved housing schemes is the result of a lack of coordination between these agencies. FDA has exercised relatively strict land use control in planned areas and the remaining area under its domain. As a result, one can hardly find any encroachment in the FDA controlled area. On the other hand, FMC has a lax land use control in the older parts of the city and along major roads. Most of the unauthorised development and encroachments can be seen in the FMC controlled area. Industrial units and mechanical workshops are to be found along major roads, which are a source of hazard to traffic; for instance workshops along Shekhupura Road. This weak control can be attributed to political interference, ignorance and corruption.

The haphazard city growth and piecemeal development has resulted in an inadequate road network. The streets are narrow and labyrinthine, and there is generally inadequate provision for the disposal of solid and liquid wastes. Although this type of city growth has its detrimental effects such as environmental pollution and poor access for large size vehicles in many areas, on the other hand, it is suited to the movement of pedestrians and cyclists, and to a lesser extent small vehicles.

6.2.4 Road network and traffic situation

The primary road network in Faisalabad comprises 10 main roads, which converge on the central area (see Figure 6.1). All these roads link Faisalabad with other large and small towns. In addition to linking with the national network, these roads also connect various parts of the city. A considerable amount of commercial and industrial activities are located along these main roads. A network of secondary distributor roads provides access to residential, industrial, central area and other facilities in the city. Many of these roads have a sufficient right of way, but the road network in the old city including the eight bazaars is of inadequate width for the operation of large vehicles. Similarly, the internal roads in the Katchi abadies and unauthorised residential areas have problems of access for minibuses and full size buses, although suzukis can penetrate these areas.

Faisalabad presents a bleak traffic situation. Traffic signals are installed at major road intersections but none of them was functioning in December 1996. Most roads were also damaged due to poor maintenance and a miserable drainage system. Generally there are no road markings and inadequate signs to regulate pedestrian and vehicular traffic (Plate 6.1). The volume of traffic on the road network has increased rapidly due to both inter-city and intra-city traffic, as the inter-city roads crossing the central area add traffic to already busy roads and create interference between local and through traffic.

Slow moving vehicles (animal driven carts, man driven cart and tractor trolley) are usually used for transporting industrial products and other goods in the city. The mixing of motorised and non-motorised traffic causes additional problems, which reduce road capacity and safety. The disorganised movement of animal driven carts and tractor trolleys on the roads results in frequent collision with fast moving motor vehicles (Plate 6.2).

Violations of traffic regulations are common in the city of Faisalabad. Some vehicles are driven without lights at night and goods are projected beyond the vehicle length without reflectors at the tail of the loaded material; no courtesy is extended to pedestrians crossing the roads; one way traffic rules are frequently disobeyed. Under such a traffic situation, only well trained drivers can operate safely.



Plate 6.1a Dilapidated road conditions in Faisalabad



Plate 6.1b A minibus negotiating dilapidated road conditions in Faisalabad



Plate 6.2a A mix of traffic in Faisalabad



Plate 6.2b A mix of traffic in Faisalabad

6.2.5 Travel patterns

A study was commissioned by the FDA in 1996. This study included various traffic studies and household surveys in the city of Faisalabad. Under this study, a total 3,052 households were interviewed. The FDA study reveals that car ownership in Faisalabad is extremely low. Of the total households interviewed, only 9 percent owned cars, 43 percent motorcycles, 41 percent bicycles and about 5 percent had no vehicle at all (FDA, 1997). Vehicle ownership has markedly influenced their travel patterns. Private transport is fully utilized by household members but those members who have less access to their households' vehicles are obliged to use public transport. Table 6.2 presents the mode of transport used by the household members on a selected day.

Table 6.2 : Reported use of modes in Faisalabad in 1996

Mode of travel	Trips by household members	
	Number	Percentage
Car	399	5.2
Motorcycle	1677	21.8
Bicycle	2617	34.0
Bus	627	8.2
Wagon (minibus, suzuki)	1673	21.8
Autorickshaw	315	4.1
Tonga	373	4.9
Total	7681	100

Source: Data adapted from FDA, 1997

Note: The study did not count walking trips

It is quite clear that, other than walking, the bicycle is the most common means of transport in Faisalabad, and is used for over one third of the household members. A 1985 study showed a similar modal share of 36 percent (FDA, 1986). In other LDC cities, bicycle trips typically ranges from 10 to 30 percent (Maunder and Fouracre, 1989). The modal share of motorcycle

has been increasing in Faisalabad, the number of household members using motorcycles having increased from about 7 percent in 1985 to 22 percent in 1996. Similarly, the proportion using public transport including autorickshaws and tongas has also increased from 35 percent in 1985 to 39 percent in 1996. This increase in the modal share of public transport can be attributed at least in part to improved services.

About 48 percent of the trip makers have a trip distance of less than 3 km and about 40 percent fall within the range of 4-7 km. About 9 percent have a distance in the range of 8-15 km, with only 3 percent trip makers having trip lengths of over 15 km. The average trip length in Faisalabad (excluding walk trips) is estimated at 4.8 km (FDA, 1997).

6.2.6 Public transport services

About 100 publicly-owned buses were introduced on seven routes in Faisalabad in the early 1980s but they are non-existent today. Presently public transport services are only provided by private sector operators. As in other cities, some institutions (such as the Agriculture University, Punjab Medical College, a few schools, and private factories) also have their own full size buses, minibuses or suzukis for their staff/students. Stage carriage bus services are chiefly offered by suzuki operators and by the Faisalabad Urban Transport Society. Autorickshaws and tongas are used as contract carriage passenger services. Table 6.3 shows an inventory of the public road transport modes and seating capacities in the city.

Table 6.3 : Road public transport inventory in Faisalabad in 1996

Mode	Number of vehicles	Passenger seats *	
		Number	Percentage
Bus services (all)	-	12,750	48.3
. FUTS Minibuses	650	9750	36.94
. Suzukis	300	3000	11.36
Taxi services (all)	-	13,650	51.7
. Autorickshaws	2325	4650	17.61
. Tongas	1500	9000	34.09
Total	-	26,400	100

Source: Data collected by the researcher in December 1996

* Seating capacity x No. of vehicles

Suzuki Services: Stage carriage by suzukis was introduced in the late 1970s in Faisalabad. These small vehicles have been operating on short-distance routes with an average route length of seven km. A total number of 807 suzukis on 12 different routes was reported in 1985 (FDA, 1986) when the fleet of publicly-owned full size bus services was also operating on seven routes. But there remained an acute shortage of public transport until early 1994, owing to the failure of public sector bus services and the regulatory controls imposed on private operators. Passengers were forced to rely upon the small, unpopular suzuki (10-seats vehicle) services (Plate 6.3) or to resort to alternative modes such as expensive autorickshaws, tongas or cycling or walking (Master Plan, 1994). With the introduction of the FUTS services the number of suzuki services has fallen. Suzuki operators reported to the researcher that approximately 300 suzukis were operating on 8 routes in the city in 1996. However, the data collected from the RTA shows that only 65 permits had been renewed for the year 1996/97 for suzukis by December 1996 and the remaining suzukis were operating without permits.



Plate 6.3a A suzuki operating in Faisalabad



Plate 6.3b Seating arrangement in a suzuki

These suzukis are concentrated particularly on routes linking the city centre with areas having narrow streets. Service operation of suzukis is controlled through the mutual cooperation of individual operators. Government fixed fares are charged on suzukis.

Autorickshaws: These are an expensive form of contract carriage service when compared with tongas. In theory, the provincial government fix fares (Rs 2/km in 1996) but in reality fares are generally bargained for with passengers (a minimum of Rs 5 was being charged for a single trip in 1996), and there is weak control. Autorickshaws are still popular for short journeys, particularly when and where better quality bus services are inadequate and/or unreliable. Moreover, autorickshaws also offer pick up and drop facilities for school children. The number of autorickshaws has declined rapidly with the introduction of better quality bus services. RTA data show that about 1000 rickshaws have been withdrawn from the city over the past three years, with 2325 autorickshaws still operating in December, 1996.

Tongas (6 seat horse drawn carts): These are operating on certain routes where other public transport services are inadequate and in areas with poor road conditions that are difficult to serve by other modes. The route length for tongas falls in the range of 3-5 km. They offer contract carriage services with a minimum fare of Rs 3 per passenger. These are particularly used by ladies, and by passengers having luggage. Tongas also offer pick up and drop service for school children on a monthly contract basis. The number of tongas is controlled by the FMC through operating permits. The FMC fixed a maximum limit of 1500 tongas to operate in the city since 1985 but in practice many more tongas had been operating illegally. Being a slow moving vehicle the tonga contributes to overtaking movements and traffic congestion, particularly in the central area of the city and on main roads.

6.3 The Faisalabad Urban Transport Society

6.3.1 Introduction

When Prime Minister Benazir Bhutto visited Faisalabad in November 1993, there were public demands for intervention to improve the city. One of the major improvements requested included the provision of better public transport. She directed the Divisional Commissioner Faisalabad to prepare a comprehensive plan for the upgrading of the city, and the improvement of public transport became a top priority.

The Commissioner was very much aware that the public sector has neither the financial resources nor the capabilities directly to combat the problems of urban transport. The private sector also was unable to provide reliable services under the existing circumstances. Contemplating the strengths and weaknesses of both the public and private sectors he concluded that the public has more faith in a product which is administered by the public sector, but experience of actual practice showed that the public sector had generally failed to deliver, owing to problems such as illegitimate union activities, excessive political interference and pilferage of revenue (RTA, 1995). Moreover, public transport services were not being properly regulated by the public authorities. He considered that the private sector could address the needs of passengers if given the opportunity and if properly regulated.

Seeking to overcome the limitations of both public and private sectors, the Commissioner initiated a public-private partnership for the provision of public transport. He convinced various government officials to create an NGO which could run the business of public transport in collaboration with the local operators. As a result, the Faisalabad Urban Transport Society (FUTS) was founded on January 19, 1994.

The Society has the legal status of an NGO and is registered with the Social Welfare Department of the Punjab Government, under the Voluntary Society Welfare Agencies (Registration and Control) Ordinance, 1961. The nature and functions of the society, including audit requirements, are those of an NGO, although it has been organised by government officials in Faisalabad. It is regulated by the laws of a social company, with a constitution

approved by the Social Welfare Department. Anyone over 18 who agrees to the constitution, and pays the membership fee may, with the approval of the president or Governing Body, become a member of the Society. In practice membership is dominated by private minibuss operators.

6.3.2 Administration

The society is administered by a Governing Body (GB) mainly comprised of chief government officials. Out of a full complement of 24 members, 12 are senior government officials, drawn from the divisional and district administrations, police, local government and the development agency. They are permanent members of the GB by virtue of their offices, through which most are concerned with the planning, regulation, and operational control of public transport in Faisalabad. Another six members can be appointed by the president of the FUTS from the general membership of the society. Any member can be nominated whether operator, professional, business man, or other representative of local interests in public transport. The remaining six members should be appointed by election at the annual general meeting.

As of June 1997, the GB consisted of only the 12 permanent members because no nominees had been appointed or members elected. Nonetheless, although private operators have not been elected to the GB, they register their opinions, complaints etc., with the administrator, which are then considered in meetings of the GB. This mechanism has proved effective in resolving conflicts between the society and the operators. The 1996 survey results indicate that operators do not wish to exercise their right to elect members to the GB at present (see section 6.5).

The FUTS also provides a potentially valuable forum for representatives of passengers, who may become involved in decision making by obtaining membership of the society. This has yet to happen but was envisaged by the Commissioner in establishing the FUTS.

The following are the office bearers of the management committee of the Society, for which there are no elections. All are provincial government officials.

- . Commissioner Faisalabad Division, the President of the Society
- . District Magistrate of Faisalabad, the Vice President
- . Secretary Regional Transport Authority (RTA), the General Secretary
- . Additional Commissioner (Coordination), the Treasurer
- . Regional Deputy Director, Social Welfare Department, the Publicity Secretary

A note-worthy feature is the direct involvement of such senior officials as the Commissioner, the District Magistrate and the Secretary of the Regional Transport Authority (RTA), the provincial agency which is formally responsible for the allocation of route permits, and for defining the entire route network.

6.3.3 Objects

The objects of the society as stated in the constitution are as follows (FUTS, 1994):

- i. To provide, maintain and supervise transport facilities for passengers in Faisalabad;
- ii. To provide a model transport system and encourage other transporters to follow the same;
- iii. To replace old and obsolete vehicles with new and better vehicles in order to control environment pollution caused by smoke;
- iv. To establish a system for imparting proper training and knowledge regarding traffic laws and ethics of the profession;
- v. To take all necessary measures which could help in the improvement of controlling and preventing road accidents;
- vi. To work for adult education aimed at developing a sense of civic responsibility; and
- vi. To do all such acts as are incidental or conducive to the attainment of the above objectives.

It can be seen that the Society's objectives are not narrowly based on the provision of public transport services but cover a wide range of subjects encompassing urban transport, traffic management, road safety, the environment and adult education. As an NGO the society is obliged to have broader social objectives, because of its registered status.

6.3.4 Support staff

Support staff for the society are employed on a contractual basis, and responsible for route allocation, supervising operations for the entire fleet, enforcement of regulations and other administrative duties. The administrator who is head of the support staff is a retired Magistrate. He manages the society's affairs, assigns duties to various officials, enters into agreements with operators on behalf of the society, and is empowered to fine operators for violations. As at December 1996, the total staff numbers only 94 employees, 74 of whom were security guards. These guards are posted at terminals/check posts to keep record of arrivals and departures, issue duty slips, and otherwise assist officials of the society (Plate 6.7). Eight staff are working as mobile supervisors, provided with motorcycles, who check and supervise service operation on the various routes. The guards and mobile supervisors are retired from the army and, unlike the traffic police, the entire staff is generally efficient. One of the main reasons for their efficiency is the relatively higher salary compared with the traffic police.

6.3.5 Sources of income

The society generates funds through monthly service charges and a welfare fund deposited by the operators, in addition to fines collected for violations. It has constructed six shops (selling spare parts, cigarette, and drinks, etc largely to drivers and operators) which have been rented out to shop-keepers, and it earns revenue from its own filling station. Its total monthly income was running at about 1.2 million rupee against an operating expenditure of about Rs 0.25 million per month by the end of 1996. Thus the financial position of the society is very sound. Although it was conceived that in the initial stages the society would need to approach the government for financial assistance, no such need has arisen. The Society has invested its first three years surplus in an office building (Plate 6.4) and construction of the main terminal (Plate 6.5), as well as the shops and filling station. In addition, it has made donations to charities and to the traffic police for the purchase of equipment.



Plate 6.4 Newly built FUTS office building



Plate 6.5 Well organised FUTS terminal

6.3.6 Operation

After its formation, the management of FUTS sought the cooperation of the private sector Suzuki operators and invited them to become members of the society. Operators started to join only after repeated requests because initially they were doubtful about the sustained future of the society. Once confidence was established however, membership grew rapidly, and by March 1998 the society had over 650 members, of which 90% are private minibus operators.

A condition for their operation under the FUTS flag is that the operators must enter into an agreement under which they make vehicles available to the society. An individual operator cannot make more than one agreement at the same time. This agreement is valid for a period of one year and is extendable for further terms with the mutual consent of both the parties. All the relevant documents regarding the vehicles under agreement are forwarded to the Department of Excise and Taxation along with certificates issued by the society, under which the specific vehicles documented are pledged to the society. A pledged vehicle cannot be sold during the term of the agreement and bears a FUTS prescribed insignia. It is insured, by the operator, with an insurance company approved by the society, to cover third party claims in respect of death or injury to a passenger.

Thus an agreement is linked to a specific vehicle. It is renewable for up to a specified maximum vehicle age (originally 3 years) after which the vehicle is excluded from the fleet of the society. However, in cases where the operator intends to replace the vehicle before the 3 years has elapsed, a new agreement is executed between the parties.

Vehicles under FUTS operational control are otherwise the responsibility of drivers/owners overnight. Crew staff are provided by the operator who is responsible for their pay and other emoluments. The driver and conductor should wear a uniform approved by the society, behave courteously to passengers, not charge more than the fixed fare, and not allow smoking or music playing in the vehicle. The owner also undertakes that the vehicle will not be overloaded, or parked at prohibited or un-scheduled places, and that it will be kept clean and in good condition. In addition, the vehicle shall not be booked for commercial/personal purposes except with prior written permission from the society.

If there is violation of the terms and conditions, the agreement can be terminated or a fine is levied by the society. Initially some operators did not obey the instructions of the society and they were thrown out. The defaulters then lodged writ petitions in the court but the society successfully argued that no discriminatory action had been taken against them. In consequence, the tendency to resort to litigation (common in Pakistan) was discouraged.

The total FUTS fleet as at March, 1998 consisted of 655 vehicles compared to only 28 at the inception in March, 1994. It is comprised entirely of 15-seater minibuses. It is worth noting that unlike minibuses used in other cities of Pakistan, the majority of these vehicles have the advantage of a roof-top carrier for baggage. Passengers are happy to keep their baggage on the carrier rather than on their knees. Moreover, the vehicles under FUTS control are relatively new (Plate 6.6). In many other cities vehicles are much older.



Plate 6.6 A minibus under FUTS operation



Plate 6.7 FUTS support staff on duty

6.4 Regulatory Regimes

6.4.1 Issuance of route permits

The issuance of route permits for road based public transport operation in the city is formally the responsibility of the RTA Faisalabad. The only exception are tongas (six-seats horse drawn carts), which are controlled by the Faisalabad Municipal Corporation. In theory, the RTA is authorised to define the routes for private sector operation, indicate the type and size of vehicle, and determine the number of permits on specified routes.

In practice, FUTS has taken over the responsibility for the planning, operation and control of public transport services under the 'FUTS flag'. The society specifies the size and type of vehicles. Route permits are allocated in discussion with operators whereby intending operators consult with the society about potential routes, assess passenger demand, and then apply for a 'permit' to the FUTS. The society allows vehicle owners (who must be members of the FUTS) to operate on specified routes under the agreement described above. No maximum number of vehicles per route is specified and routes are allocated to operators on a 'first come first served' basis. Although there is no formal maximum number of permits per route, in practice FUTS has attempted to steer new entrants to routes where there are less minibuses operating.

The operators deposit with the society a sum of Rs 5,000 as security, which is refundable on expiry of the agreement. In addition there are monthly payments of Rs 200 to the welfare fund and Rs 1,500 to the Society as a service charge, and a payment of Rs 1,050 per annum to the RTA for the grant of the official route permit. The society has the right to increase any of these charges without prior notice to the operators.

6.4.2 Fares structure

Legally fares for road based public transport are determined by the Provincial Government (see chapter 4, section 6.4). However the FUTS has been allowed to fix fares for its own services, and although prior approval for fares revisions from the Punjab Government is still

required this is in practice a formality. In effect the FUTS has been treated as private institution which can run bus services and set fares for its own purposes; thus creating a mechanism for circumventing the government fares controls. The maximum government set fare for stage carriage bus services in urban areas was Rs 6.25 in March 1997, whereas the full route fare determined for the services operating under FUTS control was set almost double at Rs 12. Moreover students have not been given a concessionary fare on FUTS services, unlike other stage carriage services. The minimum fare fixed at Rs 3 for trips between two stages is also double the minimum set for bus services elsewhere in the province. The fares are based on stages, and there are conductors for the entire fleet. The higher fares are the chief attraction to operators to join the Society.

6.4.3 Route network

FUTS has defined the entire route network, terminals, and bus stops for its own services. The RTA has been obliged to rubber stamp FUTS decisions. From an initial seven routes FUTS services were operating on 11 routes in 1996, with four new routes started as a result of the popularity of the services. Routes form a network of radials running across the city centre (Figure 6.2). The RTA previously issued a list of stops for each route, but in practice there were no signs even to indicate the existence of bus stops. FUTS has specified the location of all bus stops and installed sign boards with the courtesy of various commercial firms. No shelters are provided as yet but recently the Society has commissioned the design of a bus stop shelter. It has also built the new central terminal, on land leased rent free from the government.

An important feature of the network is that each route converges on the main terminal located in the central area, providing maximum interchange for passengers between services, but at the risk of some excessive concentration of services on the central main terminal. A further terminal near the railway station was under consideration to relieve these pressures.

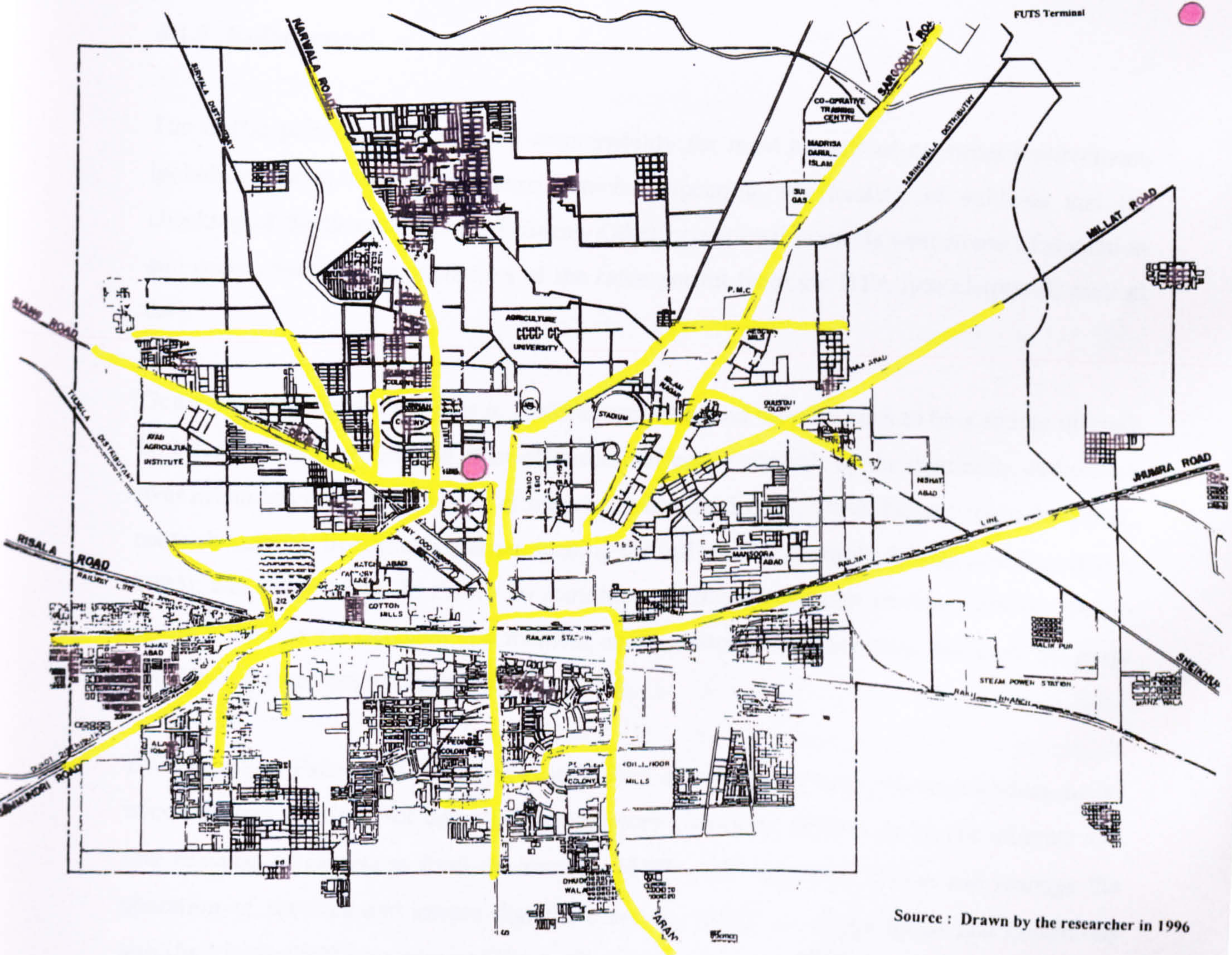
Figure 6.2 Route network served by FUTS services



Scale: 1: 80,000

LEGEND

- F.M.C. LIMT.
- ROADS & STREETS.
- RAILWAY LINE.
- CANAL, DRAIN & DISTRIBUTY.
- FUTS service route network
- FUTS Terminal



Source : Drawn by the researcher in 1996

6.4.4 Safety regulations

A motor fitness certificate must be obtained for all public transport vehicles from the Motor Vehicle Examiner (MVE), which is subsidiary agency of the RTA, after every six months (see chapter 4, section 6.4). Generally this appears to be a paper based formality rather than meaning actual examination. The vehicles operating under the control of FUTS, by contrast, are examined daily by the FUTS supervisors. Defects are identified and the need to do repairs (eg to indicators, lights, seats, windows etc) is pointed out, and is subject to enforcement.

6.4.5 Enforcement

The traffic police have an overall responsibility for most aspects of on street enforcement, including traffic regulation, motor vehicle inspection, overloading of vehicles and the checking of documents such as licences. Other operational controls over hours of operation and route coverage are conditions of the route permit from the RTA (see chapter 4, section 6.4).

Generally enforcement systems in Pakistan are weak and they are seen to be a source of graft both for the traffic police and other officials. Ineffective controls by the regulatory authorities over urban bus operations lead to numerous abuses by drivers. These include route deviation, route shortening, irregular operation, waiting for full loads and unsafe driving practices (GoP, 1995), and overloading. In theory no standees are allowed on stage carriage services, but in practice there is no effective enforcement and operators maximise their revenues by gross overloading (see chapter 5, section 7).

By contrast, in Faisalabad, FUTS has established its own much more effective system, under which drivers are fined for committing regulatory violations, backed up by the ultimate and real sanction of exclusion from the society. FUTS staff supervise, police and manage the operation of services and ensure that there are no violations of the terms and conditions specified in the FUTS agreement. The traffic police allow this delegation and are compelled to cooperate in the smooth functioning of enforcement by FUTS because of the authoritative composition of the governing body of the society. The traffic police only intervene when

drivers are involved in gross violations.

When vehicle defects are identified by the FUTS supervisors, the operator is required to take the vehicle to any local workshop of his own choice and has to obtain a duty slip from the society. The operator must make the vehicle available for operation again on the date specified on the slip. He is to inform the society in the event of any delay caused in repairs, failing which the society has the right to confiscate the whole or part of the operator's security deposit.

The mobile supervisors also police and supervise service operation. They check that there is no overloading, that drivers stop their vehicles at specified stopping points and that there is no route deviation. Drivers are booked for committing violations and are fined by the administrator of the society. In the initial stages of operation, the average violation rate was two bookings per vehicle per day. This has fallen to a rate of only 0.15 bookings per vehicle per day at present, and usually violations are by drivers who are not adequately supervised by the vehicle owners. The reduction in the rate of bookings is evidently the result of strict enforcement by the FUTS support staff.

A common problem with public transport services in Pakistan is that private operators do not operate the full route during off-peak hours. FUTS has addressed this problem of route shortening by establishing three check points on each route, located at the main terminal and at both ends of the route. Drivers are required to register their attendance at the start/end of operation and arrival/departure for each trip with a security guard posted at each check point. Those failing to do this are liable to heavy fines. The security guards submit the 'arrival-departure diary' every day for verification of the record by other employees in the society office.

Important features of the FUTS enforcement regime include the following. Firstly, the supervisory staff/vehicle ratio is vastly superior, at 1:6 for FUTS compared with 1:100 for the RTA and 1:40 for the Traffic Police. Secondly, given adequate fares drivers are not tempted to be involved in many violations. Thirdly, the absence of 'union' activity is important in this context, given the corruption and political interference associated with such activity in other

public transport organizations in Pakistan. Finally and most importantly, there is little reported evidence of corruption in the entire operation of the FUTS, and the instances which have arisen have been dealt with firmly by dismissing the staff concerned.

6.5 Pattern of Ownership

Single vehicle ownership is predominant under FUTS control. Approximately 50 percent of owners obtained vehicles directly through the Prime Minister Public Transport Scheme (PMPTS) at subsidised prices during 1992-93 and their vehicles were operating on intercity routes before joining the FUTS. About 40 percent of the present owners also acquired PMPTS vehicles either from the original owners or from brokers at a higher price. They paid a deposit at the time of purchase and were required to pay the remaining amount in instalments to the specified banks. Only 10 percent of owners purchased second hand vehicles other than PMPTS from the market. All these owners managed to finance the purchase of vehicles from their own sources such as by selling their suzukis, using their savings, or by taking out loans from their relatives or friends. Table 6.4 shows the pattern of ownership of vehicles under FUTS control.

Table 6.4 : Occupation of vehicle owners under FUTS control

Occupation	No of owners	Percentage
Transport operators	192	40
Employees	120	25
Shopkeepers	96	20
Drivers	48	10
Others	24	5
Total	480	100

Source: Data collected by the researcher in December 1996

Note: Some operators own more than one minibus

6.5.1 Categories of vehicle owners

1. Transport operators: there are only 40 percent of owners who had previous experience of running public transport, such as operating buses/minibuses on intercity routes or suzukis in Faisalabad. Although there were few transport operators at the earlier stages of FUTS operation, gradually their number has increased. These operators are strongly motivated to care for their vehicles and to control cash flows. They have employed crews (drivers and conductors) and themselves check their performance regularly. Every day at the end of operation, the crews report to them about defects of the vehicle and the owners arrange repairs if required without fail. As a result, their vehicles are well-maintained and some of them, who joined FUTS at the early stage, have been able to purchase and operate more than on second-hand vehicle.

2. Shopkeepers: Twenty percent of owners are either shopkeepers or concerned with business activities and joined FUTS on the expectation that they would earn more profit on this investment. The proportion of shopkeeper-owners reported (by the FUTS staff) was higher but with the passage of time has declined to 20 percent. They also employed crews for their vehicles. They were inexperienced operators, who started initially to pay crews a fixed daily wage, and crews were required to pass on all earnings to owners. But, as in any other ticketless system around the world, this practice led to crews supplementing their own incomes by diverting fares. As a result, the owners were forced to hire their vehicle to crews on a fixed daily basis. Under this agreement, crews are supposed to keep the surplus over an agreed amount. The following are the negative aspects of this practice. First, drivers are involved in more violations. Second, a single driver is driving the vehicle for more than 16 hours daily which results in minor accidents and the vehicle often requires a lot of repair work. Third, the driver is obliged to park the vehicle at the owner's residence after the end of operation. Usually, the driver does not report to the owner about required repairs. This negligence results in frequent breakdowns of vehicles and requires large amounts for maintenance and overhauling. Some of these operators however, have learned lessons from this practice and have started to look after the operation of their vehicles themselves.

3. Employees: 25 percent of owners are employees of government or private sector. Most of

them acquired vehicles directly from the PMPTS to supplement their income. They also joined FUTS by withdrawing their vehicles from intercity routes owing to the attractive returns under FUTS operation. As most of them were unable to supervise the crews during their working hours the same happened with them as with shopkeeper-owners. Some of them were unable even to pay their monthly instalments to the banks. Since they were defaulters the banks started to hold their vehicles, and they were forced to sell their vehicles by the end of 1996 to pay the outstanding amount. There are however some employees who have managed to check crews after their working hours and on holidays who are still surviving in this business.

4. Drivers: There are 10 percent of owner/drivers under FUTS control. Most of them purchased vehicles on instalments by arranging loans from relatives or friends. They have employed conductors who are their own relatives or persons of their confidence. Since they drive themselves there is no question of revenue leakage and undue wear and tear to vehicles. Like experienced operators they also maintain their vehicles well.

5. Others: These owners include farmers, retired persons and some ladies. They obtained vehicles either from the PMPTS or from the market. They manage the operation of their vehicles themselves or through their relatives. They have no other business, hence most of their time is spent on looking after their vehicles.

6.5.2 Vehicle owner profiles

The above categories of vehicle-owners are illustrated with selected case study profiles given below.

Case 1 (transport operator): Muhammad Shehzad, 32, is an operator by profession, worked as a motor mechanic for about four years. He joined his father in 1985, who was operating 6 buses on Faisalabad-Rawalpindi route. He also established a showroom for (Toyota Hiace) minibuses in 1990. In 1994, he joined FUTS with a second hand minibus which cost Rs 250,000. He was allocated Route No 5 of his own choice. He employed a driver and a conductor at the rates of Rs 170 and Rs 120 per day respectively, in addition to Rs 50 for their meals. Mr Shehzad is responsible for all repairs, fuel costs, taxes and most fines imposed

by the traffic police. In the case of a fine as a result of overloading this is paid by the crew. The crew complete 4 to 5 round trips during their daily agreed working hours (6 am to 7 pm) and earn an average of Rs 300 per round trip. He applies random checks during the hours of operation. The crew report to the owner about any repair work required to his vehicle at the end of their operation. He completes two round trips during the remaining period or by working beyond specified hours of operation and earns in the range of Rs 500-Rs 600. He takes his vehicle to a workshop for required repairs at the end of operation and then parks it at his residence. As a result, he has never been directed by the FUTS staff for any repair. He also reports the replacement of his vehicle if it is not functioning properly. He added another 3-year old vehicle in September 1996, and paid Rs 150,000 as a lumpsum and the remaining Rs 205,000 in instalments at the rate of Rs 6200 per month. This vehicle is also operating on Route No 5 and is driven by his younger brother after 7 pm.

On a question of operators representatives on the GB of the Society, he states "it will be the decline of the Society if they elect operators representatives", on the grounds that generally elected representatives would take benefits for themselves and not work for their members. He further added, "operation under the Society is profitable at present but demands full time supervision".

Case 2 (shopkeeper): Zafar Iqbal, 40, was a autorickshaw driver in 1980s. He was running a bakery during 1990-95. After having information from other operators that FUTS business is profitable, he along with another partner, purchased a minibus and joined FUTS in September 1995. They paid the previous owner of the minibus Rs 220,000 initially and the remaining amount was agreed to be paid over two years at the rate of Rs 6500 per month. He applied to FUTS for the allocation of Route No 2 and is operating on this route. He hired the vehicle to the crew at the rate of Rs 1000 per day. The crew were made responsible for fines and oil costs while the owner responsible for maintenance and other expenses. He reports that he received an amount of Rs 250,000 from the crew whereas he spent Rs 150,000 only on repairs and maintenance of vehicle during the first 10 months of operation. Since he has to spend so much time on vehicle repairs he was forced to close his bakery. His initial partner in the minibus has withdrawn from the partnership as a result of the very low return on his investment.

In October 1996, he sold his house to pay back the amount to the second partner. Presently, he is sole owner of the vehicle and is living in a rented house for which he pays a monthly rent of Rs 1200. He has started a close supervision of the operation of his vehicle, employed new a driver and conductor and pays them Rs 180 and Rs 150 per day respectively. He is responsible for all expenses required for his vehicle operation. He also drives the vehicle from time to time. The crew start and terminate their operation at Ghulam Muhammad abad, one end of Route No 2, where they and he himself live. They complete 6-7 round trips daily and collect fares amounting Rs 300-350 per round trip.

Mr Zafar stated that during November-December 1996, there was a lot of improvement in the operating surplus and he is hoping for further improvements. He was trying to get a PSV driving licence and by obtaining this license he would be able to save the salary of a driver by driving the vehicle himself. He complained that cost of wear and tear in Faisalabad is high, due mainly to damaged roads and mixed traffic. He quoted a recent incident when his vehicle had a collision with a camel-driven cart, and the door of the vehicle was totally damaged. As a result of this, he spent Rs 900 for its repair plus the vehicle was off road for one day. He showed no concern on the issue of operators to being represented at the GB of the Society.

Case 3 (driver): Riaz Ahmed, 29, is a driver by profession. He was previously driving a suzuki with a light traffic vehicle (LTV) licence during 1987-94. He applied for a PSV licence and was failed 3 times before obtaining the licence. Eventually, he was able to obtain the PSV licence but he spent about Rs 600 for which he did not explain details. He joined FUTS in August 1994, with a second hand minibus purchased from a showroom. He paid Rs 550,000 as the cost of the vehicle. He managed the payment with the help of his younger brother who loaned him Rs 200,000. Initially his vehicle was allocated Route No 7 but he applied to the Society for a change in route owing to damaged roads. At present his vehicle is plying on Route No 3.

He drives himself and his younger brother is serving as conductor. They start their daily operation from the main terminal at 6.0 am and terminate at about 10.0 pm at either of the ends. They complete 5-6 round trips daily and collect fares amounting Rs 350-400 per round

trip. When one of the brothers is off from operation, a driver is arranged on a daily charge basis, and he is paid Rs 200 including refreshment allowance. When his younger brother (conductor) is absent then Mr Riaz acts as a conductor and the driver drives the vehicle. By so doing there is no revenue leakage at all.

Mr Riaz proudly says that during their two and half year of operation he has never been fined by the FUTS staff and his vehicle has not had a single minor collision. Consequently, he has to pay only for routine maintenance which costs on average Rs 8000 per month. He further added that in the city of Faisalabad, every driver is trying to hit others' vehicles and one has to be alert to save his vehicle. In response to the question on how would he disburse his savings, he replied that the saving is distributed between two the brothers (driver : conductor 3:2). Mr Riaz is thinking of purchasing a five marla residential plot but the younger brother is saving money for his marriage. Mr Riaz is happy with present functioning of the FUTS and does not feel operators' representation is needed in FUTS administration.

Case 4 (other): Rehmat Ali, 39, retired from the army in 1994. He joined FUTS in April 1995, with a minibus purchased from a broker. He paid the broker Rs 197,000 initially and the remaining amount was agreed to be paid in two years at the rate of Rs 6700 per month. He managed the initial payment of the vehicle from a gratuity received at the time of retirement. Initially his vehicle was allocated Route No 8 on which 40 vehicles were already operating. Although the route was lucrative, he applied to the Society for a change in the route owing to damaged roads. At present his vehicle is plying on Route No 2 on which 80 vehicles are in operation. He has employed a driver and conductor for the entire daily operation and pays them daily Rs 200 and Rs 150 respectively, and they are also allowed to have a meal allowance up to Rs 60. He is responsible for all expenses required for vehicle operation. Crews complete six round trips daily and collect fares amounting Rs 350-380 per round trip. He also drives the vehicle from time to time and offers rests to his driver. By doing so he can have an idea about the amount collected for a trip.

Mr Rehmat says that he has no other job and therefore he remains at Main Terminal or arranges spares and time for repairs for the vehicle if required. He further states that to avoid breakdown, the oil filter is changed and general maintenance for the vehicle is done after

every four days. For this purpose the vehicle is generally taken to a workshop after the end of operation.

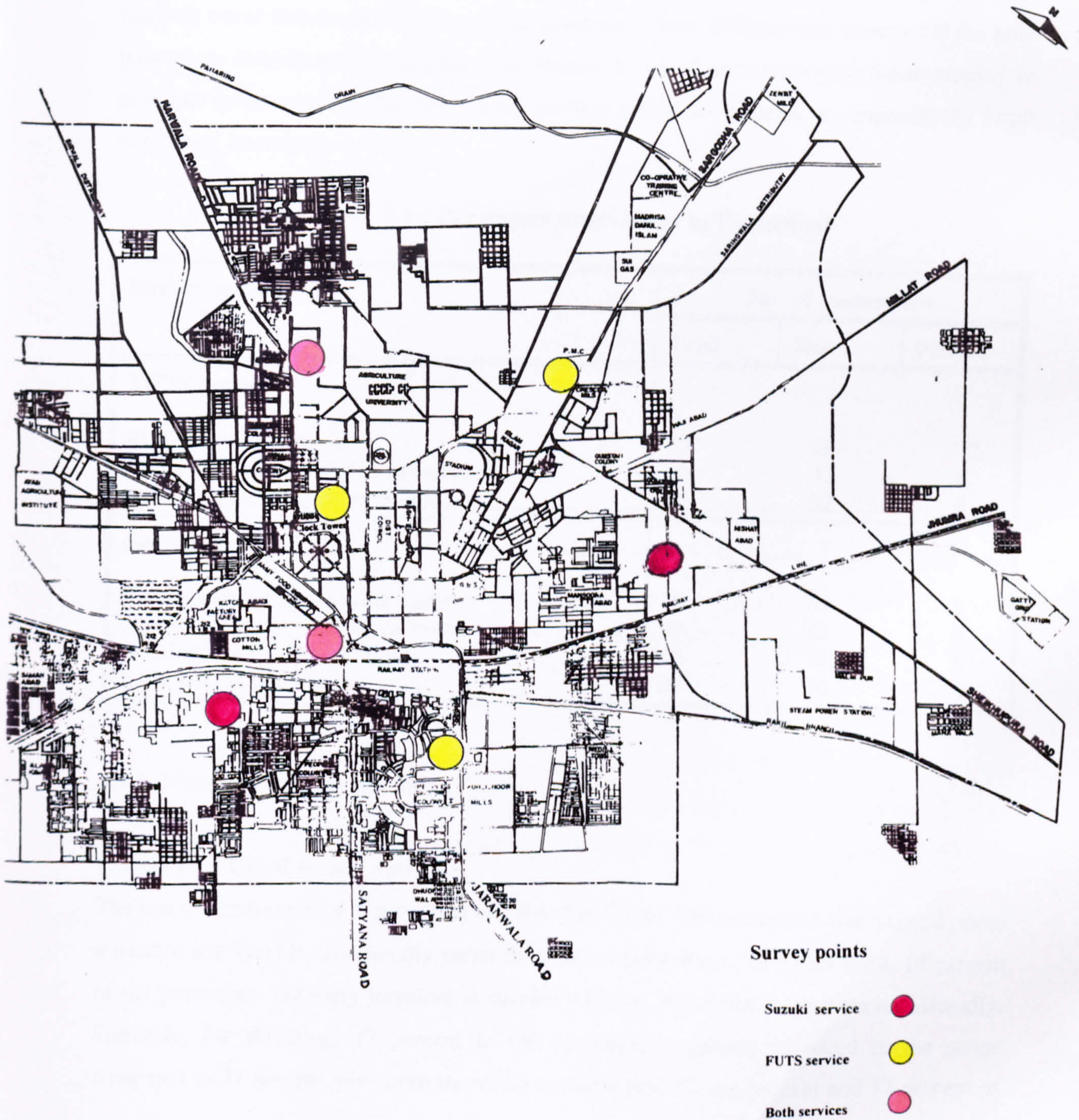
He regularly pays the monthly instalment for his vehicle and makes Rs 400 per day. He states that "public transport is a business through which one can earn a net cash but can have spares form shops and get vehicle repaired from workshops, and even can own vehicles on instalments." He added, "FUTS is a God's gift for operators working under it." He does not feel the need for operators to be represented at the GB for the time being, but representation can be made if any problem emerges. He spends Rs 5000 per month on his living expenses. In response to the question how would he disburse his savings, he replied that he is thinking of buying an additional vehicle.

6.6 Public Transport User Surveys

To seek users' views about the services and their opinions as to how improvements could be made to public transport services, passenger surveys were conducted in Faisalabad in December, 1996. In order to get deeper understanding about travel pattern of the users in Faisalabad, household case studies were also undertaken.

Two types of stage carriage passenger services are operating in this city; suzuki services which are regulated by the Government and FUTS services which are regulated by the NGO. Comprehensive survey forms were developed in order to obtain several sets of information on both types of public transport services operating in Faisalabad (Appendix-3). A pilot survey was conducted to test the workability of the survey forms and the forms were modified in the light of the pilot test. In total, 280 passengers were interviewed: 140 passengers on suzuki services and the same number using FUTS service. Of the total, 50 percent of passengers were interviewed during peaks (8 am-10 am & 3 pm-5 pm) and 50 percent during off-peaks (11 am-12 am & 7 pm-8 pm). The surveys were conducted during working days excluding weekends.

Figure 6.3 Passenger survey points in Faisalabad in 1996



There are route sections and complete routes, where suzukis and FUTS minibuses compete with each other. On some routes suzukis have totally been eliminated, and on some routes only suzukis operate. In order to get a representative picture, passengers from different sections of each of these route types were randomly selected and interviewed (see Figure 6.3). Table 6.5 shows the stratified sample used to ensure coverage of overlapping and non-overlapping sections of the route network operated by both services. An attempt was also made to cover female passengers and the passengers from different age groups. Of the total passengers interviewed, 20 percent were female. It would have been possible to employ in principle quota sampling for this survey but this would have meant an impractically large number of interviews.

Table 6.5 : Passengers interviewed in Faisalabad

Survey section	No. of passengers		
	Total	Male	Female
FUTS service			
FUTS central terminal	60	48	12
Routes where only FUTS operates	40	32	8
Routes where both services operate	40	32	8
Suzuki service			
Routes where only suzukis operates	40	32	8
Non overlapping sections of route	40	32	8
Overlapping sections of route	40	32	8
Fully overlapped routes	20	16	4

6.7.1. Passenger survey (suzuki)

1. Reported use of suzuki service

The use of suzuki service is presented in Table 6.6. Of the 140 passengers interviewed, more tended to use suzukis occasionally rather than on a regular basis. To get to work, 19 percent of the passengers regularly travelled in suzukis whereas 30 percent used them occasionally. Similarly, for shopping, 17 percent of the passengers regularly travelled to the shops compared to 31 percent who were travelling occasionally. Eleven percent and 17 percent of

the passengers used this service for social activities on regular and occasional bases respectively. Twelve percent of the passengers responded that they were regularly benefitted from the use of suzuki service for other purposes such as hospitals visits or to attend government offices. The use of suzukis for education was reported as much less, only 6 percent.

Table 6.6 : Reported use of suzuki service

Activity	No of respondents			
	Regularly	Percentage	Occasionally	Percentage
Work	27	19	42	30
Education	8	6	9	6
Shopping	24	17	44	31
Social	15	11	24	17
Other	16	11	17	12

2. Reported use of suzuki for specific trip

Table 6.7 presents reported use of suzuki by the passengers for their specific trip. One in three passengers reported that travelling in a suzuki either to go home after finishing work or going to work. Of these, 50 percent passengers were travelling during morning peak, 40 percent during evening peak and 10 percent during off-peak periods. Twenty seven percent of the passengers reported that they were using the suzuki for shopping. Fifteen percent of the passengers responded their use of the suzuki was for social activity. All shopping and social trips were reported by the passengers during off peak period. Only 13 percent of the passengers (60% during morning peak and 40 percent during evening peak) stated their purpose for that specific trip was education. Twelve percent reported other purposes such as to visit a hospital or to attend court.

Table 6.7 : Reported use of suzuki for specific trip

Trip purpose	No of respondents	Percentage
Work	47	33
Education	18	13
Shopping	37	27
Social	22	15
other	16	12
Total	140	100

3. Reasons for travelling in suzukis

The principal reasons for travelling in suzukis as reported by the passengers are presented in Table 6.8. It is quite evident that most of their reasons are related to the levels of FUTS services. Of the passengers, 32 percent reported that a seat was not available to them in FUTS service as the number of its minibuses was inadequate. There were 30 percent of passengers who reported to use suzukis as their fares were low. Six percent of the passengers reported other reasons, for example, that their own vehicle was not available to them for that specific trip or they were from outside of Faisalabad.

Table 6.8 : Reasons for travelling in suzukis

Reasons	No of passengers	Percentage
Low fare	42	30
Limited number of FUTS vehicles	45	32
No FUTS service	22	15
O/D not linked with FUTS service	23	17
Other	8	6
Total	140	100

4. Monthly income

The reported monthly income of suzuki passengers is given in Table 6.9. Forty one percent of the passengers interviewed had a monthly income in the range of Rs 3,001-6,000. Seventeen percent of the passengers had a monthly income over Rs 6,000. Twenty percent of the total passengers had a monthly income of up to Rs 3,000. The average monthly income of the suzuki passengers is estimated at Rs 4,300 which is below than the average monthly income of FUTS passengers (see section 6.6.2). Twenty two percent passengers did not report their monthly income (some females/unemployed persons) as they did not know their household's income.

Table 6.9 : Monthly income of suzuki passengers

Income (Rs)	No of passengers	Percentage
Up to 2000	6	4
2001-3000	22	16
3001-4000	27	19
4001-5000	19	14
5001-6000	11	8
6001-7000	13	9
Over 7000	11	8
No response	31	22
Total	140	100

5. Intention to travel in FUTS service

Seventy five percent of the suzuki passengers interviewed, intended to travel in FUTS services. Of these 45 percent (47 passengers) stated that they would travel in FUTS minibuses provided a seat was available, and these passengers were from those areas where both services operate. The remaining 55 percent of those intending to travel in FUTS services were from areas where only suzukis operate. Twenty percent of the passengers responded that they were not prepared to travel in FUTS services due to the higher fares, or because they had access to

their own vehicles. The other 5 percent stated that they do not know.

6. Willingness to pay higher fare for suzukis

Seventy percent of the passengers intending to use FUTS services were also willing to travel in better quality suzuki services at higher fares if their service operation was organised on the lines of the FUTS pattern. Thirty percent of the passengers stated that they were not prepared to use suzukis at higher fares because of the narrow seating arrangement of the vehicles.

7. Reported complaints about existing public transport services

The complaints of suzuki passengers about existing public transport are presented in Table 6.10. Most of the complaints (75%) were related to quality aspects of service offered. Of these complaints, 41 percent were regarding comfort aspects such as frequent overloading, uncomfortable vehicles, unsuitable access for the elderly and ladies or unsuitable and narrow seating arrangements. Thirty four percent of the complaints were about the aspects of unreliability of suzuki services; for instance, wastage of time, no schedules, route shortening and the crews' practice of deceiving passengers. Sixty percent of these complaints about unreliability were from the passengers where both services operate and 40 percent from the areas where only suzukis operate. Nine percent of the total complaints were about safety aspects such as old vehicles and reckless driving. Passengers also complained about insufficient public transport services and 16 percent of the complaints were about the infrequency or absence of FUTS services on some routes. Of the complaints about insufficient services, 80 percent were from the areas where only suzukis operate and 20 percent from the areas where both services operate.

Table 6.10 : Reported complaints about existing public transport

Service aspect	Complaints by passengers	
	Frequency	Percentage
Reliability	145	34
. Time wastage	74	17
. No schedule	27	7
. Route shortening	26	6
. Deceiving passengers	18	4
Comfort	175	41
. Overloading	78	18
. No comfort	51	12
. Difficult ride	23	5
. Narrow seating	12	3
. No seats for ladies	11	3
Safety	39	9
. Old vehicles	21	5
. Reckless driving	18	4
Quantity	70	16
. Vehicles inadequate in number	70	16
Total	429	100

8. Suggestions for improvement to public transport

Improvements suggested to public transport in Faisalabad are illustrated in Table 6.11. Most of the passengers (60 percent) furnished their suggestions about the reliability and comfort aspects of services, and 20 percent of the passengers suggested improvements in quantity such as more FUTS vehicles, replacement of suzukis with FUTS on remaining routes, and introduction of large capacity vehicles on busy routes. Eight percent of the passengers wanted safety benefits from better driver behaviour or better quality vehicles. Cleanliness was not recorded as a complaint, but 5 percent of the passengers did suggest improvements to cleanliness. Similarly, although passengers did not complain about the behaviour of crews, 7 percent of them registered suggestions that there should be no smoking or playing of music

by the crews in the vehicles, or that they should behave courteously to passengers.

Table 6.11 : Suggestions for improvement to public transport

Service aspect	Suggestions by passengers	
	Frequency	Percentage
Reliability	140	34
. No request stops	39	10
. Hours of operation	34	8
. Service schedule	31	7
. Route shortening	20	5
. Service check	16	4
Comfort	105	26
. Overloading	82	20
. Ladies seats	12	3
. Luggage space	11	3
Safety	33	8
. Good condition vehicles	24	6
. No reckless driving	9	2
Cleanliness	20	5
Courteous staff	29	7
. Crews behaviour	20	5
. No smoking	5	1
. No music	4	1
Quantity aspects	82	20
. More vehicles	61	15
. Replace suzukis with FUTS	12	3
. Large capacity vehicles	9	2
Total	409	100

6.7.2 Passenger survey (FUTS)

1. Use of FUTS services

The use of FUTS services is presented in Table 6.12. Of the 140 passengers interviewed, fifty six percent regularly used FUTS services for their travel to work whereas 14 percent were occasional users. For shopping, 32 percent of the passengers regularly travelled to the shops by FUTS services whereas 24 percent were travelling occasionally. Thirty five percent of the users travelled regularly for social activities while 24 percent reported occasional use. Eighteen per cent of the passengers regularly benefitted from the use of FUTS services for other purposes; such as visit hospitals, attend government offices and travelling in bad weather. The use of FUTS services for education was found to be much less common: 14 percent regular users and 11 percent occasional users.

Table 6.12 : Reported use of FUTS services

Activity	No of Respondents			
	Regularly	Percentage	Occasionally	Percentage
Work	78	56	20	14
Education	20	14	16	11
Shopping	45	32	34	24
Social	49	35	27	19
Other	25	18	20	14

2. Reported use of FUTS service for specific trip

Table 6.13 presents reported use of FUTS service by the passengers for their specific trip. Thirty eight percent of the passengers (of which 62% during morning peak and 38 percent during evening peak) reported that travelling in a FUTS service either to go home after finishing work or going to work. Twenty nine percent of the passengers reported that they were using FUTS service for shopping. Of these, 55 percent were during off peak and 45 percent during peak periods. Fifteen percent of the passengers (of which 62% during morning

peak and 38 percent during evening peak) stated their purpose for that specific trip was education. Eleven percent of the passengers (of which 61% during off peak and 39 percent during peak) responded their use of the FUTS service was for social activity. Nine percent of passengers reported other trip purposes during off peak hours.

Table 6.13 : Reported use of FUTS service for specific trip

Trip purpose	No of respondents	Percentage
Work	53	38
Shopping	40	29
Education	21	15
Social	16	11
other	10	7
Total	140	100

3. Monthly income

The reported monthly income of FUTS passengers is given in Table 6.14. Thirty seven percent of the passengers interviewed had a monthly income in the range of Rs 3,001-6,000. Twenty three percent of the passengers had a monthly income over Rs 6,000. Only 12 percent of the total passengers had a monthly income of up to Rs 3,000. The average monthly income of the FUTS passengers is estimated at Rs 4955 which is identical to the estimated average monthly income (Rs 4930) of a household in Faisalabad (see section 6.2.2). Twenty eight percent of passengers did not report their monthly income.

Table 6.14 : Monthly income of FUTS passengers

Income (Rs)	No of passengers	Percentage
Up to 2000	4	3
2001-3000	12	9
3001-4000	10	7
4001-5000	31	21
5001-6000	12	9
6001-7000	14	10
Over 7000	18	13
No response	39	28
Total	140	100

4. Choice of FUTS service for specific trip

Table 6.15 presents the reasons why the passengers made a choice of FUTS service for their specific trip. A majority of the passengers (79 percent) selected FUTS service for their specific trip due to a guaranteed seat and service reliability. Six percent of the passengers travelling in FUTS service reported other reasons such as an emergency or that the FUTS service was available at that time. Nine percent of the passengers chose the FUTS service because of the non-availability of an alternative mode. Only six percent of the passengers were travelling by FUTS service because there was no cheaper public transport service available to them, and these passengers were from the areas where suzukis were no longer operating.

Table 6.15 : Choice of FUTS service for specific trip

Principal reasons	No of passengers	Percentage
Guaranteed seat	71	51
Reliability of service	39	28
Non-availability of cheaper public transport	9	6
No alternative mode	13	9
other	8	6
Total	140	100

5. Mode of transport used prior to FUTS service

Table 6.16 shows that the FUTS has attracted the ridership of both the private and the public transport modes as well as casual passengers. Sixty four percent of the passengers reported that they previously made this journey by other public transport modes; namely either suzukis, tongas and autorickshaws. Twelve percent stated that they previously used their cars, motorcycles and bicycles. Eight percent of the FUTS passengers used to walk for that trip and three percent reported using other modes such as suburban buses or lifts from others. Four percent of the passengers had not made the trip before in Faisalabad.

Table 6.16 : Mode of transport used prior to FUTS service

Mode	Passengers responses	
	Frequency	Percentage
Walk	21	8
Suzuki	96	37
Autorickshaw	32	12
Tonga	62	24
Motorcycle	3	1
Car	4	2
Bicycle	24	9
Trip not made	9	4
Other	7	3
Total	258	10

6. Satisfaction with FUTS service

Most of the passengers (73 percent) were satisfied but 18 percent stated their dissatisfaction with FUTS service, and 9 percent gave no opinion. The reasons for dissatisfaction with the service are explained in the more detailed analysis which follows.

7. Do passengers wait for FUTS service?

Fifty one percent of the passengers reported that they waited specifically for the FUTS service and 45 percent stated that they prefer FUTS service but take the first which to arrive. Only 4 percent of the passengers did not wait for the FUTS service but travelled on the first available transport service.

8. Reported waiting times

Of the passengers who waited for a FUTS service, 58 percent reported a waiting time of up to 10 minutes, 26 percent reported a waiting time of between 11 to 20 minutes and 16 percent reported a waiting time in the range of 21 to 30 minutes. The average reported waiting time was estimated at 10.3 minutes. Reported waiting times must be treated with some caution

however, since it was observed by the researcher that some passengers exaggerated their reported times during peak hours. For instance, if three full-minibuses passed the bus stop in 15 minutes, passengers typically reported their waiting time in the range of 25-30 minutes.

9. Stoppage at designated bus stops by FUTS drivers

Forty nine percent of the passengers reported that FUTS drivers always stop vehicles at the designated bus stops and 30 percent said that they frequently regard designated stops. However, 18 percent of the passengers complained that FUTS drivers sometimes allowed passengers to board from non-specified bus stops.

10. Route deviation by FUTS drivers

There was a question about route shortening in the original questionnaire but after conducting a pilot survey it was found that the routes were not shortened by the FUTS drivers although there was some route deviation. Forty one percent of the passengers reported a route deviation occurred sometimes; 22 percent reported that route deviations were rare and 7 percent reported frequent short cuts in the specified route. The FUTS drivers gave reasons to the researcher for the route deviations, such as damaged section of roads and road blockages due to social, religious or political gatherings.

11. Reported overcharging during hours of operation

Seventy eight percent of the passengers reported that they were never overcharged. However, 10 percent reported overcharging after ten o'clock by FUTS crews, and further 8 percent indicated rare incidence of overcharging during their journey during the hours of FUTS operation. This latter reported overcharging was on two routes where fares were increased in April 1996 due to the extension of the routes and the passengers were not aware of the increased fares.

12. Reported overloading on the FUTS service

Seventy two percent of the passengers reported that they had never seen overloading on the FUTS services. However, 11 and 14 percent of the passengers reported overloading on FUTS services during peak and off peak hours respectively (Table 6.17). The drivers admitted that this overloading was due to some 'black sheep' who were repeatedly fined for their violations.

The drivers also pointed out that sometimes they were helpless when passengers forcefully boarded the vehicles during morning peak hours. They also mentioned difficulties when both a female and an accompanying male passenger were not able to be accommodated and therefore would have to be separated for their journey. This then caused problems when the male insisted on travelling with the female.

Table 6.17 : Reported overloading on the FUTS service

Rate	No of passengers	Percentage
Never	101	72
Peak	16	11
Off peak	19	14
Peak & off peak	-	-
Don't know	4	3
Total	140	100

13. Reported walking times to the bus stops

Sixty five percent of the passengers reported their walking time to the nearest bus stops was up to 10 minutes. Thirty five percent of the passengers reported walking times of over 10 minutes. In terms of distance, a recent study reported that 74 percent of households in Faisalabad had a walking distance of up to 500 and 26 percent over 500 meters to the nearest bus stop (FDA, 1997).

14. Satisfaction with the mechanical condition of vehicles

Fifty nine percent of the respondents were satisfied with the mechanical conditions of FUTS vehicles but 22 percent showed concern about mechanical condition. Nineteen percent gave no opinion. Table 6.18 presents the nature of the complaints of the passengers related to mechanical condition of FUTS vehicles. Forty three percent were about broken windows, 37 percent were about seats not being comfortable and 19 percent were about the vehicles emitting smoke. There were no complaints about breakdown of FUTS vehicles during operation, which is a common complaint about public transport vehicles used in other cities in Pakistan. Although vehicle defects are regularly identified by the FUTS staff, sometimes

operators could fully justify a delay in vehicle repairs. For instance in the case of one repair, window-sheet was not available in the market for about a period of one month (December, 1996).

Table 6.18 : Complaints with mechanical condition of FUTS vehicles

Aspects	Complaints by passengers	
	Frequency	Percentage
Windows broken	21	43
Seats not comfortable	18	38
Emit smoke	9	19
Total	48	100

Note: Some passengers reported more than one complaint

15. Satisfaction with the cleanliness

Forty seven percent of the passengers were satisfied and thirty one percent dissatisfied with the cleanliness of FUTS vehicles. Twenty two percent of the passengers did not comment on this aspect. The majority of the passengers acknowledged that vehicles were clean in the morning time. It was observed that passengers eat dry and fresh fruit and throw their rubbish under the seats as there was no arrangement for rubbish collection in the vehicles. Generally, most of the crews do not clean their vehicles after making a trip because there is no punishment/fine about this aspect.

16. Passengers' views about fare levels

Table 6.19 indicates remarkably little dissatisfaction of passengers over fares. Fifty four percent of the passengers interviewed were satisfied with the fares, while only 11 percent were concerned that fares were too high and indicated that they use the FUTS service because an alternative mode was not available on their routes. About 31 percent of passengers were of the opinion that fares were slightly high for longer distance trips and the remaining 4 percent gave no opinion because this was their first trip on a FUTS service.

Table 6.19 : Passengers' views about fare levels

Level of fares	No of passengers	Percentage
Slightly high	43	31
Too high	16	11
Realistic	75	54
No opinion	6	4
Total	140	100

17. Satisfaction with safety aspects

Sixty two percent of the interviewed passengers were satisfied with safety aspects of the FUTS service but 31 percent of passengers were dissatisfied. The remaining 7 percent of passengers gave no opinion. Table 6.20 indicates passengers complaints about safety aspects. Of the complaining passengers, 44 percent commented that drivers were irresponsible, 20 percent said that crews were in a hurry and 36 percent considered there was a risk of accidents. Problems also occur at bus stops. It was noted that in cases when there were more passengers at a bus stop than the seats available in FUTS vehicles, the conductors only let in the required number of passengers and gave the 'go ahead signal' to the drivers. As there was no queuing system some passengers attempting to board the vehicles were pushed back by the conductors. There were cases when some passengers were injured. For instance, passengers told the researcher that an arm of a student from the Punjab Medical College was broken in March 1996, as a result of this behaviour.

Table 6.20 : Passengers' views about safety aspects

Aspects	Complaints by passengers	
	Number	Percentage
Irresponsible drivers	43	44
Crews always in hurry	20	20
Probability of accidents	35	36
Total	98	100

18. Popularity of FUTS service

In general, FUTS service is popular among the passengers. Table 6.21 shows the reported popularity of the service. Fifty seven percent of the passengers stated the popularity of FUTS service was gradually increasing, while 26 percent of the passengers reported no change in popularity, and 4 percent of passengers reported popularity was decreasing due to service inadequacy. Fourteen per cent of passengers gave no response.

Table 6.21 : Reported popularity of FUTS service

Rate	No of passengers	Percentage
Increasing	78	56
Unchanged	37	26
Decreasing	6	4
Don't know	19	14
Total	140	100

19. Complaints about FUTS service

The summary of complaints about FUTS service is presented in Table 20. Thirty two percent of complaints were that the number of FUTS vehicles was not sufficient and 15 percent were about the quality aspects of service such as the crews smoking in the vehicles and being discourteous to passengers. Eight percent of complaints (largely by ladies) were that ladies were not given their allocated seats. The crews stated that the ladies were usually offered their seats, but it was difficult for them to keep ladies' seats vacant when they had male passengers available. Moreover, the FUTS' own staff did not enforce the ladies reserved seat regulation. Forty five 45 percent of complaints were about safety aspects (see Table 6.20).

Table 6.22 : Other complaints about FUTS service

Service aspect	Complaints by passengers	
	Frequency	Percentage
Quality	38	15
. Discourteous crews	25	65
. Smoking	13	35
Comfort	19	8
. Seats for ladies	19	8
Safety	113	45
. Old vehicles	15	13
. Irresponsible drivers	43	38
. Crews always in hurry	20	18
. Probability of accidents	35	31
Quantity	79	32
. Not enough vehicles	79	32
Total	249	100

20. Suggestions about improvement of FUTS service

The suggestions given by the passengers about the improvement of FUTS service are presented in Table 6.23. Thirty one percent of the suggestions were that FUTS service capacity should be augmented by adding more or larger capacity vehicles and 12 percent suggestions were that vehicle quality should be improved. Eleven percent of passengers' suggestions were about the extension in the FUTS route network, and 5 percent of passengers suggested the construction of bus stop shelters which were non-existent at the time of survey. Twelve percent of the suggestions highlighted the need for training for ill-mannered conductors and reckless drivers. Five percent suggested that crews should deter smoking and playing music inside the vehicles. Ten percent of the suggestions emphasised that the vehicles should be kept tidy during the service operation. Nine percent of the suggestions (largely from

ladies) were that the regulation of reserved seats for ladies should be strictly enforced. About 5 percent suggested other improvements including a ban on the operation of smoke emitting vehicles, tougher enforcement of regulation by the FUTS staff, and the efficient processing of passenger complaints registered with the FUTS administrator. Generally the administrator issues a warning to the specific crew but no fine is imposed.

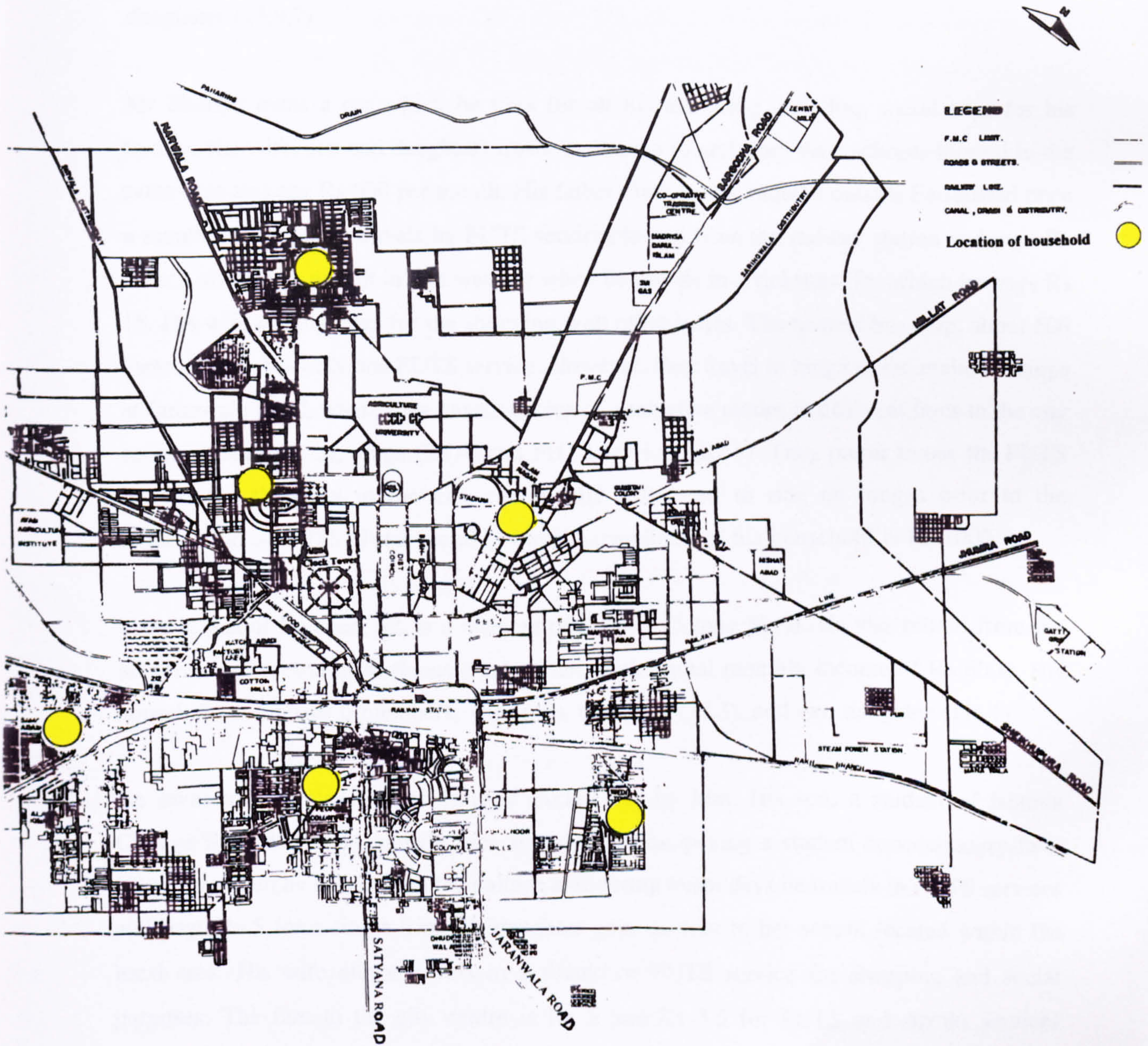
Table 6. 23 : Suggestions about improvement of FUTS service

Suggestions	Frequency	Percentage
More vehicles	73	31
Vehicle quality	30	12
Route network extension	26	11
Bus stop shelters	12	5
Crews training	30	12
No smoking/music	12	5
Cleanliness	25	10
Ladies seats	22	9
other	11	5
Total	241	100

6.7.3 Household case studies

The travel pattern of the users in Faisalabad is illustrated below with selected case studies of households. These studies of households were undertaken in order to gain deeper understanding about their socioeconomic conditions, attitudes, and perceptions about the use of various transport modes for different purposes. An attempt was made to cover different categories of households, by income and socioeconomic groups, from six different areas chosen to reflect socioeconomic variations in Faisalabad (see Figure 6.4). The following were the bases for the selection. First, the household is typical of that area. Second, the researcher has contacts with the household.

Figure 6.4 Location of case study households in Faisalabad



Case 1. Shafqat Mahmood, 48, lives with his family in a planned housing scheme, Medina Town. He is a government employee, with a monthly salary of Rs 5000 and works as a superintendent in BPS-16 in the Bureau of Imports and Exports. His wife is also working, as a senior teacher at the Comprehensive High School at Medina Town and earns Rs 5500 per month. Other household members include; his father (70), two sons (11, 3), and three daughters (13,9,7).

Mr Shafqat owns a car which he uses for all his travelling including social trips for his family. His wife, son and daughters travel in a tonga to and from their schools located in the same area and pay Rs 600 per month. His father visits farms situated outside Faisalabad once a month. He regularly travels by FUTS services to and from the railway station and pays Rs 3 for a single trip except in bad weather when he travels in a rickshaw for which he pays Rs 15. His wife usually goes for the shopping with other ladies. The nearest bus stop, about 600 meters away, has only one FUTS service. However, they travel in tonga to the main bus stops at Jaranwala Road, where they have a choice of alternative modes at different fares to the city centre; suzuki (Rs 3), tonga (Rs 4) and FUTS services (Rs 4). They prefer to use the FUTS service for shopping in the city centre. His wife used to ride on tongas prior to the introduction of FUTS. Total monthly travel expenditure of his household is Rs 1000.

Case 2. Abdul Hameed, 52, is a resident of Peoples Colony No II. He was retired from the air force and presently works as a sales-man, with a total monthly income of Rs 6000. His household comprises 6 members; wife (40), two sons (17,3), and two daughter (11, 1).

He owns a motorcycle which is used exclusively by him. His son, a student of Islamia College Sargodha Road, mostly uses suburban buses, paying a student concessionary fare. However, when he is late from the college and during exam days he travels in FUTS services and pays Rs 5 for a single trip. His daughter goes on foot to her school located within the local area. His wife either travels in a suzuki or FUTS service for shopping and social purposes. The fare to the city centre is Rs 5 and Rs 3.5 for FUTS and suzuki services respectively. If a seat is available to her in both services she prefers to travel in FUTS services despite the extra expense, as she feels comfort is more important than the money. Members of the household who use FUTS services on certain occasions used to travel in

suzukis for these trips. Total monthly travel expenditure for his household is Rs 500.

Case 3. Muhammad Din, 60, lives in Gulberg Colony with his two sons (30,22), a daughter (20), and a daughter in law (18). He and his younger son are running a shop adjacent to their house and earn about Rs 6000 per month. His elder son works as a sales-man in the city centre, with a monthly income of Rs 1800. His daughter also works for a private nursery school and earns about Rs 1000 per month, and his daughter in law is a housewife.

Usually, his younger son travels in FUTS services and pays Rs 2.5 to go to the city centre to buy commodities. He then travels on an animal-driven cart hired to transport commodities to their shop. Usually in the morning while going to work his elder son prefers to ride on a tonga, costing Rs 3, due to non-availability of seats in FUTS services . In the evening, he regularly travels by FUTS service and pays Rs 2 from his work place to home. The ladies frequently travel in FUTS services for social and shopping activities. His elder son's family occasionally use rickshaws to visit their relatives. Most of the household members were using tongas prior to the introduction of FUTS services. Total travel expenditure for their household members is Rs 800 per month.

Case 4. Nusrat, 50, lives in a rented house in Saman Abad, with his wife and three sons. He owns a small factory installed in his owned house. All male members of their household work in the factory and their reported monthly income is about Rs 10,000.

Nusrat has a motorcycle and uses it for all trips except when he goes outside Faisalabad and travels in FUTS to and from railway station or coach stand and pays Rs 5 for a single trip. His wife, 50, is a status conscious lady and uses rickshaw for most of her trips, but sometimes she attends religious functions with her husband and uses motorcycle. All three sons use bicycles to and from their factory. They use their father's motorcycle, if available, or FUTS services for their longer-distance trips. They were using suzukis prior to FUTS service. Their local travel expenditure is Rs 1000 per month.

Case 5. Muhammad Ayub, 55, lives adjacent to Islam Nagar area with his wife, three sons, and two daughters. He works as a medical representative and earns about 5000 per month.

His two elder sons were students of the researcher and graduated in town planning and civil engineering in 1993 and 1994 respectively. The elder son (town planner) at the time of survey was unemployed and was preparing himself for civil services examination. The civil engineer is employed with a private firm outside Faisalabad and is earning Rs 6000 per month. The younger son and daughters are college students.

Mr Ayub is a regular user and his daughters also travel in FUTS service to attend college and for social activities. The town planner and his younger brother use bicycles for various purpose trips but they travel by FUTS services when accompanied with their ladies. All household members go shopping on foot as the city centre is located close to their residence. The engineer son uses a rickshaw whenever he visits home about every month. Previously, they were using suzukis and tongas. Mr Ayub states that as his daughters have grown up he had planned to purchase a second hand car in 1994 but with the introduction of FUTS, he has postponed his plans for the time being. All members are very satisfied with this service but demand improvement in crews' behaviour. Their total monthly travel expenditure is about Rs 800.

Case 6. Fazal Din, 55, lives in his own house in Ghulam Mohammad abad, with his wife (45), a daughter (22) and three sons (18, 14, 10). He is a carpenter and works within his area. His wife and daughter are not working. All his sons are studying. Fazal reported his monthly income as Rs 3,000 which seemed unrealistic.

Fazal has a motorcycle and uses it for all trips. His wife and daughter sometimes use FUTS service or tonga for shopping in central area. They use their own motorcycle for social and recreational purposes. They were asked that why they do not use FUTS service regularly? They replied, it was expensive for them. His two sons studying in the central area use bicycles to and from their educational institutions. The third son goes on foot to his school located within the local area. The total household monthly travel expenditure is Rs 300 which largely consists of petrol and repairs for the motorcycle and mending punctures for bicycles.

Implications of household interviews: Although the above household case studies cannot give a comprehensive picture of households in the entire city, some implications can be drawn

from these cases. They reveal that households having their own vehicles fully utilize them for various trip purposes and that household members having no access to their own vehicles use public transport. The case studies illustrate that the FUTS service is being used by households with a monthly income of between Rs 5000 to 10,500. These households are from middle and higher income groups (see Table 6.1). This reflects the passenger survey results and it appears most households from low income groups cannot generally afford the use of FUTS service. The FUTS service is also being used by all age and sex groups. The case studies also show that where household members have a choice, they prefer to travel by FUTS service rather than suzukis, regardless of higher fares. The households have also shown their concern over the limited number of FUTS vehicles.

6.7.4 Summary of survey findings

The following is a summary of findings from the passenger surveys and household case studies in Faisalabad.

- The majority of the FUTS passengers travel in FUTS services due to a guaranteed seat and service reliability, whereas the majority of the suzuki passengers travel in suzukis mainly owing to inadequacy of FUTS service, and complain about comfort and reliability aspects of the suzuki service.
- Unlike suzukis, the FUTS service is popular among passengers and the majority of them are satisfied with service operation.
- A majority of the users are satisfied with the FUTS fares and they prefer to use FUTS service over suzukis despite the latter's low fares.
- Surveys show that a majority of passengers are prepared to pay higher fares for better quality services.
- Surveys show that a majority of the passengers regularly use FUTS services rather than suzuki services.

- The majority of suzuki passengers are willing to use FUTS services, where adequately provided.
- Route deviations, overcharging, and overloading in FUTS service have been reported but at a very low level.
- FUTS service has attracted the ridership of suzuki (37 percent), tonga (24 percent), autorickshaw (12 percent) and remaining from private transport and walking persons.
- Surveys show that users are concerned about the inadequate number of FUTS vehicles. FUTS passengers have also shown concern over safety aspects and the behaviour of crews.
- Surveys reveal that the ridership of the FUTS service is predominantly from the middle income groups with an average monthly income of Rs 4955 whereas suzuki ridership is more from lower income groups with passengers having an average monthly income of Rs 4300 .
- Surveys indicate that there is still a market for suzuki service. This can be seen by the fact that 30 percent of the suzuki passengers are using suzukis rather than FUTS services due to low fares. Similarly, 9 percent of the FUTS passengers indicated they travel by FUTS services because no cheaper public transport is available to them on certain routes. The higher fares appear to be a barrier to the use of FUTS services by lower income groups.

6.7 Performance of the Faisalabad Urban Transport Society's Services

6.7.1 Operational performance

The FUTS fleet has largely replaced the suzukis in the city. This can be seen by the fact that there are 22 RTA defined routes for suzuki operation and, until 1993, all these defined routes were operated. Now only 8 routes are operated, and in areas not adequately networked with FUTS services. This rapid transformation has occurred because of the quality of service

provided by the FUTS, which Suzuki operators are unable to match because their fares are capped. There are other Suzuki services operating illegally, however, in areas of the city not covered by FUTS services.

1. Passenger volumes: A significant indicator of productivity is the number of passengers carried in relation to the capacity of the system. A minibus plying in Faisalabad carries an average of 315 passengers each day, whereas in Indian cities an overloaded minibus of the same capacity carries 450-480 passengers per day (Fouracre and Maunder, 1981). This comparison suggests that there is no overloading on FUTS services. In total over 200,000 passengers are carried daily by the entire fleet.

2. Fleet utilization: The proportion of a vehicle fleet that can be put into service each day has a direct bearing on the productivity of the system. According to information provided by the society 95% of the FUTS minibuses are available for service from 6.00 am to 10.00 pm throughout the day. This indicates the effectiveness of vehicle maintenance and overall management of the system. A similarly high utilization figure (95%) has been reported to be achieved by the Cheran Transport Corporation in India (see chapter 3, section 6), but this is very exceptional in the LDC context.

3. Staff employed: The number of staff employed to put buses into regular service provides a clear indication of the labour productivity of the service. An average of only 2.6 persons are employed per FUTS operating vehicle. For comparison in Quetta, where mostly public transport services are provided by the private sector, the staff employed per operating vehicle is 4.3 and for the Cheran Transport Corporation in India 6.5 (see chapter 3, section 6).

4. Operating cost/surplus: The total operating cost per FUTS vehicle per day is around Rs 600-700, which includes labour cost, taxes, fines, service charges, spares, tyres, oil and maintenance, and is identical compared with the operating cost of a minibus in Lahore (see Appendix 4). In Faisalabad, maintenance costs are high due to damaged roads whereas in Lahore contingencies are high such as for graft. Private operators under FUTS control are generating an operating surplus around Rs 900-1200 per vehicle per day (see section 6.5.2). This is a high level compared to the surplus of operators with the same type of vehicles in

Lahore (Rs 500-600) and Rawalpindi-Islamabad (Rs 600-700). This is a result of realistic fares and efficient operation under the management of FUTS.

6.7.2 Quality of service

Quality expectations and acceptable levels of service vary from country to country. International comparisons are difficult to make and there are no universally applicable criteria against which to assess the quality of bus services in a city. More restricted comparisons can give useful insights nevertheless, and there are a number of attributes that can be measured in examining level of service. They include frequency/waiting time, walking distance to bus stops, bus occupancy, number of transfers, journey time, fares, reliability, service information, and the capacity of a system. In the Pakistani context, system capacity, waiting time, in-vehicle travelling time, access to bus services, fares, safety aspects and bus occupancy are selected for discussion below, as they apply to the FUTS services.

1. System capacity: Passenger seats per capita give a general indication of the level of service provided in a city. In Faisalabad FUTS has only 655 minibuses for a city of population approaching 2 million. The current ratio of 0.40 buses per 1000 population (excluding the suzukis) is almost equal to the average of 0.39 observed by Jacob et al (1986) for a large number of cities in LDCs. The FUTS scheme provides about 9,750 passenger seats per day. Alongside are the suzuki services, providing 3,000 seats, with autorickshaws providing 4,650 and tongas 9,000 seats (Table 6.3).

2. Service frequency/waiting time: Service frequency is a major factor in the overall quality of a service, and for urban services this is indicated by the time passengers have to wait at bus stops. In Faisalabad, the frequency of service is very high on the busiest FUTS routes (5 out of the 11 routes, on which more than 70 minibuses operate) with average waiting times of only 8 and 5 minutes during the peak and off peak periods respectively. Waiting times are higher in the peak hours because FUTS minibuses are full and overloading is not allowed.

3. Journey times: The journey time depends on the overall average speed, taking into account running speeds, delays in traffic, and en-route stopping to enable passengers to board and

alight. Minibuses in Faisalabad, as elsewhere in Pakistan, operate at high speeds when possible, but encounter poor quality road surfaces and are caught up in congestion and mixed traffic where their speeds decrease to 10-12 km per hour in the peak hours (see Plate). The average journey speed for the entire fleet controlled by FUTS has been recorded as 17 km per hour. This compares poorly with the figure reported for minibuses in Delhi of 22.4 km per hour (Fouracre and Maunder, 1981), although this figure is now dated.

4. Bus occupancy: Bus occupancy is defined as the number of passengers per vehicle under operation for a given period of time and for a specific part of the route network. A remarkable feature of the FUTS operation is that no overloading is allowed. The vehicles are restricted to the seating capacity of 15 passengers throughout the day. Initially frequent cases of overloading were found, but fines (of Rs 50/extra passenger) were imposed and consequently violations have been largely eliminated. The survey in 1996 found that 72 percent of the passenger interviewed have never seen overloading on the FUTS services, with 11 and 14 percent reporting that they have seen overloading during peak and off-peak periods respectively (see Table 6.17).

5. Route density: As indicated earlier, FUTS is adding more routes to its network with the increase in number of its vehicles. Routes have an average length of 19.5 km. The entire route network comprises of only 215 km with a route density of 0.07 km per 1000 population. This indicator suggests a major improvement is required in the total route network for the city of Faisalabad, although suzuki services have been excluded from the calculation.

6. Reliability: There are no predetermined timetables by which the reliability of FUTS services can be judged. However, 73 percent of the passengers who are regular users of the service indicated satisfaction because they know the headway of their specific route. Moreover, an important feature affecting reliability is that drivers do not wait for full passenger load at the terminal or wait for additional passengers for varying times at different bus stops, which is a common practice for suzuki drivers in Faisalabad and on public transport services operated in other cities of Pakistan. Also, route shortening or deviation has been largely eliminated (see section 6.6).

7. Hours of operation: The period of operation of the service has serious consequences for the operating costs of the operator and for the service offered to the public. FUTS has determined hours of operation as 6.00 am to 10.00 pm. The same level of services operates throughout this period, and some operators continue their operation until mid night on the routes where passengers are available to them. Unlike public transport service in other cities in Pakistan and Suzuki service in Faisalabad, passengers are confident about the hours of operation of FUTS services and the 1996 survey affirms that passengers have no complaints about this aspect (see section 6.6).

8. Safety aspects: Although the accident rate provides some indication of driving and maintenance performance, it is also influenced by the traffic conditions and the volume of pedestrians. Over the past 3 years, minibuses under FUTS control have been involved in only one fatal accident. However, it appears that many vehicles have been involved in minor accidents resulting in damage to the vehicle body. For this type of accident no record is readily available. Drivers reported that these minor accidents occurred in conflict with slow moving carts where only property was damaged, but minor injuries also often go unreported. Survey results indicated that 62 percent of the passengers interviewed were satisfied with safety aspects of FUTS services, but 31 percent passengers were dissatisfied, complaining that crews are always in a hurry or drivers irresponsible, risking accidents (see Table 6.20).

6.8 Conclusions

The new form of regulation in Faisalabad, utilizing NGO status, has proved far more effective and promoted major improvements in services. Government agencies have failed to achieve regulatory objectives owing to the inefficiency and corruption of the government's own bureaucratic procedures. Yet the same chief government officials have been able to improve the quality of public transport by regulation through the NGO.

The FUTS experience demonstrates that private operators in Pakistan are willing to operate in an effectively regulated environment. This is one in which they are an integral part of the process and are consulted at each stage of planning and decision making, within a fair system with no discrimination between operators, and one which allows them to generate a

reasonable return on their investments.

The factors responsible for this success are reasonable fares and the strict enforcement of rules by the support staff of the FUTS. The underlying key to this success has been the ability of senior officials to establish a forum free of the corruption of the existing agencies. FUTS provides a forum for open decision making in discussion with operators and other interested parties, with top officials freed from the constraints of their own government systems. The forum has promoted more flexible decision making and a learning process.

Real improvements in the quality of services have been achieved in conditions which are financially attractive to operators. The number of FUTS vehicles has grown rapidly, and the society is offering greater capacity and a better quality service to passengers, at realistic fares. Every passenger is assured a seat, stoppages are at designated stops, and there is generally strict adherence to specified routes, although services still lack the support of effective traffic management measures.

User surveys conducted in Faisalabad reveal that a majority of the passengers is satisfied with current fares charged by the FUTS services, which clearly demonstrates that there is a demand for better quality services at higher fares in Pakistan.

It is acknowledged that only a limited number of passenger interviews were conducted in Faisalabad under this study. It was therefore not possible to explore views of users on the basis of income or other socioeconomic variables. As 33 percent of the households in Faisalabad belong to a lower income category (up to Rs 3000 per month) (see section 2.2), it appears that FUTS fares level may be a barrier to use by low income groups.

Chapter 7 Synthesis Of Analysis And Conclusions

7.1 Introduction

This chapter synthesises the analyses presented in the previous chapters, and the analysis is further supplemented by a discussion of results from in-depth interviews focusing on wider regulatory issues. The findings are discussed in terms of the implications for practice in reforming the present regulatory regimes for public transport in Pakistan. Section 2 analyses the government policies associated with the provision of public transport in urban areas. The analysis of various regulations governing urban public transport is the subject of section 3. Section 4 provides a summary of the analysis of the effectiveness of NGO based regulation by comparing its performance with government regulation in providing urban public transport services. The final section presents the concluding remarks.

7.2 Urban Public Transport Policies

7.2.1 Transport policy

The analysis undertaken in chapter four shows that urban public transport in Pakistan had not been one of the top priorities of the government. This can be seen in the fact that no urban articulated transport policy has been formulated so far. As a result, there has been no clear understanding of the role of the private sector in the provision of urban transport. The main responsibility assumed by government has been (until recently) to provide some services through publicly owned buses in major urban areas. Even this responsibility for services was tossed between FG and PGs. Government grants and subsidies given to public sector services have been misdirected due to excessive political involvement, corruption, and the incompetence of admin staff. Regulation has been similarly misdirected and ineffectual. From time to time there have been individual initiatives stemming from the concern of Chief Ministers and/or the Federal Prime Minister to dictate their own decisions. Yet, there was a lack of political will in implementing urban public transport initiatives such as the Karachi Mass Transit Project and the NTRC pilot projects (see chapter 4, section 8).

Nevertheless, in the past the government has commissioned studies on public transport with the assistance of overseas funding agencies (see chapter 4 section 7.5). More recently it has shown more concern for the improvement of public transport in urban areas, but the policies about the role of private and public sector are still ambiguous. In order to promote urban public transport, the formulation of a comprehensive policy is desperately needed in Pakistan.

7.2.2 Ownership policy

The performance of public sector bus services in LDCs has not been satisfactory. There is now a growing tendency for governments to either privatise or terminate the operation of public-sector bus services (see chapter 3, section 2.1 & section 6). In Pakistan, publicly owned services were protected from competition, they received grants for the purchase of new vehicles and establishment of depots, and regular subsidies to make-up their operating losses. However, the performance of the services drastically declined. The following factors were principally responsible for this decline: mis-management (inefficiency and dishonesty of staff); low fares; and government interventions such as in the hiring and firing of staff which resulted in high overmanning ratios (PRTC 1:189; KTC 1:34). As a result of the collapse of services, the provincial governments abandoned the publicly owned bus corporations. The Punjab Government played a leading role in this regard.

However the PRTC in Lahore had introduced new full size buses through foreign aid and purchase by government grants, and its buses, when operating, served some longer and non profitable routes shunned by the private operators. These publicly provided services also offered some greater confidence in that passengers were assured of their hours of operation, without abuses such as route shortening or bargaining for fares surcharges. A similar situation for public sector buses has been reported in Colombo in Sri Lanka (Armstrong-Wright and Thiriez, 1987), and in Coimbatore in India (see chapter 3, section 6).

The termination of public sector bus services raises a question as to the future role of the public sector in public transport provision in urban areas of Pakistan. Based on interviews with government officials conducted by the researcher, there is no likelihood of reactivating the public sector bus corporations. It was intended by the government officials that the

government should maintain some involvement in providing public transport services in urban areas, such as through the contracting of some services to local or international bus operators. The officials were unclear about any future government commitments.

The Secretary Transport of the Punjab province acknowledged in interview in 1996 that the government had little hope in improvement of the PRTC and that the private sector will have to play an enhanced role in the provision of public transport services in the province. He added that the Punjab Government was working out ways to encourage the participation of local and international public transport operators. The past performance of the private operators was not regarded as encouraging, and therefore the government would not like to rely solely on the private sector. The government was seeking to invite international public transport operators to compete with local operators.

Recently, the Punjab Government has asked private operators for suggestions over public private partnerships for operating public transport services in Lahore (*Daily Jang* 24 December 1997). Negotiations of the Punjab Government with a UK based bus company have also been reported (*The News International*, 13 March 1998; also see Appendix-6). Correspondence reports that a UK based company with the collaboration of the Punjab Government is undertaking a pilot project in Lahore from April 1998. Under this project five refurbished full size are operating on one route along Multan Road (Plate 7.1). Correspondence also reports that the conditions of this collaboration are still unclear. In this connection the Chief Minister of the Punjab province met the general manager of Liverpool based MTL Trust Holdings in London on 22 April 1998 (*Daily Jang*, 23 April 1998). These developments indicate that the government has intentions to improve public transport, but it is still not clear what would be the involvement of the government in the provision of services. It can be envisaged that the government may involve itself in providing urban public transport services under mixed ownership.



Plate 7.1a A bus used under pilot project in Lahore



Plate 7.1b On-street pilot bus operation in Lahore

As far as mixed ownership is concerned, based on the literature review, it can be argued that bus operations under mixed ownership could be successful subject to competent autonomous and commercially oriented management, and well designed systems for providing information and controlling costs. Notable examples of successful operation of buses under mixed ownership are the Zimbabwe Passenger United Company in Harare and SOTRAC in Dakar (see chapter 3, section 2.2). In the Pakistani context, any such company needs to operate on a commercial basis, with adequate compensation for any non-commercial services or fares. The government needs to establish control through the setting of targets, against which the company's performance can be monitored. However, there is currently no likelihood that all the above conditions can be fulfilled given the poor law and order situation and political uncertainty.

It may appear questionable to try again any approach to bus operation with direct government involvement, which could well mean the repetition of old mistakes and inefficiency of services. This is mainly because of the scale and extent of corruption involved at various levels. The new government is committed to reforms, and the Prime Minister has vowed to enact tougher laws to punish corruption, quoted as saying that the majority of Pakistan's bureaucrats were corrupt, and that the country suffers estimated losses worth Rs two billion (50 million US\$) a day due to corruption, mismanagement, and incompetence (*The News International*, 28 March 1997). The Prime Minister himself stated that there was corruption from top to bottom in the administrative machinery. Quoting examples, he said Rs one billion were misappropriated in just one sale of palm oil, and that the Water and Power Development Authority (WAPDA) was losing Rs 22 billion, Steel Mills Rs 7 billion and Pakistan Railways Rs 10 billion a year through corruption (*The News International*, 28 March 1997). Correspondence reports that the government has enacted an ordinance "Eradication of Corrupt Business Ordinance, 1998".

These reforms, even if eventually successful, are bound to take time. Meanwhile any government involvement in the ownership of the urban public transport operations is seen as undesirable. It can be argued that the provision of public transport services under any form of ownership could be successful provided there is an arms length approach with no interference with the management to the company. The government also needs to have a

clear understanding of the role to be played by the private sector. The worst policy would be to start something and make an investment without a clear view of future commitments.

7.2.3 Subsidy and grants policy

In Pakistan, the main strategy of the FG/PGs previously revolved around the provision of public transport services through the public sector bus corporations. However, the grants and subsidies given to these corporations did not result in sustained improvements of public transport. The private sector, on the other hand, although substantially more important in terms of passenger kms transported, seldom received equal treatment (see chapter 3, sections 2.3).

At present no specific subsidies and grants are being given for the provision of public transport services, although subsidies could be seen as justifiable for the following major reasons. First, to provide essential services to poor people at affordable fares. Second, to maintain services on non profitable routes seen as socially or environmentally necessary. Third, to compensate for any concessionary fares. Based on the literature review and keeping in view the past experience of mismanagement it is not advisable to grant blanket subsidies. Moreover, in the Pakistani context, operating subsidies are absolutely undesirable. However, targeted subsidies that meet appropriate and specific social and economic objectives could be justified. In order to achieve these policy objectives clear targets need to be defined and effective mechanisms are needed to implement the administration of the subsidies.

7.2.4 Taxation policy

In most LDCs a large share of public transport services is provided by private sector operators. The services are operated with a bewildering variety of vehicles and the enterprises tend to be small scale, undercapitalised, and very often operating at marginal profitability. The development of a private sector bus industry has been hampered mainly due to non-supportive government policies such a lack of financial incentives and a heavy taxation structure. The supply of new vehicles in the public transport market is restricted and passengers are constrained to travel in low quality vehicles.

The literature shows that in some LDCs governments have addressed public transport capacity problems by arranging bank loans or by relaxing taxes. For instance in Sri Lanka, the government relaxed import restrictions and gave tax incentives to operators for the purchase of new vehicles in 1979. These actions evoked a strong response from private bus operators, who imported more than 6,000 buses during 1979-81 (see chapter 3, section 7.3). In Buenos Aires (Argentina), full size bus purchases were encouraged by bank loans (Salvucci, 1997).

In Pakistan, although some temporary financial incentives were given under the PMPTS, the tax and incentives structure has generally worked against public transport and did not encourage bona-fide private operators to enter the market (see chapter 4, section 7.2). Presently, private sector operators receive no financial incentives. On the contrary, there are excessive taxes (over 50% of the price of vehicle) on the import of new vehicles, on top of which operators have to pay bribes to officials for smooth operation of service! (see chapter 4, section 5). In his interview with the researcher in 1996, the Secretary Transport of the Punjab province acknowledged that the major hurdles in promoting the public transport industry were that the banks do not give loans to the private sector operators for the purchase of vehicles, and that the FG levies huge taxes on the import of vehicles which have crippled the growth of the private sector bus industry.

Under present circumstances, when there is an acute shortage of public transport in urban areas, it has become imperative that private operators be given some tax rebates and concessions in customs duties similar to those in Sri Lanka. Recently however, the government has decided to reduce some taxes on public transport vehicles, the details of which will be announced in the upcoming budget 1998-99 (*Daily Jang*, 4 April 1998).

7.3 Urban Public Transport Regulation

7.3.1 Fare regulations

The review of literature shows that in most LDCs fares are controlled by governments and they are not revised regularly in response to rising costs of operation. Fare increases are hardly on the basis of financial or economic analysis. Under this situation attempts have to be made by the operators to maintain profits by cutting costs. In particular, they have achieved this by lowering vehicle standards, (employing old vehicles rather than new, smaller vehicles rather than larger) by spending less on maintenance, and by reducing labour costs (exploiting the labour force). There is also temptation to increase revenues by overcharging passengers. This situation implies that the fare regulations by governments have adversely influenced levels of profitability for operators and levels of service for users. On the other hand fares control on a realistic basis has ensured profitability for operators and resulted in improved services to users, such as in Hong Kong (see chapter 3, section 9.1).

The literature also reveals that there are better off groups who are willing to pay more for better quality services. On the other hand, low-income groups opt for services with low fares at the expense of quality of service. However, at low level regulated fares the quality of service offered by the operators is inevitably constrained.

The problems of regulated fares have been well recognized and in a number of countries it has led to the abolition of fares control. In some countries governments have also abolished public grants as well as removed entry restrictions. However, the deregulation of fares has not achieved the desired results. The analysis made in chapter three shows that operators' associations have often taken control in the absence of government fares regulation. These associations function in the interest of their members rather than passengers (see chapter 3, section 4).

In Pakistan, fares are held low as a policy on welfare grounds, and they are not reviewed on a regular basis. In Karachi for instance, there were no increases in bus fares during 1983-1989 (Gray, 1990; Qasim, 1994). Similarly, data collected by the researcher show that fares were

not increased in NWFP from January 1991 to August 1995. Government officials in Pakistan are aware that regulated fares are not sufficient to operate urban public transport successfully, but due to a lack of political will, the fares are not increased on regular basis. When an increase in fares has been authorised it has generally been as a result of operators' strikes. Moreover, fare increases have been given on assertions rather than on any realistic criteria.

The analysis of the existing situation in Lahore reveals that the low fare structure determined by the Provincial Government has led to marginal profitability. Uneconomic concessionary student fares are imposed and no compensating incentives or subsidies are provided. The main consequence of the present fare regulation is that it has led to inadequate supply (both quantity and quality) of public transport. The low profitability has made investment in new vehicles (buses, midibuses and minibuses) unattractive, and has meant that operators reduce standards of service and safety (chapter 5, section 7.6). Hundal (1987) reported that in seven major urban areas of Pakistan, most public transport vehicles had an age falling within 9-14 years and only 20 percent vehicles had an age of less than four years.

Another negative aspect of current regulated fares is that operators are constrained from offering better quality services, even to those who can afford them. The regulations prevent the emergence of services with more space, no standing, more comfortable seats, or express services and air conditioning. The 1996 surveys showed that an overwhelming majority of the potential users was prepared to use better quality minibuses and full size buses at higher fares in Lahore.

The interviews conducted by the researcher with the representatives of operators' associations, individual operators and government officials, showed that none of them favoured the deregulation of fares. Officials emphasised that some measures of government control over urban transport operations are necessary to protect the public interest. Operators envisaged that deregulated fares would reduce ridership and result in passenger-operator conflicts. Therefore, operators favoured controlled fares but they highlighted the need for the introduction of better quality services, reasonable fares, and compensation for concessionary travel by student passengers. The above situation implies that in Pakistani context, fares are likely to remain regulated. Assuming this is so the following issues related to fares regulation

need to be addressed by policy makers:

1. Fare setting procedures are needed that allow (a) a reasonable return on investment (b) periodic adjustments to fares that reflect cost increases and (c) services at different fare levels.
2. A mechanism is required for the compensation of concessionary fares, if they are to continue to be offered.

As far as the fares setting procedure is concerned, ideally, what is required is a mechanism for establishing fares which is transparent and intelligible to all concerned. The mechanism needs to be simple to operate and beneficial to both the operators and the users. Briggs (1992) suggested the decisions for determining the fares should be based the following fundamental principles:

- To provide revenues sufficient to remunerate the operators, giving an agreed return on resources employed in providing the services.
- To provide as good a level of service to the users as possible at a given fare level, considering that for a given pattern and size of demand the cost of providing that level of service has to be recouped from fare revenue unless the services are to be subsidised.

In order to employ the above principles, it is obviously essential to know what operating costs are, and what revenues are expected to be earned for a given fare level. This itself will require a continuous monitoring of both supply and demand by the regulatory agency. Industry costs need to be periodically checked and carefully evaluated.

As far as concessionary fares are concerned, mainly a concession is given to students. This concession has affected the performance of private sector operators as they are not compensated, and it had a particularly adverse effect on the publicly owned services. In Pakistan it seems extremely difficult for the government to withdraw this concession due to envisaged threats from the students. Government chief officials in their interviews conducted by the researcher intended to compensate operators for this concession in order to improve public transport. Under the present circumstances, the following problems can be envisaged

with the formulation of this policy. First, it was observed by the researcher that the bus crews did not issue tickets to students or other passengers, which means there are no records of student travelling. Second, if passengers are issued with tickets there are chances of fraud. Third, there is the possibility of misuse of student ride cards.

In view of the above problems, administering accounting for public financial support for the student concession in a transparent manner would require a sophisticated strategy. The first step towards this end could be to negotiate with educational institutions and obtain the number of registered students. Then weekly student travel vouchers could be issued to the institution not directly to the student. Although this would involve additional efforts for the educational institutions it would potentially resolve day-to-day student-operator disputes. This mechanism would also need some basis on which to pay operators such as the production of vouchers issued to students as an evidence for payment claims to the operators.

7.3.2 Quantity controls

The analysis of public transport services shows that in urban areas in Pakistan the structure of the industry is dominated by very small operators with one or two vehicles. Quantity limits to both ownership and route access are set in an arbitrary manner; and they tend to become a subject of corruption and political manipulation. The use of such quantity controls rarely achieves the desired effect, and the results are very often undesirable. In all cities fixed route bus services are not meeting the passenger demand, and the gap is partially filled by autorickshaws, taxis and other modes. As a result the problems of traffic congestion and environmental pollution are exacerbated.

The analysis of the services made in chapters 4 - 6 shows that the quantity of public transport services is undoubtedly poor in Pakistani cities. It is not uncommon to observe passengers travelling on the roof-top of full size buses, hanging behind suzukis and standing in 'angular shape' in minibuses. Survey results confirm this to be so. The 1996 survey showed that none of the households in Lahore was satisfied with the provision of public transport; complaining about the inadequacy of number of buses, deficient route network, poor quality of services, and the lack of any services in some areas (see chapter 5, section 6.3). This lack of adequate

of services is in part the direct result of arbitrary controls such as the limits on the number of minibuses (see chapter 5, section 3.4).

The Secretary RTA and the Secretary PTA indicated in their interviews with the researcher that the Punjab Government is reviewing its quantity control policies in order to address public transport problems in Lahore. The intention is to adopt the following measures: promotion of private full size bus operation and imposition of restrictions on minibuses. These measures apparently are intended to change the structure of the industry from small to large capacity vehicles. The government hopes that this action will (a) reduce congestion, since full size buses are thought to use less passenger road space than minibuses in relationship to their passenger carrying capacity, and full size bus drivers are more disciplined than minibus drivers; (b) reduce accidents, since minibuses have higher accident rates; and (c) ensure an adequate supply of transport capacity.

These measures are in response to serious concern about high accident rates and congestion caused by the way minibuses are being operated. However, the share of minibuses was about 49 percent (passenger seats per day) of the total public transport services and about 75 percent share of the total bus services in Lahore in 1996 (see chapter 5, Table 5.2). To impose further quantity restrictions on minibus operation is likely to aggravate capacity problems. Until effective mechanisms can be found to promote the full size bus industry, discouraging minibuses would lead to: (a) a reduced supply of public transport leading to even greater overcrowding on buses, (b) reduced service frequency on route networks, (c) a further switch in to paratransit, especially autorickshaws, which are noisy and emit more fumes, and (d) encouragement to purchase and use more private vehicles. Furthermore, the researcher's experience shows that the authorities in Pakistan have been prompt in employing a 'stick' approach, and lax in offering a 'carrot' approach. In order to improve public transport in urban areas the carrot approach needs more emphasis.

It can be argued that regulatory restrictions on various sizes and types of vehicles are not the solution to ameliorate the congestion problems but that this requires better traffic management, including bus priorities and the enforcement of traffic rules (see section 3.4). It is acknowledged that there is a case for introducing more full size buses and reducing the

number of minibuses on sections of routes with high passenger volumes. It is therefore argued that entry controls on minibuses need to be more selective and should only apply on specific sections where there are traffic problems, not on entire route networks. Moreover it is essential to make sure that there will be no capacity problem created by employing restrictions on minibuses. In short, a package of complementary measures is required.

7.3.3 Quality controls

1. Service standards

Service quality standards exist in many countries but they are not necessarily properly enforced. Enforcement of regulations by various regulatory authorities is often weak in LDCs. As a result of weak enforcement, operators do not observe the standards (see chapter 3, section 5).

However, the literature shows some cases where quality regulations have been strictly enforced. In Buenos Aires (Argentina), the licensing authority monitors performance of services and sometimes withdraws licences (Gwilliam and Scurfield, 1996). In Papua New Guinea, the quality of service was improved as a result of rigorously enforced regulation (Khezwana and Maunder, 1994).

In Pakistan quality controls are grossly inadequate. Outmoded and worn-out vehicles, and unreliable services, have created severe difficulties for passengers. Regulatory authorities issue route permits but do not monitor service standards, except in Faisalabad. Operators' associations generally control service operation and do not regulate in the interest of passengers. Public transport quality issues are repeatedly highlighted in the local and national newspapers (see chapter 5, section 7.2). The household survey in Lahore and passenger survey for Suzuki services in Faisalabad confirm the dissatisfaction with both service levels and their quality (see chapter 5, section 6 & chapter 6, section 9.1).

Ineffective enforcement is a main cause, but other factors are also responsible for quality of service problems. The inadequate level of services creates pressures for overloading, as described in section 3.1, and part of the problem is that the existing buses are poorly utilised.

There is usually no scheduling, and the buses spend a large proportion of the time in long queues at the terminals, providing no service to passengers.

Another problem related to service standards is that governments have not allowed variations in bus services with different service standards at different levels of fare. Controlled fares have undermined the role of public transport services. For instance, those passengers willing to make trade-offs between comfort and fares level have no choice. As a result, those who can afford to opt for alternative modes such as private car, autorickshaw, taxi etc (see chapter 5, section 6.3).

Under the existing regulatory arrangements it is very difficult to improve service standards because of factors such as the limited extent of enforcement, the inefficiency of regulatory officials, and corruption, in addition to the effects of controlled fares on bus services. To improve service standards, reforms in the current regulatory and enforcement regimes are essential. The FUTS experience demonstrates that improvements in quality of service can be achieved through effective enforcement of service standards (see chapter 6, section 5).

2. Route networks

The review of literature shows that in most LDCs route networks are defined by transport authorities without applying any specific criteria or consulting operators. Generally, networks are neither reviewed nor extended in the face of growing populations or city limits and changes in the associated demands for public transport services. As a result route networks are deficient, and services are inadequate in many cities (see chapter 3, section 4.3). The procedures in Hong Kong, whereby operators are consulted in the process of formulating route networks provide a marked contrast.

In Pakistan, the route networks defined by the authorities are deficient in major urban areas. Cities are growing rapidly but route networks are not being effectively modified in response to demand (except in Faisalabad), although a limited number of routes have been added in some cities. For instance in Lahore, the route network was not revised over the 10 years from 1985 to 1995, and only 10 new routes were added during that period (see chapter 4, Table 4.8).

Analysis of the existing situation in Lahore reveals that routes do not penetrate in many areas, particularly where roadways are often narrow and poorly maintained. Most of these areas are densely inhabited (generally by lower-income groups). In these areas, the RTA has defined routes for the operation of buses only along major roads. Moreover, more peripheral locations of new development are not well networked either (see chapter 5, sections 7.1; 7.3). The RTA has not defined routes by applying any sensible criteria and, as a result, passengers have poor access to public transport services (see chapter 5, sections 6.1; 6.2). In addition, many routes defined by the RTA are not taken up by the operators because they are not considered profitable, as explained in chapter 5, section 3.4.

The following are the principal reasons for the inadequate and inappropriate route networks in Pakistani cities. First, in order to define a well organised route network, there is a need for information on passenger demand and the operational environment, and a high skill level among staff. Unfortunately, in Pakistan the regulatory authorities (RTAs and PTAs) responsible for route definition have neither the qualified staff nor the information required. Second, routes are not modified on the basis of a regular monitoring process. Third, operators are not involved at any stage of route network definition (except in Faisalabad).

3. Vehicle quality/safety standards

Vehicle quality and safety controls exist throughout the world but the literature shows that they are not implemented properly in many LDCs (see chapter 3, section 4.3). As a result, public transport vehicles in use are of poor quality and reckless driving practices are common (Armstrong-Wright and Thireiz, 1987; Armstrong-Wright, 1993; Gwilliam, 1997). Reckless drivers cause accidents, and poor quality vehicles are a major source of air pollution. For instance, Fernandez (1994) stated that rash and irritational drivers caused accidents and low quality vehicles caused unacceptable levels of pollution in Santiago, and claimed that 71 percent of the pollution from traffic was from public transport vehicles. This was mainly due to the lack of maintenance in the absence of enforcement of emission standards.

In Pakistan, safety standards for public service vehicles exist theoretically in the form of the licensing of drivers and testing of vehicles before issuing vehicle fitness certificates. Neither of these regulations are effective mainly due to corruption and an unwillingness of

government officials to enforce these regulations (see chapter 5, section 3.3). Public transport vehicles are among the most polluting vehicles in Pakistani cities. Vehicle engines are not properly tuned and are rarely regularly serviced and use substandard oil. Consequently, the pollution caused by emissions from these vehicles is greater than private vehicles (see chapter 5, section 7.4). Recently, the Prime Minister himself has directed the provincial governments to ensure that vehicle fitness certificates are issued only for mechanically fit vehicles. In cases, anywhere unfit vehicles are found operating on road, action may be taken against the MVE issuing the fitness certificate in addition to the vehicle owner (*Daily Jang*, 16 March 1998).

Generally there is insufficient and inadequate driver education and training in Pakistan. Public transport drivers receive driver training either from professional drivers or their relatives/friends. They obtain their driving licences by paying bribes to the Traffic Police even without appearing in the test. They have only a limited knowledge of traffic regulations. Moreover, they work long hours in a demanding street environment, typically for a 14-hour shift. The end result is poor road safety and traffic congestion caused by their negligence. Analysis in Lahore has confirmed for instance, that public service vehicles were involved in 85 percent of the total deaths in road accidents! Of these, minibuses were involved in 40 percent of the total deaths registered from road accidents which occurred in Lahore (see chapter 5, section 7.6).

There is no realistic alternative to regulation for purposes of safety, health, and protection of the environment. The present regulations regarding quality and safety do not require modification as much as their implementation and stern enforcement. It is clear that with rigorous enforcement of inspection rules and regulations, vehicles standards, and driving competence tests, the situation can be improved in Pakistan.

7.3.4 Traffic congestion/management

Traffic congestion is common in all Pakistani cities though at differing scales. Apart from the general increase in the number of motor vehicles, there are other factors which contribute to traffic congestion problems. The following is a summary of the main factors contributing to

congestion in Lahore and Faisalabad.

- A lack of understanding of basic traffic rules and very selfish attitudes by all road users
- Inappropriate activities by unruly drivers such as speeding, queue jumping, red light offenses, and improper stopping and parking
- The mix of motorised and non-motorised traffic
- A general lack of planning control, that leads to encroachments of walkways and carriageway, the construction of new developments without adequate provision of parking
- Inadequate traffic management measures; poor signing, road marking, the sub-standard nature of traffic signals (where provided), and the general lack of provisions for pedestrians
- Lack of maintenance of the existing road infrastructure
- Inadequate provision of bus stops
- Poorly trained, low paid, and inexperienced traffic police. Traffic regulation is one of their duties and has a low priority

As in other LDC cities (for instance see chapter 3, the case study from Sri Lanka), the minibuses in Lahore themselves contribute to the chaotic situation. Headrunning, racing to bus stops, irregular despatching and other problems associated with on-street competition is the norm. This adds to the reasons why public transport services are generally not considered a reliable mode. Most delays occur at bus stops and junctions rather than along running sections of roads. Full size buses in particular, suffer from delays resulting from traffic congestion, for instance, the bus operation under the pilot project even has no protection from other road users (see Plate 7.1b).

In Lahore, in addition to transport and traffic studies, the TEPA has undertaken both minor traffic improvement schemes and major engineering projects. These are aimed at improving the junction capacity, junction control and street lighting. The current measures for road based public transport are very limited and confined to terminal provision. No scheme has been undertaken specifically to achieve the efficient flow of public transport. The TEPA intends

to launch further traffic engineering/management projects. The proposed programme only includes one project related to public transport which involves terminal improvements (see chapter 5, section 2.5).

The review of literature shows that buses are one of the most space-efficient and cost-effective means of transporting large number of people. Where traffic flows are well below the capacity of the road network, buses can share road space with other traffic and, in general, there is little need for special priorities for buses. However, where road traffic volumes are high in relation to road capacity, buses suffer from the congestion and delays caused by other road users, and priorities are needed to release buses from traffic congestion. There are three main ways in which this can be achieved, which are: spot priorities, bus lanes and bus ways. In many countries bus lanes have been provided to give buses priority over long sections of the network. They have achieved better results where they have been respected by all road users, but have failed in countries where poorly enforced, such as in Bangkok and Indian cities. However, to overcome enforcement problems and to further improve bus performance busways are employed. Busways have been reported to have improved markedly the efficiency of bus transit (see chapter 3, section 4.4).

In the Pakistani environment where road user discipline is very poor and enforcement by government officials is considered a low priority, bus lanes tend to be ineffective over large sections of a road network. Gray in evaluating public transport planning in Karachi criticized that *"in Karachi, bus lanes have in the past been designated but not enforced, and have been most popular as a right-of-way for the slow or slower moving vehicles, including animal drawn wagons. Their adopted function would seem to have been to keep buses out of lanes used by faster moving traffic, rather than to protect and enhance the movement of bus traffic"* (Gray, 1990:180). Even when buses are physically segregated from other traffic by means of studs, kerbs or fences there are likely to be problems. However, physically segregated bus lanes approaching junctions and lanes at various spots giving priority to buses can be effective during the periods that they are physically enforced by the Traffic Police. Under the present circumstances, the introduction of busways along major corridors needs detailed investigation.

The current situation in Lahore suggests that most bus delays occur at bus stops and junctions, and along some busiest sections of the road network. Therefore, junction-related delays can be dealt with by realistic spot priorities, examples of which are turn-ban exemptions and bus gates. Turn-ban exemptions permit buses to turn out of a particular road, where this movement is banned to other traffic. Bus gates permit buses to turn into a particular road, where this movement is banned to other traffic. While spot priorities are a useful traffic management measure, they cannot by themselves improve bus performance over whole routes. Short bus lane sections at junction approaches can allow buses to queue-jump. Short busway sections with policing are seen as realistic for cities in Pakistan.

Another important problem related to on-street regulation for public transport services is the inadequate provision of bus stops in Lahore. The locations of bus stops are not generally marked, and there are no signs indicating to drivers where they should stop vehicles for boarding and alighting purposes. Generally, either a bus stop is considered to be that point where passengers are waiting for buses, or the point where the Traffic Police let drivers to stop for boarding and alighting. Moreover, minibus drivers seldom use the bay (where provided) but stop in the carriageway in whatever position seems of most advantage to themselves. Consequently, their stopped vehicles not only impede the flow of traffic, but also create difficulties and impose danger to passengers boarding and alighting (see chapter 5, section 7.5). In order to improve the image of public transport services and to improve overall traffic conditions, the provision and management of bus stops need urgent attention.

7.4 NGO Based Urban Public Transport Regulation

The new form of regulation in Faisalabad, utilizing NGO status, has proved far more effective and promoted major improvements in services. The analysis shows that the achievements of the NGO approach have been remarkable when compared with the government regulatory approach. The following sections summarize the performance and outcomes under this new regulatory regime.

7.4.1 Improvements in the regulatory regime

Attempts have been made in the past to improve the quality of public transport services but, in Pakistan as in many other LDC cities, these have failed due to their operation under the same old regulatory regime with its same old faults. Darbera (1993) for example reports the failure of efforts to improve the quality of services in Ecuador and India.

Instances in Pakistan include the following examples. In Lahore in the early 1980s, new Volvo buses were introduced in order to improve the service quality of public transport. Initially the new services were reported to perform much better than the previous services. After only a few years, however, the performance rapidly declined (see chapter 5, section 4). In 1996 in Lahore, the Lahore Urban Transport Project (LUTP) was started with a little modification in the existing regulations. Improvements resulted in service provision but they were relatively minor (see chapter 5, section 5.1). Some attempts were also made in order to improve public transport services in Islamabad; for instance the quality urban bus project, the urban bus train and the awami train project (see chapter 4, section 7).

None of these initiatives have succeeded on a sustainable basis. All have operated essentially within the existing regulatory framework, with minor or temporary modifications.

A distinctive feature of the FUTS is that it is operating outside the clutches of the official regulatory system. In the FUTS context the chief officials wear two hats. Normally they would be required to apply the prescribed bureaucratic procedures, wearing their 'regulatory hats' as members of the government bureaucracy. In FUTS, wearing their second hats as

members of the Governing Body of an NGO, they have greater freedom to directly influence the planning and management of public transport services, in a process which also directly involves operators in the decision making. This has enabled them to make improvements in services while by-passing procedures associated with inefficiency and corruption. Officials have been freed from entrapment in their own government systems.

A most important feature associated with the FUTS is its self enforcement of the regulations in operation. FUTS has established its own effective enforcement system, under which drivers are fined for committing regulatory violations, backed up by the ultimate and real sanction of exclusion from the FUTS. This is in sharp contrast to the lack of enforcement in other cities. A summary comparative analysis of the two regulatory approaches is presented in Table 7.1.

Table 7.1 : Comparison of regulatory approaches

Elements	Government bureaucratic regulation	NGO based regulation (FUTS)
Quantity control	<ul style="list-style-type: none"> • RTA specifies the size, type and number of vehicles • Routes allocated to operators on discretionary basis • Frequent delays in issuing route permits 	<ul style="list-style-type: none"> • In theory RTA, but in practice FUTS specifies size and type of vehicles for its own services • Routes allocated on first come first served basis in discussion with operators • No specified maximum number of vehicles per route
Fares control	<ul style="list-style-type: none"> • Government fixed fares charged • Maximum full route fare Rs 6.25 • Students given concessionary fare • Fares increased as a result of operators strikes 	<ul style="list-style-type: none"> • Fares determined by the Society • Full route fare fixed Rs 12.0 • No student concessionary fares • Fares increased in consultation with the operators
Route network	<ul style="list-style-type: none"> • RTA defines the route network • No consultation with operators • No specific criteria • Lack of bus stops signs 	<ul style="list-style-type: none"> • FUTS defines the route network • RTA has to rubber stamp FUTS decisions • FUTS specifies the location of all bus stops and installs clear signs • Routes amended in response to passenger and operator opinion
Safety regulation	<ul style="list-style-type: none"> • Vehicle fitness certificate obtained from the MVEs every six months 	<ul style="list-style-type: none"> • Fitness certificate from the MVE plus vehicles examined daily by FUTS supervisors • Defects must be repaired within a specified time
Enforcement	<ul style="list-style-type: none"> • Weak and muddled system • Provides opportunities for corruption 	<ul style="list-style-type: none"> • Strict enforcement by FUTS staff • Enhances the role/image of public transport
Monitoring	<ul style="list-style-type: none"> • No monitoring of services • Lack of qualified staff and procedures 	<ul style="list-style-type: none"> • Regular monitoring and consultation with operators • Frequent improvements to procedures
Corruption	<ul style="list-style-type: none"> • At all stages of regulation • Linked to red tape and bureaucratic procedures 	<ul style="list-style-type: none"> • Very little evidence of corruption • The only one incidence so far detected was firmly dealt with

Source: Based on findings by the researcher in field survey visits (1995/96)

7.4.2 Fares control

Fares control has been the most crucial factor influencing the level of service provision. Fares were fixed by the FUTS without any formal approval from the Provincial Government during March 1994 - May 1997, whereas in the case of the Islamabad quality urban bus project, described in chapter four, a formal approval for the premium fares was granted by the government. FUTS has retained the freedom to increase its fares although the prior approval of the provincial government is still apparently required and the ambiguity of the FUTS situation is reflected in the letter of approval for increased fares from the Punjab Government (see Appendix 5). It seems that the aim of the government is to leave the fare setting to the NGO but retain the right to intervene.

The FUTS has provided a mechanism to set fares at levels which have allowed operators to make profits and to increase service provision and service standards, bypassing the usual government controls. Decisions to change FUTS fares at present involve an informal process of mutual consultation between officials and operators. It can be seen by the fact that the operators applied to the FUTS management for a generalised increase in fares in December, 1996 due to inflation and a relative increase in the price of fuel. The opinion of various operators were sought by the administrator about the extent of the increase. Fares for FUTS services were increased by 20 percent in February, 1997 whereas the inflation rate was 17 percent and the price of petroleum had increased by 25 percent during 1995-96. Thus a substantial increase was amicably agreed, by contrast with the situation in other cities, where only after the disruption of 3-day operators strikes fares were increased (also by 20 per cent) in August, 1996.

The latest FUTS increase kept fares at approximately double the government controlled level, but this was still inadequate to cover inflation over the previous 3 years, and represents a substantial decrease in real terms from the 1994 level. With high inflation it is essential the fares are reviewed and raised annually, but FUTS has as yet no procedures in place for such regular reviews. This issue needs to be addressed promptly, if the benefits of FUTS in escaping from government fares controls are not to be rapidly eroded.

7.4.3 Improvements in service

The FUTS fleet has largely replaced the suzukis in the city. Until 1993, all the 22 defined routes for suzuki operation were operated. Now only 8 routes are operated, and these are in areas not adequately networked with FUTS services. This rapid transformation has occurred because of the FUTS quality of service provided which suzuki operators are unable to match due to controlled fares. The FUTS service has attracted most of its ridership from suzukis (37%), tongas (24%), autorickshaws (12%) (see chapter 6, section 7.2).

The number of FUTS vehicles has grown rapidly, and the Society is offering greater capacity and a better quality service to passengers, at realistic fares. Passengers are assured a seat, stoppages are at designated stops, and there is strict adherence to specified routes, although services still lack the support of effective traffic management measures.

FUTS has been successful in providing more efficient and reliable public transport services in Faisalabad. There is no doubt that the FUTS services are of better quality than those previously operated, which have rapidly been transformed. In particular, the reliability of FUTS services is a radical improvement. It is noteworthy that FUTS services ran as usual, and despite some harassment by other operators, during the 3-day strike in July 1996.

The quantity of services is still not adequate to meet passenger demand in peak periods on some routes, despite the high frequency and ability to meet the off-peak demand very well. Since overloading is not allowed on FUTS minibuses, and no additional buses operate, passengers either wait for longer time periods in the peak or travel by alternative modes. Surveys show that users are concerned about the inadequate number of FUTS vehicles. It can be argued that this capacity problem for peak periods arises in part because the Society does not operate larger capacity vehicles. The number of its minibuses has been growing rapidly and it is likely that this trend will continue. FUTS is in the process of extending its network and intends to add more routes. If the peak period capacity problem is addressed with more small size minibuses, however, this will increase existing traffic congestion problems on sections of roads where the minibuses are already delayed.

Area coverage of the present FUTS network is good in the central area but some areas elsewhere in the city are inadequately served. There are several reasons for this. In some areas the road conditions are unsuitable for the operation of minibuses. In addition the Society lacks sufficient expertise to design a route network for the city on the basis of well defined criteria, and it would benefit from appropriate staff training and more involvement of operators.

The service improvements have been acknowledged and deficiencies have been indicated by users. A comparison of service provision under both regulatory regimes is given in Table 7.2. The majority of the suzuki passengers surveyed indicated that they travel in suzukis mainly owing to inadequacy of FUTS service, and complained about the comfort and reliability aspects of the service. On the other hand, the majority of the FUTS passengers stated that they travel in FUTS services due to a guaranteed seat and service reliability. Also, a majority of suzuki passengers stated willingness to use FUTS services, where adequately provided. The ridership of the FUTS service is generally from the middle and relatively higher income passengers with an average monthly income of Rs 4955 whereas suzukis are being used largely by relatively lower and middle income passengers with an average monthly income of Rs 4300 (see chapter 6, section 6).

A majority of the users in Faisalabad are satisfied with the FUTS fares and they prefer to use FUTS service over suzukis despite their lower fares. However there is still a market for lower fare suzuki services (see chapter 6, section 6).

Table 7.2 : Service comparison under two regulatory regimes

Indicators	NGO based regulation (FUTS)	Government bureaucratic regulation
Bus occupancy	<ul style="list-style-type: none"> • Passengers assured guaranteed seat • Overloading largely eliminated by imposing fines 	<ul style="list-style-type: none"> • Legally no overloading allowed but in practice gross overloading
Reliability	<ul style="list-style-type: none"> • Drivers don't wait for additional passengers at enroute bus stops • Route shortening eliminated by establishing three check posts on each route • 73% of the passengers satisfied with service reliability 	<ul style="list-style-type: none"> • Drivers always wait for additional passengers at enroute bus stops • Frequent route shortening • No check on service • None of the users satisfied with service reliability
Hours of operation	<ul style="list-style-type: none"> • Fixed by the FUTS (6.0 am to 10.0 pm) • Same level of service operate throughout this period • No complaints from passengers 	<ul style="list-style-type: none"> • At the mercy of drivers • Drivers withdraw service during off-peak periods • Many complaints and passengers not sure about first and last departure
Waiting time	<ul style="list-style-type: none"> • No predetermined timetable • Average waiting time reduced 	<ul style="list-style-type: none"> • No predetermined timetable • Reduced waiting time on routes with a large number of vehicles
Safety	<ul style="list-style-type: none"> • One fatal accident over 3 years • No record of minor accidents • 62% of the passengers satisfied with safety aspects • 31% of the passengers complained drivers irresponsible and risk accidents 	<ul style="list-style-type: none"> • In Lahore, minibuses involved in 40% of the total (191) deaths in one year* • Frequent complaints from minibus users
Fares	<ul style="list-style-type: none"> • Higher fare (Rs 12 for full route) • Overcharging largely eliminated 	<ul style="list-style-type: none"> • Lower fare (Rs 6.25) for full route • Frequent overcharging

* Minibus data only for Lahore for ease of comparison
 Source: Data collected in field survey visits (1995/96)

7.4.4 Gradual development of regulatory measures

Initially a maximum (3 years) age limit was specified for vehicles under FUTS operation. This limit proved too ambitious a condition for operators and they were unable to replace them as the market price for new minibuses was very high. As a result, a relaxation to allow 4-year old vehicles was agreed in January 1996. In addition, operators of brand new vehicles were granted exemption from a Rs 15,000 donation to charity then required from operators, as a financial incentive to encourage investment.

Under these circumstances it was still difficult for operators to invest in brand new vehicles, and they requested more appropriate quality control conditions, rather than strict adherence to an age condition. In February 1997 the Society accepted this and amended its regulation, and now vehicles up to a maximum age of 10-years are allowed for operation subject to the approval of a 3-person committee appointed by the Society. This committee is authorised to examine thoroughly the condition of all vehicles at the time of entering and renewing agreements with operators. In addition, the operator is still obliged to get vehicle fitness certificate from the MVE.

To be seen to fulfil its broader social objects FUTS used to collect charitable contributions from its operators. Each minibus operator, except for a brand new vehicle, was obliged to donate a sum of Rs 15,000 per annum to specified charities (charitable schools in Faisalabad). At the request of operators, this requirement was withdrawn by the Society in February 1997.

As these examples indicate, the regulatory framework is still evolving, with the forum provided by FUTS promoting greater flexibility in decision making, and a learning process for both operators and officials.

7.4.5 Information system

In contrast to RTAs, the Society has been able to develop a well-maintained filing and computerized documentation system. Records and data about agreements, incomes, expenditures, bookings and associated fines, and duty slips, provide a detailed information on

various operational and financial aspects of the Society. This documentation is very useful for the FUTS management itself for three purposes. First, it can be used to verify each vehicle's operational record (number of breakdowns, bookings etc) at the time of renewal of an agreement. Second, the information can also be used for the regular monitoring and improvement of services. Third, the data are useful for the dissemination of information to various government and other agencies, and for research. Moreover, unlike within government departments, access to this information is easy, particularly for the operators. They also benefit from the properly maintained records; for example through knowing about infringements of rules, and fines paid, by their drivers.

7.4.6 Improvements in traffic management

As in many other cities in Pakistan the operational environment on street for full size buses and minibuses in Faisalabad is not favourable; owing to the mix of slow and fast moving traffic, physically poor road conditions, a lack of awareness of traffic rules, and a lack of traffic management. The flagrant violation of basic traffic rules by road users, and illegal road-side parking, worsen traffic congestion. As a consequence of these chaotic conditions and the resulting congestion, public transport travel times increase during peak periods in the central area and elsewhere on the route network. Safer and more efficient operation of services could be achieved by implementing effective traffic management measures.

FUTS is not in a position to directly initiate any programme for the improvement of traffic flow in the city albeit this is one of its stated objectives (FUTS, 1993). However, the Society has provided funds to the traffic police for the purchase of motorcycles and radio communication. As a result the traffic police are somewhat better equipped to regulate overall traffic in Faisalabad. Other improvements to traffic flow are a consequence of FUTS, in that on-street regulation of public transport is often a root-cause of traffic jams at and around road intersections and bus stops. The relatively well-organized and supervised operation of FUTS services has resulted in a better flow of traffic.

The very attractiveness of FUTS services has also resulted in other indirect improvements. The FUTS services have attracted the ridership from other modes. As a result, in particular,

the use of autorickshaws and suzukis has declined as reported in chapter 6, section 9. The RTA officials reported that about 1000 autorickshaws and 735 suzukis have been withdrawn from the city.

With this decline in the number of autorickshaws and suzukis, alongside extensively supervised FUTS service operation and better equipped traffic police, overall traffic conditions in the city have somewhat improved. Discussions of the researcher with shopkeepers, pedestrians, drivers and traffic police all confirmed improvements.

7.4.7 Sustainability

The 'snapshot' of the current situation under NGO based regulation is quite positive and the success of the FUTS is now so well established that it seems unlikely that the gains made can be reversed through any clawing back into the control of the government bureaucracy. A close examination of the situation shows that there are some grey areas which could influence the sustainability and future development of this regulatory regime (see chapter 8, section 3).

7.5 Conclusions

This chapter has synthesised the analysis on urban public transport regulation in Pakistani context with some relevance to the wider literature review. A summary of the overall conclusions drawn from the research with recommendations for current practice and policy is presented in the next and final chapter.

Chapter 8 Conclusions And Recommendations

8.1 Introduction

The general aims of this research were (a) to understand the problems of regulating urban public transport in Pakistan, and (b) to provide the basis for a more rational framework that can assist with the formulation of regulations and policies in Pakistan. In particular, the research explored the following specific objectives.

1. To review government regulations and policies regarding quantity controls, fares, safety and other quality controls, subsidies and grants, together with their associated institutional arrangements, and to assess their influence on quality of service;
2. To examine the market for services at different fare levels, for different income and population groups, and specifically to study the potential for better quality services;
3. To analyse recent regulatory and traffic management interventions and their effects on quality of service; and
4. To identify and make recommendations for public transport planning/regulatory improvements which would be attractive and potentially feasible to implement in the Pakistani context.

Although the aims and objectives are centred on Pakistan, similar problems are encountered in other LDCs and the research findings accordingly can be expected to have relevance for other countries.

Section 2 presents the general conclusions drawn from this research. The recommendations for the regulatory improvements and further research on urban public transport planning are presented in section 3. The final section summarises the significance and the contribution of this research.

8.2 General Conclusions

The general conclusions from the research can be drawn on the following aspects.

*** Nature of the urban public transport problem**

Most cities in the Less Developed Countries (LDCs) have grown at an unprecedented rate in recent years. The obvious implications of the expansion in city size and population are the massive increases in the intensity of land use and the demand for transport facilities and services. Walking or cycling has become more difficult as cities have grown and new residential areas are beyond walking/cycling distances to first order service facilities and employment centres. Moreover, many LDC cities are characterised by low car ownership, and personal motorised transport is still beyond the reach of the large majority. Therefore, public transport is theoretically seen as the most efficient way of providing good access for longer distance trips interlinking the various parts of the cities, now and in the future. Yet urban public transport provision in many LDCs is grossly inadequate both in terms of quantity and quality. The research has identified that this situation has arisen largely because of the following factors.

Firstly, the expansion in the size of the cities with longer distances involved to reach major destinations (such as places of employment, health services, education and other amenities) has particularly a marked effect on the lower income groups unable to afford car or motorbikes. The problem has become further aggravated since the public transport services have been more market oriented as the urban poor are less able to afford higher fares.

Secondly, in most cities, there are many areas where no buses can go. These include historic city centres where roads and lanes are too narrow for bus operation, and most illegal or informal residential land subdivisions with irregular lay-outs which are usually on sites often flooded or waterlogged or on steep slopes with no motorable roads. These illegal/informal settlements are often the only viable source of housing especially for the poor. The provision of cost-effective public transport is difficult in these areas.

Thirdly, it has been found that most transport operators tend to concentrate their resources on serving general patterns of movement along major corridors, rather than try to cater for all possible origin-destination choices. Also the inefficient operation of the available means of public transport has adversely affected its capacity utilisation and hence contributed greatly to its inadequacy. As a consequence, unreliability, the overloading of public transport vehicles, complex journeys involving frequent interchanges, lengthy walking times to bus stops, long passenger queues and lengthy waiting times (particularly during peak periods) have all become characteristics of the public transport in the LDC cities.

Other common problems of urban public transport in most LDCs include: high import costs of public transport vehicles; old and poor quality vehicles; and reckless driving practices. Reckless drivers cause traffic congestion and road accidents, and old poorly maintained vehicles provide uncomfortable and unreliable service, and are a major source of air pollution.

Finally, public transport planning and management is constrained by a lack of data, and the inadequate planning and managerial capabilities of the authorities. Public transport authorities responsible for regulation/planning of public transport lack efficient and suitably qualified personnel and the existing officials are unable to collect, analyse and disseminate data on various aspects of service provision.

The factors listed above are related to those directly stemming from over and inappropriate regulation, in particular, regulated fares.

*** Regulation of urban public transport**

The general aims behind policies of state provision and regulation of urban public transport have been seen as ways (a) to facilitate travel, especially to work, for those unable to afford private transport (b) to ensure that all parts of the city are accessible to all groups (c) to create order out of chaos and (d) to ensure safety of operation. In order to accomplish these aims the various regulatory measures have been applied. The measures include restricting transport

activities to a limited number of operators, structuring the fares system and establishing standards for safety.

The literature shows that government policies and regulation in most LDCs have generally undermined the role of urban public transport services, with investments in public transport curtailed, quality of service reduced and expansion of services stunted. The study of public transport regulation from Pakistan supports these findings.

In Pakistan publicly owned bus corporations were introduced in the hope that they would facilitate travel and ensure accessibility and affordability, particularly of those low income groups. The government also granted subsidies and other incentives for this purposes. The experience shows that the services, when operating, served longer and non-profitable routes shunned by the private operators and offered relatively reliable services. However, the performance of the corporations drastically declined as a result of mis-management (inefficiency and dishonesty of staff), low fares and a lack of autonomy to manage the business. As a result of the collapse of services, the publicly owned corporations no longer exist in Pakistan. The desired effects of public ownership and subsidy policies could not be achieved in this way. The other policies related to the provision of public transport, as discussed in Chapter 4 & 7, were similarly misdirected.

The policy of maintaining cheap fares for all users has a detrimental effect on the quality of service in Pakistan. Operators are impoverished by low fare structures and the fact that operators are not compensated for fare levels set below the market rate. Therefore, they are forced to sacrifice the quality, for instance using the least expensive vehicles possible to ensure some return. Another negative effect of controlled fares is that operators are constrained from offering better quality services, even to those who can afford them.

It is not surprising that route networks have been defined without applying any specific criteria in Pakistani cities, as the authorities lack qualified staff and the relevant data. The definition of such networks has not achieved the desired results, as evidenced in Lahore where some areas are inadequately served and in others no service is provided at all (see Chapter 5, section 7.3).

Similarly, in order to ameliorate traffic congestion and air pollution problems in the central areas, the authorities have attempted to limit the age and number of minibuses over the entire network. This causes capacity problems, as is again evidenced in the case of Lahore (see Chapter 5, section 7.1).

The conclusion drawn is that the aims of the policy have not been realised in practice in Pakistan. The bureaucratic regulation of urban public transport as currently implemented has suppressed the growth and improvement in services.

*** Deregulation of urban public transport**

The research shows that in order to overcome the regulatory problems of urban public transport various deregulation policies have been implemented both in Developed and Less Developed Countries. International experience shows that overall quantity and fares deregulation has been a mixed blessing. The major benefit of the deregulation has been that the governments have saved a large amount of money in reduced subsidies. Riders have benefited from reduced walking times as a result of increased spatial coverage of the system, and reduced waiting times as a consequence of substantial increase in capacity, particularly at peak periods with more frequent bus services. Although in Britain, for example, deregulation has proved effective in reducing unit costs, there has generally been a poor outcome in terms of ridership (see Chapter 3, section 7.2).

On the other hand, one of the main negative effects of the deregulation has been a significant increase in public transport fares. The increase in fares has a brutal impact on low-income earners no longer able to afford to ride in public transport, particularly in LDCs. The other negative impacts have arisen from the increase in small capacity vehicles that have seriously affected on-street traffic operation. In particular in the LDCs, the increase in less maintained vehicles has resulted in increased traffic congestion and environmental pollution. Moreover, headrunning, racing to bus stops, irregular despatching and other problems associated with on-street competition have resulted in more road accidents. While the British bus deregulation

experience suggests that the safety problems can be addressed through strict quality control, the problems of implementing such controls in LDCs should not be underestimated.

The World Bank and other international agencies have been emphasising the deregulation approach in order to get rid of inefficient and ineffectual bureaucracies, and to deliver public transport services more effectively and efficiently. The research for this thesis has identified a new approach to improving urban public transport regulation in Pakistan through a non-governmental organisation (NGO). Public transport services under the control of the Faisalabad Transport Society (FUTS) have been extensively regulated but operators have a freedom to change the specified route and replace their vehicle with the prior permission of the FUTS. Fare levels are determined with the mutual consent of the operators and the FUTS. Services under this form of regulation are a measurable success, providing substantial improvements and commanding wide acceptance both by passengers and by private operators. The improvements under NGO regulation are largely attributable to the following factors: fares are set at a reasonable commercial level although affordable for middle and higher income groups; highly supervised service operation; and the strict enforcement of rules by the NGO staff.

The conclusion drawn is that complete deregulation of fares and quantity is not the solution in any country trying to address urban public transport problems. Tough quality regulation is required for safety aspects through effective controls over vehicle fitness, driver licensing and behaviour, and service operations, as in the case of Britain. Quantity regulations over services and fares regulation should be limited and there is a need to avoid monopolies and to ensure that competition is maintained. Any regulatory system will reflect the limitations in awareness, understanding and thinking of the officials who administer it, and, in the context of Pakistan today, where these limitations are severe, a minimalist approach is likely to be the most effective. The FUTS experience demonstrates that operators are willing to operate in an effectively regulated system which allows them to generate a reasonable return on their investments.

*** Market for different services at different fare levels**

The literature suggests that in principle there is a demand for a diversity of public transport services in LDCs, to reflect the willingness to pay more for better quality services. On the other hand, low-income groups would opt for services with low fares at the expense of quality of service. Armstrong-Wright, for instance, states that *"the very large number of taxis in some cities is often an indication, on the one hand, that bus services are inadequate, and on the other hand, that many passengers are prepared to pay more for more convenient or reliable transport and would pay more for better bus services"* (Armstrong-Wright, 1993:30). The analysis undertaken in the research confirms that these findings stand valid in Pakistan. The Faisalabad experience has clearly demonstrated that in practice there is a market for better quality services at higher fares in Pakistan. Care should be taken to avoid too sweeping interpretation of this finding in that it reflects the views of riders who by definition can afford to pay and the ridership of FUTS services is drawn from relatively higher income groups compared with the ridership of suzukis. It certainly does not mean that lower income groups can afford to use FUTS services on a regular basis and the lowest income groups cannot afford the public transport at all. More research is needed to clarify these issues (see section 8.3).

*** A new role of NGOs**

For some problems which the private sector is not able to address and which government fails to deal with by conventional planning and management procedures, the work of NGOs emerges as an alternative. Most of the NGOs have development-centred activities in areas like, housing, health care, education, agricultural extension and environmental conservation. In Pakistan, NGOs have been assigned a new role which is the regulation of urban public transport. NGO based regulation has proved far more effective compared with government bureaucratic regulation in Faisalabad. Officials who failed to achieve regulatory objectives under government bureaucratic regulation seem able to achieve more effective regulation through the NGO.

The reasons for the effectiveness of the new form of regulation include: the NGO has greater freedom of decision making for the planning and management of services under its control; it has introduced measures to eradicate corruption and ensure greater transparency, efficiency, accountability, responsiveness and operators' participation in the management; and it has established its own effective enforcement system. This is in sharp contrast to the lack of enforcement under government regulation. The Faisalabad experience has also acted as a learning process, raising awareness and understanding about public transport issues, a process of vital importance given the absence of expertise. The NGO is closer to the ground and directly involved day to day with operators and passengers, by contrast to the remoteness of government regulatory offices with their culture of concealing administrative procedures, lack of responsiveness to problems and providing favours rather than services.

The NGO has provided an effective 'arms length' mechanism for decision making, which, as in other areas of policy, has circumvented problems associated with government bureaucracies. This mechanism offers the best prospects for further improvements to public transport services in Pakistan in the medium term, and has similar potential in other LDCs. The prominent place of NGOs in the Habitat II agenda reflects a growing international recognition of their capacity and potential contribution in the delivery of services and the improvement of good governance.

*** Development of methodology**

Finally, what has been learned about how to research urban transport policy implementation in LDCs? The research approach was designed on the basis of personal knowledge and a wide literature review. Two case study cities from Pakistan with differing forms of regulation were selected. The methodologies employed under this research included the literature review; collection and collation of secondary data sources and in-depth interviews conducted with regulators; public transport operators; household surveys; and passenger surveys. The approach taken for this research has both strengths and weaknesses, some reflection on which is useful in developing methodologies for further research.

The research has identified a number of ways that further research might be undertaken and methodologies be developed in order to advance understanding of how to improve the regulation of urban public transport in LDCs.

In order to gain deeper understanding of the public transport problem and to analyse the market for better quality services at higher fares, systematic household surveys were conducted in two areas of Lahore. The findings of the surveys were helpful in drawing conclusions about public transport provision in the selected areas but it was time consuming to collect and analyse the data. As an alternative it would also have been possible to collect similar information through the use of more qualitative approach such as group discussions with residents and/or detailed case studies of a limited number of households. Such methods would yield better qualitative information, for example, on attitudes and perceptions about public transport.

Passenger views about the public transport services were obtained by using a survey form in Faisalabad. Although the sample size was limited it provided a clear picture of the issues raised in the methodology. In order to have more conclusive findings on service quality a large number of interviews would be required, employing quota sampling and a stratified sample frame. This would have been beyond the resources available to the researcher, however, it is questionable whether these more elaborate surveys would have provided good value for the additional information collected.

In the case of Faisalabad, an evaluation of the effectiveness of the NGO based regulation was made, covering the performance and quality of services offered under both new and old regulatory regimes. The research illustrates the potential value of using and developing further methods involving before and after or similar comparisons in respect of any regulatory changes, in order to evaluate their effectiveness. All too few such studies have been undertaken in LDC context, and the researcher is aware of the results reported by Darbera (1994) and Franandez (1995).

The research also illustrates that there is a great scope for the development of methodologies for systematic comparison of regulated and deregulated provision between different cities.

Researchers can expect to face problems in conducting such comparative research in LDCs where scarcities are common in the availability of comparable data related to the provision of public transport. This was evidenced in the Lahore/Faisalabad comparison. In both cities the collection of data on regulatory issues was managed though only after a difficult exercise. Data on performance indicators was difficult to collect, particularly in Faisalabad. In this city, no relevant data was available where a large number of passengers use inter-city buses passing through the city centre and suzukis illegally operated. In such circumstances, the research exercise should be approached with the recognition of the limits to what will be possible in terms of data procurement.

The researcher cautions that access to data is likely to be problematic even where it is collected and theoretically available. Difficult access to available data has been the second major and traditional barrier in conducting research in most LDCs. The research also shows that a major difficulty in conducting research in Pakistan has been the lack of a standard and reliable map of the area. Similarly, access to chief officials for interviews and for their support in overcoming access difficulties is another major difficulty. In order to overcome such problems networking (e.g. developing and using personal contacts etc.) is an important means of gaining access to primary and secondary data. Certainly without access provided by key contacts in highly placed positions within government bureaucracies in Pakistan, the researcher would have been forced to rely upon inadequate information.

8.3 Current Policy and Practice in Lahore and Faisalabad: Conclusions and Recommendations

The following are the main conclusions and recommendations for current practice and policy for urban public transport planning and regulation in the case study cities.

*** Sustainability of the NGO model**

The following are some areas which could influence the sustainability and future development of this regulatory regime.

- **Legality:** There are three areas which contravene the prevailing law dealing with public transport services. First, the Regional Transport Authority is responsible for planning, regulation and control of all services within its jurisdiction (MVO, 1965; and also see chapter 4). In practice in Faisalabad and Lahore, the NGOs regulate their own services and the Secretary Regional Transport Authority has to rubber stamp NGO decisions. Pressures still remain however from the ambivalent position of the Regional Transport Authority and its Secretary. Second, the government has treated the Faisalabad Urban Transport Society and the Lahore Transport System on an exceptional basis by authorising them to increase fares, whereas other social companies operating public transport services, such as the Model Town Society in Lahore, have not been treated in the same way (see chapter 5 section 2.8). Third, no concession is given to students using the Faisalabad Urban Transport Society's services. This is also contradictory to the law. *A clarification to resolve these issues would help to ensure sustainability.*

- **Fares review process:** The sustainability of the Faisalabad Urban Transport Society' success depends not just on retaining its independent ability to set fare levels, but on its *use of this ability to ensure that fares are maintained at realistic levels through a regular review process.* Only then will further investment and associated quality improvements be possible.

- **Corruption free system:** The Faisalabad Urban Transport Society (FUTS) success derives also from its clean administration, and it is arguable that this is still too dependent on a few officials in key positions, such as that of the administrator. A degree of protection against the emergence of corrupt practices within FUTS is provided by the openness of the governing body as a decision making forum. For instance, operators can directly report their complaints (if any) to the Governing Body. This acts as a restraint on the actions of individuals in senior positions, and makes it more difficult for corruption to become re-established.

- **Representation:** Although operators are not represented on the General Body of the FUTS at present they are consulted as required and so far this mechanism has worked well. *For the future development and further transparency of the system it would be appropriate for operators to take up the representation they are entitled to on the Governing Body.* In this regard passengers representation would also be helpful but greater difficulties are likely to occur in seeking genuine consumer participation. *Nevertheless, representation of passenger interests is important in connection with the monitoring of service performance in the longer run.*

- **Training:** The Orangi Pilot Project NGO in Pakistan is one of the leading NGOs in the LDCs working in the areas of housing and sanitation (OPP, 1995). It has served as a demonstration of the success which NGOs can achieve for other interests within and outside Pakistan. One of the major factors in the success of this NGO is its training arrangements for its own staff as well as for other interests. Similarly, the FUTS model is being used as a an example to other interests such as government officials associated with public transport regulation in other cities, politicians and researchers, but it has neither qualified staff nor training facilities. *For FUTS to build on its success effectively the needs for staff training will have to be addressed.*

* Replicability of NGO model

The Faisalabad Urban Transport Society has not widely publicized the success and popularity of its scheme, but the need for wider dissemination was suggested by the researcher in the course of this research while interviewing government officials and operators working in major cities of Pakistan. Moreover, the former Divisional Commissioner, who initiated the FUTS, showed

continuing interest and concern about the replicability of the scheme in other cities. At his prompting the Deputy Commissioners of Lahore, Gujranwala, Multan, and Rawalpindi districts visited Faisalabad, in August 1996, to study and understand the entire FUTS regulatory regime. The Federal Government also directed the National Transport Research Centre to evaluate the performance of the services operating under FUTS control, and its preliminary report has been produced (Idris, 1996).

As a result awareness and interest elsewhere is growing. The Sind provincial government appointed a task force to prepare a feasibility report for the operation of public transport services in Karachi under an NGO (April 1997) but no further information is available about developments in Karachi. FUTS also received a request for details about the establishment and functioning of the scheme from the Transport Department of the NWFP, and the NWFP government subsequently indicated its intention to introduce this system in major urban areas of the province. The dismissal of the provincial governments following the national elections in February 1997, and the consequent reshuffling of official postings, has delayed action. However, there is a continuing interest at the highest levels, and the FUTS regulatory model is in the process of replication in other Pakistani cities. Within the Punjab province itself the Chief Minister directed the Divisional Commissioner for Lahore to organise an NGO on the pattern of FUTS. Recently, in June 1997, public transport services commenced under the control of a newly formed NGO named the Lahore Transport System (LTS) (see Appendix 7 for details).

Given the will, the FUTS model can readily be replicated in other cities faced with a comparable situation to that in Faisalabad. In other LDCs, with similar regulatory problems and similarly deficient bureaucracies, it should also be possible to emulate the FUTS success. Success, however, is likely to depend on key officials, as in Faisalabad, and the impetus for reform must be maintained and politically supported throughout the process of implementation. Also in order to promote the FUTS model and more effectively transfer its success to other areas better training arrangements are seen as essential and there needs to be explicit support from the Federal Government.

*** Subsidies**

It has been concluded in the preceding chapter that blanket subsidies for public transport services in Pakistan are, in no way, desirable, although the targeted subsidies that meet specific social and economic objectives could be justified. This raises a question about the administration of the implementation of subsidies. The literature shows that subsidies can be allocated more efficiently between operators through competitive tendering. In this regard the experience of tendering in London is seen to work well and serves as a useful model (see chapter 4, section 10). In the present Pakistani context, this approach is not suitable due to the following factors. First, the authorities lack skills to administer the allocation of subsidies through competitive tendering. Second, the scale and extent of corruption which is involved at various levels. Third, the pattern of ownership (predominantly single vehicle operators) is not helpful. The NGO forum seems appropriate to administer targeted subsidies from amongst the operators under its control for the medium term. *In order to achieve real benefits, monitoring and reappraisal from time to time is essential to ensure that the original justification for subsidy remains valid. Also, any new proposals for subsidies must be carefully appraised and their true effects understood.*

*** Quality controls**

The implementation of safety standards for public service vehicles and drivers is a source of graft for the law enforcers in Pakistan. As a result, most passengers consider travel in public transport (particularly in minibuses) as dangerous. In this regard, stronger action is required to ensure that a fitness certificate is issued after a complete vehicle examination and that a licence is issued to a public transport driver only after passing a required driving test. *The essential step to implementing and enforcing these regulations appears to be to eliminate the corruption involved. This would be a difficult exercise but not impossible. In order to effectively eliminate corruption the salaries of the traffic police need to be increased.*

Another step to improve road safety is that a comprehensive vehicle and driver insurance system should be introduced, which is non-existent in Pakistan today. Under this system

responsibility might be more appropriately placed with the insurance companies that comprehensively insure the relevant vehicles and drivers. These companies, which would have to meet legal claims for compensation, would have strong commercial incentives to establish reliable testing procedures. Competition among insurance companies would be necessary to prevent abuse by them.

*** Traffic management**

The on-street operational environment for bus services is very poor in all urban areas in Pakistan. The current situation in urban areas suggests that most bus delays occur at bus stops and junctions, and along some busiest sections of the road network. Safer and more efficient operation of services could be achieved by implementing effective traffic management measures and by enforcing traffic rules. The following traffic management measures are seen as appropriate for urban areas in Pakistan. First, *short busway sections with policing need to be implemented along the route network where there is severe traffic congestion*. Second, *the authorities need to clearly specify the location of bus stops and install proper signs such as is FUTS practice in Faisalabad*. Third, the scheduling of public transport services can also ameliorate the problems. Moreover, *there is a need to introduce better enforcement of behaviour by drivers targeted on bus stops*. In this connection, the lessons learned from the good practice of on-street regulation and traffic management models (such as Curitiba, Abidjan) can also be utilised. Again training needs are vital, and better training for the traffic police is essential to effective enforcement.

*** Federal Government support**

As discussed in chapters 4 & 7, the development of the public transport industry in Pakistan has been hampered mainly due to non-supportive government policies such a lack of financial incentives and a heavy taxation structure. Under the present circumstances, the operators are in no position to purchase new buses for urban operation. Even under the FUTS operation with relatively high fares for bus services within Pakistan, the operators are not able to invest in brand new vehicles (see chapter 6, section 5). In order to promote the urban public transport

industry, *stronger support of the Federal Government will be required mainly to facilitate the supply of new vehicles through the relaxations in tax regime* (as in the case of Sri Lanka, see chapter 3, section 7.3) *on a continuing basis*. Such a measure to overcome the bus supply restrictions for LTS in Lahore is now proposed (see Appendix 7).

*** Further Research Issues**

The following two main areas have been identified under this study which require further research.

■ It was possible to conduct only a limited number of passenger interviews in Faisalabad under this study. It was not possible to explore views of users on the basis of income due to time and financial constraints. However, the analysis of the 1996 user survey indicates that FUTS services (with higher fares) are largely being used by higher and middle income groups, and the suzukis (with government fixed fares) are being used by a higher proportion of lower middle income groups to which one third of the population of Faisalabad belongs. Presently there is no mechanism to effectively provide services to lower income groups at affordable fares either under government regulation or the NGO based regulation. The question arises as to how public transport services can be made accessible to those below the lower middle income groups who cannot afford present (the government/NGO fixed) fares. It is also unclear what access needs of low income groups are and to what extent cheaper public transport services could help to meet them. Further research with a wider sample coverage is needed to address these issues and assess the transport needs of low and lower middle income groups.

■ In Lahore, following the successful NGO experience in Faisalabad, public transport services have also been introduced under NGO control. The Faisalabad NGO offers public transport services throughout the city with only minibuses (15-seat vehicles) under its operation, whereas the Lahore NGO to date operates full size buses on only a few routes. The regulatory regimes, nevertheless, have a similarity. Further monitoring and analysis of the progress of the 2 NGOs,

and of the services they provide would be helpful for the future development and sustainability of public transport under NGO based regulation.

8.4 Significance and Contribution of the Research

The research findings are seen significant in a number of ways both for policy makers in LDCs in general, and also for those researching urban public transport in LDCs.

- * The research contributes in the field of transport planning and policy making by providing a better understanding of urban public transport problems in LDCs. The literature has been reviewed and the nature of urban public transport regulatory problems has been identified in LDCs and the evidence of the problems is specifically verified in Pakistani context.
- * The research has also reviewed literature on the regulatory reforms adopted both in DCs and LDCs in particular the literature on bus deregulation in Britain. It has also identified the good public transport regulatory practices. In the light of this experience, the lessons learned need to be applied elsewhere in other cities.
- * The research highlights a new form of public transport regulation through NGOs and it presents a new relationship between civil society (operators and users of public transport) and state. The new role of NGOs, as public transport regulator, opens a new debate for the policy makers, researchers, the World Bank and other international agencies. The findings of this research provide basis for further investigation for its replicability and sustainability in Pakistan and other LDCs in general.
- * The research has a significance on its methodological grounds. It has employed both qualitative and quantitative approaches which indicate that there is a clearly scope for wider application and further development of the methodology on the basis of research findings. In particular, the findings illustrate the value of before and after comparisons in order to evaluate the effectiveness of regulator changes and new policies. Moreover,

there is a potential scope for systematic comparison of regulated and deregulated provision of urban public transport.

- * The research utilises original data to analyse interrelationships between regulations and service improvements in Lahore and Faisalabad. The results of this analysis has helped to provide a basis for improvements to the regulatory framework and for researchers to provided opportunities for further research related to policy development. In this way, the research is not only useful and relevant to Lahore/Faisalabad, and other cities of Pakistan, but has relevance for other LDCs faced with similar public transport regulatory problems.

- * Two articles have already been published in a refereed Journal (Russell and Anjum, 1997a; Anjum and Russell, 1997), and several papers presented in international conferences.

- * Only limited literature is available on regulatory frameworks of urban public transport in the LDC context. The research comprehensively encompasses the main aspects of urban public transport regulation and policies in Pakistan. Therefore, it is a valuable addition to the knowledge of regulatory frameworks in LDCs.

REFERENCES

References

- Abane, A. (1993), Mode choice for the journey to work among formal sector employees in Accra, Ghana, *Journal of Transport Geography*, 1 (4), 219-229.
- Ackerman, D. (1995), Constitutional and institutional changes in the provision of public transport in South Africa, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.
- Affan, A. (1986), Traffic and public transport in Metropolitan Khartoum: problems and possibilities, Proceedings of the PTRC Summer Annual Meeting, Seminar H.
- Ahmad, I. (1996), Public transportation in Lahore, Paper presented at a conference organised by Rotary Club of Lahore Metropolitan on November 19, 1996, Lahore.
- Allos, A.E. (1986), Public transport in Baghdad, Proceedings of the PTRC Summer Annual Meeting, Seminar H.
- Allport, R.J and Thomson, I. (1990), Study of mass transit in developing countries, Contract Report 188, Transport and Road Research Laboratory, Crowthorne.
- Anjum, G.A. (1997), Government wearing an NGO hat: improving public transport regulation in Pakistan, Proceedings of the 14th Inter-Schools Conference on Global and Local Development: New Agendas, New Partnerships, Edinburgh, March 1996.
- Anjum, G.A. (1996), Public transport regulation in less developed countries with special reference to Pakistan, Proceedings of the 13th Inter-Schools Conference on Development Research and Practice: Bridging the Gap, Huddersfield, March 1996.
- Anjum, G.A., and Hameed, R. (1994), Unapproved land subdivisions; responding the shelter need of the urban poor: a case study of Lahore-Pakistan, Proceedings of the 2nd Symposium, Housing for the Urban Poor, 1994, Birmingham, UK.
- Anjum, G.A. (1990), Housing developers and planning agencies: case studies of Lahore and Faisalabad, M.Sc Thesis, Department of City and Regional Planning, University of Engineering and Technology, Lahore.
- Anjum, G.A. (1994), The dwindling role of planning agencies in residential land development: Need for policy change with specific reference to Lahore. Paper presented at International Symposium, Newcastle Upon Tyne, October, 1994.
- Anjum. G.A., and Russell, J.R.E. (1997), Public transport regulation through a government organised NGO: the Faisalabad experience in Pakistan, *Transport Reviews*, 17 (2), 105-120.
- Armstrong-Wright, A., and Thiriez, S. (1987), *Bus services: Reducing costs, raising standards*, World Bank Technical paper number 68.
- Armstrong-Wright, A. (1993), *Public transport in Third World cities*, HMSO, London.

Asghar, T. (1994), Public transport management: a study of bus services in Lahore, B.Sc Thesis, Department of City and Regional Planning, University of Engineering and Technology, Lahore.

Astrop, A., Balcombe, R.J., and Finch, D. (1991), Bus safety and maintenance following deregulation, RR 337, Transport Research Laboratory, Crowthorne.

Bajedo, B.A. (1990), Private operation of public bus services: the case of Metropolitan Lagos, Nigeria, unpublished PhD thesis, London School of Economics and Political Science, London.

Banister, D. (1985), Deregulating the bus industry in Britain-the proposals, *Transport Reviews*, Volume 2, Number 1, pp 99-103.

Barat, J. (1985), Integrated metropolitan transport: reconciling efficiency, equity and environmental improvement, *Third World Planning Review*, 7 (3).

Barrett, R. (1991), 'Strategy paper of the Urban transport Working Group', Second United Nations Transport and Communications Decade, *in: Satisfying public transport demands*, Proceedings of a conference organised by UITP and the World Bank, Yaounde.

Barrett, R. (1991), *Nigeria: urban transport crisis*, The World Bank, Washington, D.C.

Barrett, R. (1988), *Urban transport in West Africa*, World Bank Technical Paper No. 81, World Bank, Washington, D.C.

Bayliss, D. (1981), One billion new city dwellers - how will they travel? Reuben Smeed Memorial Lecture, University College, London.

BCEOM (1992), Transport operations, vehicle maintenance and financial management study, PRTC, Ministry of Transport, Government of Punjab, Lahore.

Beesley, M.E. and Glaister, S. (1985), Deregulating the bus industry in Britain-a response, *Transport Reviews*, Volume 5, Number 2, pp 133-142.

Begg, D., and Smith, C. (1997), The UK bus industry: sustainable growth through stakeholding partnerships, Occasional paper 10, Napier TRI, Edinburgh, UK.

Bell, P., and Cloke, P. (eds) (1990), *Deregulation and transport: market forces in the modern world*, London, David Fulton Publishers.

Bhau, T.R. (1989), Funding public transport systems in metropolitan cities, *Indian Highways*, July 1989.

Black, J., and Dardak, H. (1992), Behavioural public transport sub-mode choice models: transport policy judgement in Jakarta, Proceedings of 6th World Conference on Transport, Lyon.

- Bly, B.H. and Oldfield, R.H. (1986), Competition between minibuses and regular bus services, *Journal of Transport Economics and Policy*, January, pp 47-68.
- Bly, P.H, Oldfield, R.H. and Emmerson, P. (1988), Aspects of bus service deregulation, Proceedings of the PTRC Summer Annual Meeting, Public Transport Planning and Operations.
- Bolade, A.T. (1988), Management and financing of urban mass transport system in Nigeria, PTRC, summer annual meeting, Transport and Planning in Developing Countries, Seminar, H.
- Bolade, A.T. (1986), Transport in Metropolitan Lagos, *Transport Reviews*, Volume 6, Number 1, pp 1-30.
- Briggs, D.A. (1992), A model for the analysis of urban public transport operations, costs and fares under conditions of highly fragmented ownership, Proceedings of, PTRC Summer Annual Meeting, Seminar M.
- Brown, R. (1993), Comments on a paper: Glaister, S. (1993), 'Bus deregulation in the United Kingdom', in: Carbajo, J. (ed), *Regulatory reform in transport: some recent experiences*, World Bank, Washington D.C.
- Bryman, A. (1988), *Quantity and quality in social research*, Routledge, London.
- Buchanan, D.A., Boddy, D. and McCalman, J. (1988), Getting in, getting on, getting out and getting back, In Bryman, A. (ed) *Doing research in organisations*, Routledge, London.
- Burgess, R.G. (1984), *In the field: an introduction to field research*,. George Allen & Unwin Ltd., London.
- Camara, P., and Banister, D. (1993), Spatial inequalities in the provision of public transport in Latin American cities, *Transport Reviews*, 13 (4), 351-374.
- Cameron, J.W.M., and Naude, A.H. (1986), A dependence on subsidised transport, *Indicator SA*, 4(1), Winter.
- Cannell, A.E.R. (1996), The Curitiba bus (revolution): Integrated transport systems as mass transport, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.
- Case, D.J., (1980), A comparison of public transport in South Asia, Proceedings of the PTRC Summer Annual Meeting, Seminar J.
- Casley, D.J. and Lury, D.A. (1987), *Data collection in developing countries*, Oxford University press, New York.
- Chartered Institute of Transport (1994), Whither the clapham omnibus? The Future of Buses in London, Second Report of Bus Working Party, October.

- Colson, B. (1996), UK bus deregulation: a qualified success with much still to offer customers and the public at large, *Transport Reviews*, 16, (1), 301-311.
- Cornwell, P.R., and Cracknell, J.A. (1990), The case of busway transit, PTRC, 18th Summer Annual Meeting, London.
- Cox, W., Love, J., and Newton, N. (1997), Competition in passenger transport: international state of the art, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.
- Cox, W., Love, J., and Newton, N. (1995), A summary of international urban transport competition with case studies: Copenhagen, London and San Diego, Proceedings of the Fourth International Conference on Competition and Ownership in Land passenger Transport, Rotorua, New Zealand.
- Darbera, R. (1993), Deregulation of urban transport in Chile: what have we learned in the decade 1979-1989?, *Transport Reviews*, 13, (1), 45-59.
- Department of Transport (1984), Buses, Her Majesty's Stationery Office (HMSO), UK.
- Diandas, J. (1989), Bus managers and users viz a viz ownership, regulation, competition and systems, paper presented at 17th PTRC Annual Meeting, European Transport and Planning, Proceedings of Seminar D.
- Dodgson, J.S. and Katsoulacos, Y. (1988), 'Models of Competition and the Deregulation of Bus Services', in: Dodgson, J.S. and Topham, N. (eds), *Bus Deregulation and Privatization: an International Perspective*, Gower, Aldershot.
- Eastman, C.R., and Pickering, D. (1981), Transport problems of the urban poor in Kuala Lumpur, Crowthorne, Transport and Road Research Laboratory, Report Number, 683.
- EPAP/World Bank/ADB (1993), Punjab Urban Environmental Project, Project preparation, Main Report, Vol. 1.
- Evans, A. (1990), Competition and the structure of local bus markets, *Journal of Transport Economics and Policy*, September, pp 255-281.
- Evans, A. (1994), Bus accidents, bus deregulation and London, *Transportation*, 21, pp 327-354.
- Evans, A. (1988), Hereford: A case study of bus deregulation, *Journal of Transport Economics and Policy*, September, pp 285-306.
- Ezeife, P.C, and Bolade, A.T. (1984), The development of Nigerian transport system, *Transport Reviews*, Volume 4, Number 4, pp 305-330.
- Fairhurst, D., and Edwards, D. (1996), Bus travel trends in the UK, *Transport Reviews*, 16, (1), 157-167.

- Faisalabad Development Authority (1997), Traffic studies in Faisalabad, Faisalabad Development Authority, Faisalabad.
- Faisalabad Urban Transport Society (1994), Constitution of the Faisalabad urban transport society (FUTS), Faisalabad.
- Faisalabad Development Authority (1986), Structure Plan of Faisalabad, Faisalabad Development Authority, Faisalabad.
- Farrell, P., and Last, A. (1985), Urban public transport institutions in Korea, Proceedings of the PTRC Summer Annual Meeting, Seminar H,.
- Feibel, C. and Walters, A.A. (1980), *Ownership and Efficiency in Urban Buses*, World Bank Staff Working Paper No. 371.
- Ferandez, J.E., and De Cea, J. (1985), An evaluation of the effects of deregulation policies on the Santiago (Chile) public transport system, Proceedings of the PTRC Summer Annual Meeting.
- Fernandez K.D. (1994), The modernization of Santiago's public transport: 1990-1992, *Transport Reviews*, 14, (2), 167-185.
- Fielding, G.J. and Johnston, D.C. (1992), Restructuring land transport in New Zealand, *Transport Reviews*, 12, pp 271-289.
- Figuroa, O. (1993), Transportation and the environment in Santiago de Chile, *Urban Age*, Volume 2, Number 1, pp 11-20.
- Fouracer, P.R., and Maunder, D.A.C. (1978), Public transport in Surabaya, Indonesia, Department of Transport, Transport and Road Research Laboratory, Crowthorne, SR 370.
- Fouracer, P.R., Allport, R.J., and Thomson, J.M., (1990) The performance and impact of rail mass transit in developing countries. Department of Transport, Transport and Road Research Laboratory, Crowthorne, RR 278.
- Fouracer, P.R., and Maunder, D.A.C. (1986), A comparison of public transport in three medium sized cities of India, Department of Transport, Transport and Road Research Laboratory, Crowthorne, RR 82.
- Fouracer, P.R., and Maunder, D.A.C. (1977), Public transport in Chieng Mai, Thailand, Department of Transport, Transport and Road Research Laboratory, Crowthorne, SR 285.
- Fouracer, P.R., Kwakye, E.A., Okyere, J.N. and Silkock, D.T. (1994), Public transport in Ghanaian cities- a case of union power, *Transport Reviews*, 14 (1), 45-61.
- Fouracre, P.R. and Maunder, D.A.C. (1987), Travel characteristics in three medium sized Indian cities, Transport and Road Research Laboratory, Crowthorne, Research Report 121.

- Fouracre, P.R. and Turner, J.(1992), Travel characteristics in developing countries, Proceedings of the 6th World Conference on Transport Research, Lyon.
- Fouracre, P.R, and Gardner, G. (1992), Mass transit in developing cities; the role of high performance bus systems, Proceedings of the Conference, The expanding role of buses towards the 21st century, Institution of Mechanical Engineers, London.
- Fouracre, P.R. and Maunder, D.A.C.(1981), Non-motorised travel in Third World cities, (reprint) Transport and Road Research Laboratory, Crowthorne.
- Gardner, G., Cornwell, P.R., and Cracknell, J.A., (1991) The performance of busway transit in developing countries, Transport and Road Research Laboratory, Crowthorne, RR 329.
- Gardner, G. and Fouracer, P.R. (1989) Busway Transit-The TRRL Study. PTRC, Transport and Planning, Proceedings of the PTRC Summer Annual Meeting.
- Gardner G. (1992), Appropriate mass transit, Proceedings of 6th World Conference on Transport, Lyon, France.
- Gardner, G., Cornwell, P.R., and Cracknell, J.A. (1991), The performance of busway transit in developing countries, TRRL, Research Report, 329, Transport Road Research Laboratory, Crowthorne.
- Gardner, G., and Fouracre, P.R. (1990), Busway transit - the TRRL study, PTRC Summer Annual Meeting, University of Sussex.
- Gedizlioglu, E. (1992), The busway operation in Istanbul, Proceedings of 6th World Conference on Transport, Lyon, France.
- Giannopoulos, G.A. (1989), *Bus planning and operation in urban areas: a practical guide*, Avebury, England.
- Glaister, S. (1993), 'Bus deregulation in the United Kingdom', in: Carbajo, J. (ed), *Regulatory reform in transport: some recent experiences*, World Bank, Washington D.C.
- Goebel, G. (1995), Performance-based contracts as a substitute for competition models, Proceedings of the Fourth International Conference on Competition and Ownership in Land passenger Transport, Rotorua, New Zealand.
- Goldenberg, S. (1989), Anarchy on the streets, An article published in *The Guardian*, Monday January 5 1998, UK.
- Gomez-Ibanez, J.A., and Meyer, J.R. (1990), Privatizing and deregulating local public services, *American Journal of Planning Association*, 56 (1), 9-21.
- Gomez-Ibanez, J.A., and Meyer, J.R. (1997), Alternatives for urban bus services: an international perspective on the British reforms, *Transport Reviews*, 17 (1), 17-29.

Government of Hong Kong (1990a), Public Bus Service Ordinance, Government Printers, Hong Kong.

Government of Pakistan (1995d), National Transport Plan, Ministry of Communication, Government of Pakistan, Islamabad.

Government of Pakistan (1977), Fifth Five Year Plan (1978-83), The Planning Commission Islamabad.

Government of Pakistan (1995b), Greater Islamabad/Rawalpindi area transportation study (GIRATS) (1995), Final report, Ministry of Communications, Islamabad.

Government of Pakistan (1994), Statistical hand book, Bureau of Statistics, Statistical Division, Islamabad.

Government of Hong Kong (1996), Transport in Hong Kong: A review of 1995, Government Printers, Hong Kong.

Government of Pakistan (1995c), The Gazette of Pakistan, Extra, April 18, 1995.

Government of Pakistan (1981a), Census Report of District Faisalabad, Federal Bureau of Statistics, Islamabad.

Government of Pakistan (1992), National Transport Policy (Draft), National Transport Research Centre, Ministry of Communication, Government of Pakistan, Islamabad.

Government of Pakistan (1987), Economic Survey of Pakistan, Federal Bureau of Statistics, Islamabad.

Government of Hong Kong (1990b), Road Traffic (Public Service Vehicles) Regulations, Government Printers, Hong Kong.

Government Transport Service (1981), Government Transport Service: A review, Government of NWFP, Peshawar.

Government of Pakistan (1981c), Census of Pakistan, Bureau of Statistics, Government of Pakistan, Islamabad.

Government of Pakistan (1981b) Census of population for Lahore district, Federal Bureau of Statistics, Islamabad.

Government of Hong Kong (1995), Public transport in Hong Kong, Annual Transport Digest, Transport Department, Hong Kong.

Government of Punjab (1995), Statistical hand book, Provincial Bureau of Statistics, Lahore.

Government of Pakistan (1996), Statistical hand book, Bureau of Statistics, Government of Pakistan, Islamabad.

- Government of Pakistan (1991), The Pakistan National Conservation Strategy, Environment and Urban Affairs Division, Islamabad.
- Government of Pakistan (1969), Motor Vehicle Ordinance, Government printing press, Islamabad.
- Government of Pakistan (1993), Seventh Five Year Plan, Planning Commission, Government of Pakistan, Islamabad.
- Government of Pakistan (1995a), Economic survey of Pakistan, Federal Bureau of Statistics, Islamabad.
- Gray, P. (1990), Public Transport Planning for Karachi, Proceedings, PTRC, transport and planning, summer annual meeting.
- Gunaseelan, G.J. (1995), Service efficiency: A comparative effectiveness study in bus transport industry in India, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.
- Gwilliam, K.M. (1996), Getting the prices wrong: A tale of two Islands, Infrastructure notes, Transport Division, The World Bank, Washington.
- Gwilliam, K.M. and Scurfield, R.G. (1996), Constructing a competitive environment in public road passenger transport, Discussion paper, Transport Division, The World Bank, Washington.
- Gwilliam, K.M. (1989), Setting the market free: Deregulation of bus industry, *Journal of Transport Economics and Policy*, vol.23, pp 29-43.
- Gwilliam, K.M. (1997), Ownership, organisation and competition policy: an international review, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.
- Gwilliam, K.M., Nash, C.A., and Mackie, P.J. (1985a), "Deregulating the bus industry in Britain-the case against", *Transport Reviews*, Volume 5, Number 2, pp 105-132.
- Gwilliam, D.M. and Van de Velde, D.M. (1990), The potential for regulatory change in European bus markets, *Journal of Transport Economics and Policy*, September, pp 333-350.
- Gwilliam, K.M., Nash, C.A., and Mackie, P.J. (1985b), Deregulating the bus industry in Britain-a rejoinder, *Transport Reviews*, Volume 5, pp 215-222.
- Halcrow Fox and Associates (1984a), Advisory services for Transportation Engineering and Planning, Final Report, Lahore Development Authority, Lahore.
- Halcrow Fox and Associates (1984b), Traffic Manual for Lahore, TEPA, Lahore Development Authority, Lahore.

- Hameed, R. et al (1992), Traffic management on a section of Multan Road Lahore, M.Sc Project, DCRP, UET, Lahore.
- Hammersley, M. (1990), *Classroom ethnography, empirical and methodological essays*, Millton Keynes, Open University.
- Hansen, K.R. (1981), Comprehensive urban transportation system: an idea whose time has come. Proceedings of IXth IRF, World Meeting, Stockholm.
- Harris, I., Last, A., and Richards, M. (1984), Institutional structures for bus service provision in some Asian Cities, Proceedings of the PTRC, 12th Summer Annual Meeting.
- Heraty, M. (1980), Public transport in Jamaica, Crowthorne, Transport and Road Research Laboratory, SR 546.
- Heseltine, P.M. and Silcock, D.T. (1990), The effects of bus deregulation on costs, *Journal of Transport Economics and Policy*, September, pp 239-254.
- Hibbs, J. (1985), *Regulation: an international study of bus and coach licensing*, Transport Publishing Projects, Cardiff, Great Britain.
- Higginson, M. (1990), 'Introduction to international transport deregulation', in: (eds) Bell, P., and Cloke, P., *Deregulation and transport: market forces in the modern world*, London, David Fulton Publishers.
- Hill, E.C., and Last, A.L. (1993), Free travel concessions: the costs and benefits, PRTC Summer Annual Meeting.
- Hilling, D. (1996), *Transport and developing countries*, London, Routledge.
- Hills, P. (1989), Early consequences of deregulation of Services in Scotland, Conference on Competition and ownership of bus and coach services, Thredbo, Australia, May 1989.
- Hoen, A., and Kuik, F. (1992), Public finance and public transport, Proceedings of the 6th World Congress on Transport Research, Lyon.
- Hundal, S.H. (1987), Public service vehicle survey, National Transport Research Centre, Ministry of Communication, Government of Pakistan, Islamabad.
- IDA/World Bank/MDA (1990), Traffic and transportation report: Multan development studies and pilot projects, Multan Development Authority (MDA), Multan.
- Idris, M.K. (1992), NTRC bus train, National Transport Research Centre, Ministry of Communication, Government of Pakistan, Islamabad.
- Idris, K. M. (1996), Faisalabad Urban Transport Society; preliminary evaluation, National Transport Research Centre, The Planning Commission, Islamabad.

- Idris, K. M. (1987), Pilot urban bus project; preliminary evaluation, National Transport Research Centre, The Planning Commission, Islamabad.
- Idris, M.K. (1987), Pilot urban bus project: preliminary evaluation, National Transport Research Centre, Ministry of Communication, Government of Pakistan, Islamabad.
- IHT (1987), *Roads and traffic in urban areas*, The Institute of Highways and Transportation, Department of Transport, London.
- Jacobs, G.D., Maunder, D.A.C. and Fouracre, P.R. (1986), Characteristics of conventional public transport in Third World cities, *Traffic Engineering and Control*, Vol. 27 (1).
- Jacobs, G.D., and Bowker, T. (1994), The need for investment in urban public transport, Paper presented at the Conference on Investment in Malaysia's Land Transport Systems, Malaysia.
- Jacobs, G.D., Maunder, D.A.C., and Fouracre, P.R (1986), Characteristics of conventional public transport services in Third World cities, *Traffic Engineering and Control*, 27(12), pp.6-11.
- Jeffery, J. (1997), The Oxford bus story, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.
- Jenkins, I. (1982), A new approach to implementing bus services- the Lahore example, Proceedings of the PTRC, 10th summer annual meeting.
- JICA/TEPA, (1991), Comprehensive study on transportation system in Lahore, Lahore Development Authority (LDA), Final Report.
- Jillani, A. (1997), Encroachments in Karachi,, Article published in *The Dawn*, August 25, 1997, Karachi.
- Jones, P.M. (1989), Restraint of road traffic in urban areas: objectives, options and experiences, Rees Jeffreys Discussion Paper 3, Transport Studies Unit, University of Oxford.
- Joy, S. (1995), The Kombi-taxi in the South Africa, Proceedings of the Fourth International Conference on Competition and Ownership in Land passenger Transport, Rotorua, New Zealand.
- Karachi Transport Corporation (1988), A corporate strategy paper, Karachi Transport Corporation, Karachi.
- Karachi Development Authority (1989), Karachi Mass Transit Study, Karachi Development Authority, Karachi.
- Karachi Transport Corporation (1991), Karachi Transport Corporation (KTC) - efficiency, improvement: Karachi special development project, Final report, Karachi Transport Corporation, Karachi.

- Kennedy, D. (1995), London bus tendering: a review, *Transport Reviews*, 15, (3), 253-264.
- Kennedy, D. (1997), London bus tendering: a welfare balance, *Transport Policy*, 2 (4), 243-250.
- Khan, S.A. (1990), Road accident analysis, National Transport Research Centre, Planning Commission, Islamabad.
- Khan, Alfred, E., (1971), *The Economics of regulation: Principles and institutions*, Vol. 2, John Willey, USA.
- Khanzada, O.D. (1996), Efficiency and effectiveness of Lahore Urban Transport Project,, BSc Thesis, Department of City and Regional Planning, University of Engineering and Technology, Lahore. .
- Khezwana, M. and Maunder, D.A.C. (1994), International experiences of deregulated urban public transport systems, In: *Indian Journal of Transport Management*, July, 1994.
- Khosa, M.M. (1993), Transport and the "taxi mafia" in South Africa, *Urban Age*, Volume 2, Number 1, pp 9-10.
- Kilsby, D., and Smith, N. (1996), User requirements- report of workshop 2 in: Hensher, D.A., and Knight, F., Competition and ownership in land passenger transport: the Fourth International Conference- Part I, *Transport Reviews*, 16 (3), 183-212.
- Kim, K.S. (1998), Transport issues and policies in Seoul: an exploration, *Transport Reviews*, 18 (1), 83-99.
- Kneebone, D. (1987), Transport characteristics of Chinese cities, proceedings of seminar J, PTRC, Summer Annual Meeting.
- Koepfel, B. (1982), *Breaking up LDC Gridlock*, a report of the World Bank, Washington, D.C.
- Koshal, R.K. (1970), Economies of scale in bus transportation: some indian Experiences, *Journal of Transport Economic and Policy*, January.
- Kwakyie, E.A. (1994), A multi-disciplinary approach to the urban transport problems in Ghana, *Third World Planning Review*, 17 (4), 421-438.
- Laffont, J.J. (1994), The new economics of regulation ten years after, *Econometrica*, vol.62, no.3, May, pp 507-537.
- Lahore Development Authority (1987), The Punjab Gazette, Lahore Development Authority (LDA), Lahore.
- Lahore Transport System (1997), Constitution of the Lahore Urban Transport System (LTS), Office of the Divisional Commissioner, Lahore.

- Lahore Development Authority (1986), Building Regulations, Lahore Development Authority (LDA), Lahore.
- Latchford, J.C.R. (1986), Traffic management in South East Asian cities, The Beijing Papers, Institution of Highways and Transportation, Beijing, China.
- LDA/World Bank/IDA (1980), Lahore urban development and traffic study, Lahore Development Authority (LDA), Final Report, Vol.3.
- Lee, E.W. (1993), Hong Kong use escalators as public transit system, *Urban Age*, Volume 2, Number 1, pp 21.
- Lee, N. and Steedman, I. (1970), Economies of Scale in Bus Transportation: some British municipal results, *Journal of Transport Economics and Policy* (January).
- Lee, E.S.W. (1990), 'Formalising informal transport: paratransit in Hong Kong', in: Heraty, M. (ed.) *Developing world transport*, London, Grosvenor Press International.
- Leonard, J. (1986), City profile: Lahore, *Cities*, January, 1986.
- Lindua, L.A. (1987), Bus priority systems in Brazil: from theory to practice, Proceedings of seminar J, PTRC, Summer Annual Meeting
- Local Government Ordinance (1979), The Punjab Local Government Ordinance, Mansoor Book House, Lahore.
- Mackie, P.J., and Preston, J.M. (1992), Regulating the deregulated bus market, 6th World Conference on Transport Research, Lyon.
- Mackie, P.J., Preston, J.M., and Nash, C.A. (1995), Bus deregulation: ten years on, *Transport Reviews*, 15, 229-251.
- Mackie, P.J., and Preston, J.M. (1988), Competition in the urban bus market: a case study, Proceedings of the PTRC Summer Annual Meeting, Seminar C: Public Transport Planning and Operations, pp 157-170.
- Marler, N.W. (1982), The performance of high-flow bus lanes in Bangkok, Supplementary Report, SR 723, Transport Research Laboratory, Crowthorne.
- Master Plan (1994), Faisalabad Master Plan-1994, Office of the Divisional Commissioner, Faisalabad.
- Maunder, D., Fouracre, P., and Jacobs, G. (1987), Matching supply and demand in India's public transport, Transport in developing countries, TRRL Report, Transport Research Laboratory, Crowthorne.

Maunder, D.A.C., and Fouracer, P.R., (1983), Specialised bus services in three third world cities. Department of Transport, TRRL SR 811: Transport and Road Research Laboratory, Crowthorne.

Maunder, D.A.C., Mbara,T.C., and Khezwana, M. (1994) The effect of institutional changes on stage bus performance in Harare, Zimbabwe, *Transport Reviews*, 14 (2), 151-165.

Maunder, D.A.C. (1990), The impact of bus regulatory policy in five African Cities, Transport and Road Research Laboratory, RR, 294, Crowthorne.

Maunder, D.A.C. (1984), Travel characteristics in three medium sized Indian cities, TRRL Research Report 1, Transport and Road Research Laboratory, Crowthorne.

Maunder, D.A.C. and Fouracre, P.R. (1989), Non-motorised travel in Third World cities, Paper presented in Annual Conference of Institute of British Geographers, Coventry, (reprint) Transport and Road Research Laboratory, Crowthorne.

Mbara,T.C., and Maunder, D.A.C. (1995) The effect of regular fare increases on stage bus patronage in Harare, Zimbabwe, (reprint) Transport Research Laboratory, Crowthorne.

McCaul, C. (1990), *No easy ride*, South African Institute of Race Relations, Johannesburg.
Memorie, A. (1996), Urban transport policy development and implementation, TWUTD, World Bank, Washington, D.C.

Meyer, J.R. and Gomez-Ibanez, J.A. (1993), 'Transit bus privatization and deregulation around the world: some perspectives and lessons', in: Carbajo, J. (ed) *Regulatory reform in transport: some recent experiences*, World Bank, Washington D.C.

Miller, D.R. (1970), Differences among cities, differences among firms and costs of urban bus transport, *Journal of Industrial Economics*, Volume, 19.

Mitric, S. (1990), Closing gap between wishes and resources: approaches to public transport in North African Cities, Proceedings of the PTRC summer annual meeting.

Mogridge, M.J.H. (1983), The Jakarta Traffic Management Study: Impact of High Paratransit Flows, *Traffic Engineering and Control*, 24 (3), 444-448.

Monami, E. (1997), The regulation of land passenger transport by means of management contracts: a critical evaluation of the Belgian experience, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.

Moore, T.G. (1993), 'Regulatory reform of transport', in: Carbajo, J. *Regulatory reform in transport: Some recent experiences*, World Bank, Washington D.C.

Motor Vehicles Laws (1992), Manual of Motor Vehicles Laws (1992), Mansoor Book House, Lahore.

- Moyed, A. (1996) The pile-up, Article published in *The News on Friday*, August 9, 1996, Lahore.
- Mueenuddin, Hafiz (1991), 'Policies for slum and squatter settlements (Katchi abadies) in Lahore', School of Planning and Housing, Edinburgh College of Arts, Heriot-Watt University.
- Mushtaq, N. (1997), Slow train to the capital, article published in *The News International*, March 22, 1997.
- Mwase, N.R.L (1989), Public and private sector competition in bus transport in Africa with special reference to Tanzania: lessons for independent Namibia, Paper presented to the International Conference 'Competition and Ownership of Bus and Coach Services', Macquaire University.
- Newton, N (1994), Competitive tendering - The London experience, Paper presented to the International Conference on Privatization and Deregulation in Passenger Transport, Missisauga, Canada, September, 1994.
- Norman, K.D. and Yvona, S.L. (eds) (1984), *Handbook of qualitative research*. Sage, London.
- Okpala, J. (1981), Contestable markets and the theory of industry structure, a review article, *Journal of Political Economy*, 91, 1055-1066.
- Oppenheim, A.N. (1992), *Questionnaire design, interviewing and attitude measurement*. Pinter, London.
- Orangi Pilot Project (OPP) (1995), NGO profile, *Environment and Urbanization*, Vol.7, Number, 2.
- Orikaye, G.B. (1983) Transportation system management in developing countries: A review of progress and framework for effective evaluation, unpublished PhD thesis, The University of Connecticut.
- Patton, M.Q. (1987), *How to use qualitative methods in evaluation*, Beverly Hills: Sage.
- Paulley, N., and Balcombe, R. (1995), Concessionary fares issues in the United Kingdom, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.
- Pedersen, P.A. (1994), Regulating of a transport company with private information about costs, *Journal of Transport Economics and Policy*, vol.28, no.3, September, pp.307-318.
- Pickup, L., Stokes, G., Meadowcroft, S., Goodwin, P., Tyson, W., and Kenny, F. (1991), *Bus Deregulation in the Metropolitan Areas*, Avebury, England.
- Proudlove, A. and Turner, A. (1990), Street management, in: (eds), Dimitriou, H.T. and Banjo, G.A., *Transport planning for third world cities*. Routledge, London.

- Punjab Road Transport Corporation (1994) Punjab Road Transport Corporation- A review, Corporate Planning, PRTC, Lahore.
- Punjab Road Transport Corporation (1992), Punjab Road Transport Corporation- A Review, Corporate Planning Cell, PRTC, Lahore.
- Qadeer, M.A. (1983), *Lahore: Urban Development in Third World*, Lahore: Vanguard Books Ltd.
- Qasim, S.S. (1996), Privatisation prospects in Karachi Mass Transit Programme, Pakistan Transport News, Karachi.
- Ramasinghe, P.C.H. (1988), *Private Bus Transport in Sri Lanka*, Colombo, Friedrich Ebert Stiftung.
- Regional Transport Authority (1995), Public transport system in Lahore. Working paper, Regional Transport Authority, Lahore.
- Richards, M. and Huddrat, K.W. (1986) Traffic management and public transport, *The Beijing Papers*, Institution of Highways and Transportation, Beijing, China.
- Rimmer, P.J. (1986), *Rikisha to rapid transit-urban public transport systems and policy in South-East Asia*, Pergman Press, Sydney.
- Robson, C. (1996), Usable research, Proceedings of the 13th Inter-Schools Conference on Development: International research & practice bridging the gap, University of Huddersfield.
- Romaya, S. (1996), Research in planning: a basic need or a luxury, Proceedings of the 13th Inter-Schools Conference on Development: International research & practice bridging the gap, University of Huddersfield.
- Roth, G., and Diandas, J. (1995), Alternative approaches to improving route bus services in Sri Lanka, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.
- Royal Commission on Environmental Pollution (1995), *Transport and the environment*, Oxford University Press.
- Russell, J.R.E., and Anjum, G.A. (1997a), Public transport and urban development in Pakistan, *Transport Reviews*, 17 (1), 61-80.
- Russell, J.R.E., and Anjum, G.A. (1996), Recent developments in urban public transport in Pakistan, Paper presented at AESOP International Conference, Toronto, July 1996.
- Russell, J.R.E., and Anjum, G.A. (1995), Public transport and urban development in Pakistan, Paper presented at AESOP Conference, Glasgow, August 1994.

- Russell, J.R.E., and Anjum, G.A. (1995), Public transport and urban development in Pakistan, paper presented at AESOP conference Glasgow, UK.
- Russell, J.R.E, and Anjum, G.A. (1997), Optimising urban public transport regulation in Pakistan? the Faisalabad NGO model, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.
- Sadullah, A.F. (1995) Public transport in Kuala Lumpur: A model based approach, unpublished PhD thesis, The University of London.
- Salvucci, F. (1997), Observations on the Buenos Aires experience with increased private sector roles in the production of commuter rail, transit and bus services, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.
- Savage, I.P. (1985), *The Deregulation of Bus Services*, Gower publishing company, England.
- Schuster, H. (1974) Transportation Planning Techniques: Problems and Prospects. World Bank Reprint Series No.17.
- Scurfield, R. and Ernest, L. (1988) An alternative method of encouraging public transport provision, Proceedings of the PTRC summer annual meeting, Seminar J.
- Siddique, M. (1994), Evaluation of approved sites and services schemes in Faisalabad, M.Sc. Thesis, Department of City and Regional Planning, University of Engineering and Technology, Lahore.
- Silverman, D. (1993), *Interpreting qualitative data*, Sage Publications; London.
- Simpson, B.J. (1994), *Urban public transport today*, E & FN Spon, an imprint of Champion & Hall, London.
- Simpson, B.J. (1996), Deregulation and privatization: the British local bus industry following the Transport Act 1985, *Transport Reviews*, 16, (3), 213-223.
- Smith, N., and Hensher, D. (1998), The future of exclusive busways: the Brazilian experience, *Transport Reviews*, Vol. 18, No.2.
- Kang, Y. (1995), The development of urban bus regulatory policy in Korea reviewed, *Transport Reviews*, Vol. 15, No.4.
- Soomro, M.T and Shamim, M.A. (1996), BOT funded projects in urban mass transport: experience and issues, Pakistan Transport News, Karachi.
- Spiers, J. (1986), Madrass Bus Study, proceedings of seminar H, PTRC, Summer Annual Meeting

- Srinivasan, N.S. (1983), Transportation needs of the urban poor, Paper presented at Annual Meeting of civil engineering Division at Lucknow, India, 1993.
- Stirling, W.N. (1978) 'The Need for Understanding of the Factors which Affect Travel by Public Transport', in Transport and Road Research Laboratory, SR-413.
- Swati, M.S. (1993), National Transport Research Centre: An introduction, NTRC, Islamabad.
- Swati, M.S and Khan, S.A. (1990), Islamabad road accident analysis, National Transport Research Centre, Planning Commission, Islamabad.
- Takyi, P.R. (1991), Trip generation analysis in a developing country context, Transportation Research Record 1285, Transport Board, Washington.
- Tariq, M.N., Hayat, S. and Waheed, S.W. (1983), A study of air pollution in Lahore, Institute of Public Health Engineering and Research, U.E.T, Lahore, Pakistan.
- Taylor, M.A.P. (1988), The performance of urban public transport - An overview, *Transport Reviews*, 8, (4), 331-340.
- Tebb, R. (1997), Privatization and innovation: exploiting guided bus, Proceedings of the Fifth International Conference on Competition and Ownership in Land passenger Transport, University of Leeds, Leeds, UK.
- TEPA (1993), Lahore traffic and transport study: Pre-feasibility study of a Light Rail Transit Project, Traffic Engineering and Transport Planning Agency, LDA, Lahore.
- Thomson, I. (1990), The impact of subsidies, regulation, and different forms of ownership in urban transport in Latin America and Caribbean, in: Urban Transport in developing countries, CODATU Conference, Sao Paulo.
- Thomson, I. (1992), Urban bus deregulation in Chile, *Journal of Transport Economic and Policy*, September, 319-326.
- Thomson, M.J. (1983), *Toward better transport planning in developing countries*, World Bank Staff Working Paper No.600.
- Tjahjono, T. (1995), Public transport evolution and operation in Indonesian medium sized cities, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.
- Tolley, R., and Turton, B. (1995), *Transport systems, policy and planning: a geographical approach*, Longman.
- TPO' Sullivan and PADCO (1991), Punjab Final Report(Phase I-III), Shelter for low income communities project preparation.

Traffic Police (1995) Road accidents in Lahore, Working paper prepared by the Traffic Police Lahore.

Transport Road Research Laboratory (1987), Field survey techniques and analysis for urban bus operators, Overseas road note 4, Transport and Road Research Laboratory, Crowthorne.

Transport Road Research Laboratory (1993), Design guidelines for busway transit, Overseas note, 12, Transport Road Research Laboratory, Crowthorne.

Transurb Consult-Inrets (1991), 'Urban transport policy in Sub-Saharan Africa', in: Satisfying public transport demands, a conference organised by UITP and the World Bank, Yaounde.

Turley, B., and Talley, W. (1996), International experiences in competitive operations of land passenger transport- report of workshop 5 in: Hensher, D.A., and Knight, F., Competition and ownership in land passenger transport: the Fourth International Conference- Part I, *Transport Reviews*, 16 (3), 183-212.

Tyson, W.J. (1995), Bus deregulation-the planning dilemma, *Transport Reviews*, 15, (4), 307-313.

Tyson, W.J. (1996), Lessons from the past and options for the future, Paper presented at a Seminar on 'Municipal Bus Companies - What can we really do? London, March 29, 1996.

Tyson, W.J. (1990), "Effects of deregulation on service coordination in the metropolitan areas", *Journal of Transport Economics and Policy*, September, pp.283-293.

Umrigar, F.S., Sikdar, P.K and Khanna, S.K. (1989), Exploring the scope of private participation for urban public transport in India, *Transport Reviews*, 9, (2), 135-146.

Umrigar, F.S., Sikdar, P.K and Khanna, S.K. (1988), Effectiveness of urban bus services in India under existing organisational setups, PRTC, summer annual meeting, Transport and Planning, Seminar H.

UNDP (1996), Women and mobility, Workshop report, UNDP, Islamabad.

UNICEF (1992), Situation analysis of children and women in Pakistan, UNICEF, Islamabad.

Van De Velde, D.M. (1995), The experience of the Netherlands: toward competition, Proceedings of the Fourth International Conference on Competition and Ownership in Land Passenger Transport, Rotorua, New Zealand.

Wahab, I. (1994), The organisational framework of public transport in Malaysian cities, *Journal of Housing, Building and Planning*, Volume 1, pp. 40-52.

Wahab, I. (1990), Urban transport in Kuala Lumpur, *Cities*, August, 236-43.

Waleed, A. (1996), Paying the price of living in Lahore?, Article published in *The News*, August 9, 1996, Lahore.

- Walters, A. (1979) Costs and scale of Bus Services. World Bank Staff Working Paper No. 325.
- Walters, A.A. (1980), The benefits of Minibuses; the case of Kuala Lumpur, *Journal of Transport Economics and Policy*, September, 320-334.
- Watts, P.F., Turner, R.P., and White, P.R. (1990) Urban Minibuses in Britain: Development, User Responses, Operations and Finance, TRRL RR 269, Transport and Road Research Laboratory, Crowthorne.
- Weiss, C.H. and Bucuvalas, M.J. (1980), *Social science research and decision making*. Columbia University Press, New York.
- White P.R. (1997), What conclusions can be drawn about bus deregulation in Britain?, *Transport Reviews*, 17 (1), 1-16.
- White, P.R., Turner, R.P. and Mbara, T.C. (1992), Cost benefit analysis of urban minibus operation, *Transportation*, 19, pp.59-74.
- White, P.R. (1990) Inadequacies of urban public transport systems, in: Dimitriou, H.T. and Banjo, G.A. (eds) *Transport planning for third world cities*, Routledge, London.
- White, P.R. (1995), Deregulation of local bus services in Great Britain: an introductory review, *Transport Reviews*, 15, (2), 185-209.
- White, P.R. (1989), "Bus deregulation: The overall view", *Local Transport Today*, November 15, 1989.
- White, P.R., and Tyler, N. (1994), Analysis of recent trends in bus and coach safety in Britain, Report of Roadsafe '94' Conference, Guildhall, London.
- White, P.R., and Tough, S. (1995), Alternative tendering systems and deregulation in Britain, *Journal of Transport Economics and Policy*, September, pp.275-289.
- World Bank (1995), *Bureaucrats in business: the economics and politics of government ownership*, Oxford University press.
- World Bank (1986), Urban transport: A World Bank policy study, World Bank, Washington, D.C.
- World Bank (1996), *Sustainable transport: priorities for policy reforms*, World Bank, Washington, D.C.
- World Bank (1994), *World Development Report 1994: Infrastructure and Development*, New York, Oxford University Press.
- World Bank (1975), Urban transport; sector policy paper, World Bank, Washington, D.C.

World Bank (1992), *World Development Report 1992: Development and Environment*, New York, Oxford University Press.

WS/Atkins (1994), *Comprehensive Transport Plan for Bombay Metropolitan Region, Final report*, Bombay Metropolitan Region Development Authority, Bombay, India.

Yin, R.K. (1989), *Case study research: design and methods*. 2nd ed, Ca:Sage, Newbury Park.

APPENDIX 1

School of
PLANNING & HOUSING

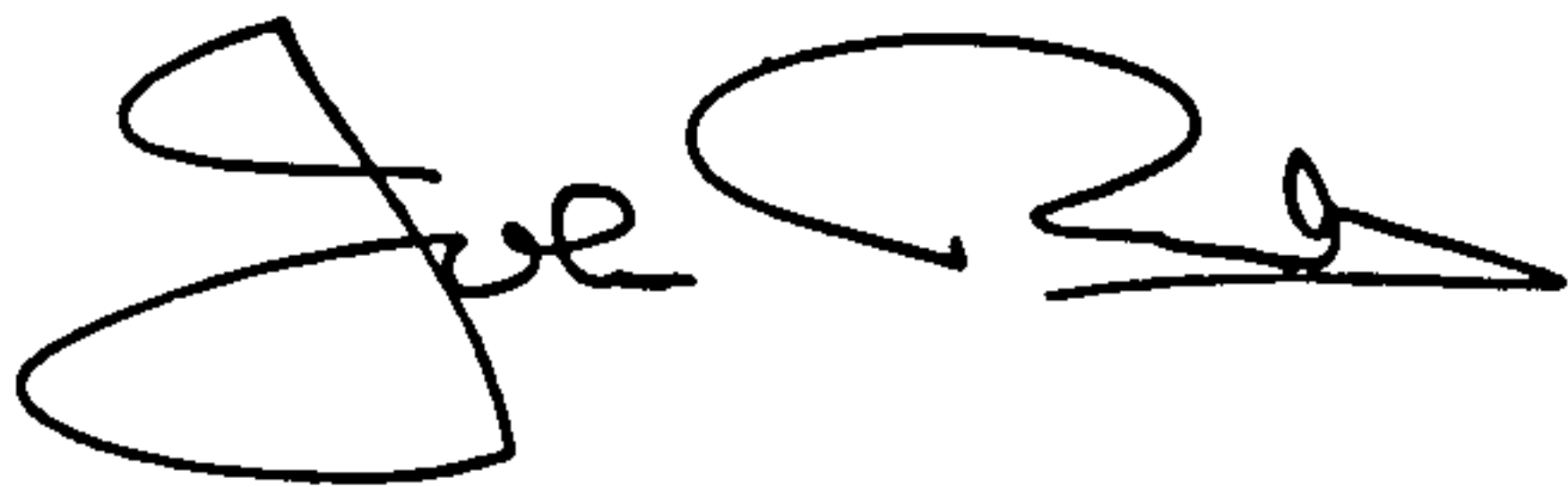
Lauriston Place, Edinburgh EH3 9DF
TEL: 0131-221 6000 FAX: 0131-221 6163
DIRECT LINE: 0131-221 6162

TO WHOM IT MAY CONCERN

30th June 1995

This is to confirm that Mr G Abbas Anjum is conducting a programme of research for the degree of PhD of Heriot-Watt University in Edinburgh, UK. The research deals with the regulations governing the operation of public transport in urban areas. At the moment this is a very topical area of debate throughout the Developed and Less Developed Countries. Mr Abbas's research will make a contribution to understanding regulatory systems in LDCs and has a particular focus on Pakistan. In order to proceed with the research he needs to have in-depth understanding of the overall public transport systems, planning, nature and extent of controls, and in particular with the conditions under which public transport operators are permitted to operate.

I hope you would extend to him maximum cooperation and assistance in providing relevant information and documents.



John Russell

Research Supervisor

**STUDY OF REGULATORY AND TRAFFIC MANAGEMENT SYSTEMS
FOR URBAN PUBLIC TRANSPORT**

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Interview Schedule for Provincial Government Officials)

Interview conducted with.....

Designation.....

Address.....

- Q. In your opinion, what are the major issues of public transport in urban areas
- Q. What are the main objectives of the Provincial Government for the provision of public transport
- Q. What are the Provincial Government policies specifically related to urban public transport in urban areas
- Q. Have you implemented your policies related to public transport?
- a. if so, in what regards
- b. if not, why not?
- Q. Do the existing public transport services satisfy the needs of present population in urban areas?
- if not, what are the deficiencies
- Q. How would you accomplish your objectives related to provision of urban public transport in the face of the declining role of publicly-owned buses
- Q. Are the quality and a provision of services adversely affected by governmental regulations?
- if so, in what regard

- Q. What are the objectives of current regulatory system
- Q. Has the present regulatory structure achieved its objectives?
if so, in what regards
- Q. Are you satisfied with the performance of the RTA?
if so, in what regards
if no, which aspects need improvement
- Q. What are your views about the current regulatory systems of:
- . fares (fare structure, student concessionary fare)
 - . entry (route licensing)
 - . quality (service scheduling, comfort of passengers, vehicles and route network density)
 - . safety (licensing procedure, vehicle fitness and accidents etc)
 - . traffic management/on-street regulation
- Q. Are you supporting publicly-owned bus corporation by giving subsidies/grants?
- a. if yes, what are the reasons for support
- b. if supportive policies, why not such subsidies for private sector operators on same fares scale?
- Q. To what extent should the public sector be involved in the provision of public transport services, given that its services are often less cost-efficient than the private operator
- Q. What do you consider the most effective ways of meeting present public transport needs in urban areas
- Q. Do you envisage dangers from deregulated fares of public transport services?
if so, what
- Q. Do you envisage dangers from free entry of transport operators?
if so, what

- Q. Are you interested in investing in LRT projects in urban areas?
if so, how would you arrange the capital
- Q. Do you consider it desirable to introduce busways in urban areas?
if so, 1. how would you arrange the capital
2. who would operate buses on busways
- Q. Do you consider desirable the participation of private large bus operators in urban areas?

(a) if so, why?

(b) would government seek to promote large operators in any way?
if so, how?
- Q. What are the possibilities of granting loans to private transport operators to assist in introducing large buses in urban areas
- Q. Is there any need for better quality services with a premium fare?
a. if so, how far could the services be initiated
b. if no, how far should the present services be made attractive for car and taxi etc users
- Q. What are your plans to address the growing problems of traffic congestion and pollution in urban areas

STUDY OF REGULATORY AND TRAFFIC MANAGEMENT SYSTEMS FOR URBAN PUBLIC TRANSPORT

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Interview Schedule for Regional Transport Authority)

Interview conducted with.....

Designation.....

Address.....

Q. What are the current functions of RTA

Q. What are the main objectives of present regulatory structure

Entry Regulations

Q. What are the specific objectives of the current entry regulations

Q. What are the current policies for granting route permits to private operators

Q. Are all the routes open to all private buses (bus, minibus, wagon, suzuki etc)?
if not, what are the reasons for specifying routes for certain types of vehicles

Q. Are existing services sufficient to satisfy the present needs of passengers on each route?
if no, what are the causes of deficiency

if yes, what are the reasons of the present overcrowding of buses and minibuses etc

Q. Have the present entry control policies achieved their objectives?

if no, in what regards

Q. Are you satisfied with the performance of small operators (driver-owned vehicles, operators with few vehicles)

if no, what are the disadvantages of their operation

if yes, in what regards

Q. Why are operator firms/companies not interested in urban large bus operation in urban area

Q. In what ways could the large operators participate in the bus industry in urban areas

Q. Are you in favour of entry control?

if no, why

if yes, to what extent should entry be regulated

Q. Are you in favour of controlled entry along major corridors and in central area routes

if no, specify the routes

Q. Are you in favour of the operation of large buses along major corridors of the city?

if no, why

Q. Give your comments on a proposal to issue route licences to private large buses along all major corridors of the city

if in favour, have you issued any route permit

if disagree, why

Q. What is the role of the Corporation (publicly-owned bus company) in the procedure of issuing route permits to the private operators

Q. What are your suggestions for the improvements in entry regulations

Safety Regulations

- Q. Are you satisfied with safety standards?
if no, what are the deficiencies
- Q. Are you satisfied with the performance of Motor Vehicle Examiner/workshops?
if no, please give reasons
- Q. Is driver licensing procedure for public passengers transport okayed?
if not, what are the weaknesses
- Q. Are public transport vehicles frequently involved in road accidents?
if yes, which vehicle is most frequently involved
- Q. What are the root causes of accidents relate to public transport
- Q. Are you satisfied with the enforcement of safety regulations?
if no, what are the flaws
- Q. What are the effects of deficient and inadequately enforced safety regulations
- Q. What improvements in safety regulations do you suggest

Quality Regulations

- Q. What are the specific objectives of quality regulations
- Q. Are standards of service applied for establishing the route network for specific area?
if so, what is the present criteria

- Q. Do you assess the need for bus services on each route?
if yes, from where you get the statistics on passenger trip pattern
- Q. Have you received any complaint from operators against the present route network/classification?
if yes, what are those complaints
- Q. Are all the classified routes (by the RTA) taken up by the operators?
if no, what are the reasons for some routes being not taken up by the operators
- Q. Do you consider necessary the involvement of private operators in establishing route network?
if not, what are the reasons
if yes, have they been consulted
- Q. Do you have ever received complaints from public against the route network (location of bus stops, route location etc)
if so, what is your opinion about the involvement of public in establishing route network
- Q. Has the present Board been able (in Lahore) to accomplished the set out objectives for route distribution and allocation?
if so, in what regards?
- Q. Do you have control over the service scheduling (time-tabling and route frequencies) of private services?
if no, what are the consequences
- Q. Are you satisfied with the association's regulated service scheduling?
if no, give your comments about the functioning of associations of private operators
- Q. What do you consider the effects of quality regulations on service provision

- Q. To what extent are you in favour of governmental quality regulations
- Q. What are your suggestions regarding the improvement of:
- . route network
 - . bus stops
 - . service scheduling
- Q. Are you satisfied with the seating arrangement of private vehicles?
if no, what are your suggestions for improvement
- Q. What are the various enforcement powers which RTA enjoys under the present ordinance
- Q. What if any enforcement powers does RTA wish to have in the ordinance
- Q. Do the additional powers require amendments in the present ordinance?
If so, who initiates the case for the amendments in the regulations for public transport
- Q. What are your suggestion for the improvement of performance of RTA

**STUDY OF REGULATORY AND TRAFFIC MANAGEMENT SYSTEMS
FOR URBAN PUBLIC TRANSPORT**

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(PUBLICLY-OWNED BUS CORPORATION)

Interview conducted with.....

Designation.....

Address.....

- Q. Do the Corporation's bus services satisfy the needs of present population?
if no, why
- Q. What are the various causes of declining role of the Corporation
- Q. Are the current fares sufficient for efficient and effective operation of buses?
if no, what are the problems with current fares structure
- Q. What are your comments on the student concessionary fare
- Q. Are you in favour of deregulated fares?
if no, what are dangers with deregulated fares?
- Q. Are you in favour of free entry of private transport operators?
if no, which dangers do you envisage from free entry
- Q. Are you in favour of contracting out routes to various operators at pre-determined fares and services?
if no, (a) what are dangers

(b) what do you envisage as the probable difficulties in contracting procedures

- Q. In your opinion, what are the causes of overcrowding of buses and minibuses (wagons)**
- Q. Are you satisfied with overall route network (coverage and bus stops etc) in the city?**
if not, (a) why not
(b) what do you suggest for its improvement
- Q. What is the specific role of the Corporation for the issuance of route permits to private operators**
- Q. What do you consider the effective ways of meeting public transport needs in the city**
- Q. Should the public sector be involved in the provision of public transport services, given that its services are often less cost-efficient than the private operator?**
if yes, in what regards
- Q. What are your future plans for the operation of buses**
- Q. On which sections of roads (in the city) do buses face most frequent traffic congestion**
- Q. What do you consider are the ways to enhance bus speed in central area and on major corridors of the city**
- Q. What are your suggestions to improve the performance of buses**

**STUDY OF REGULATORY AND TRAFFIC MANAGEMENT SYSTEMS
FOR URBAN PUBLIC TRANSPORT**

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Interview Schedule for Private Operators)

Name of respondent.....

Address.....

No of Vehicles owned.....

How many routes do you operate..... Route nos.

Entry Regulations

Q. Did you face some difficulties in obtaining route permit(s)?

if so, what

Q. Are (is) the routes you operate of your own choice?

if no, why

if yes, why did you choose the route(s)

Q. Has the number of passenger service vehicles grown on your route(s)?

if no, why

Q. Are existing bus services sufficient to satisfy the present needs of passengers on your route(s)?

if no, on which route what are the causes of deficiency

if yes, what are the reasons for the present overcrowding of vehicles

Q. Are you in favour of controlled entry on your route(s)?

if no, why

if yes, why

Q. What are your suggestions for the improvements in entry regulations

Safety Regulations

Q. Do you have complaints against the Motor Vehicle Examiner/workshops?

if so, what type of complaints

Q. Do you show vehicle(s) for examination?

if so, how long does the MVE/workshops takes for vehicle examination

Q. Have your vehicle(s) involved in road accidents during last two years?

if so, give details

Q. In your opinion what are the root causes of road accidents involving public transport

Q. Do you have complaints against the enforcement of safety regulations?

if so, what

Q. What are the effects of deficient and inadequately enforced safety regulations

Q. What improvements in safety regulations do you suggest

Quality Regulations

Q. Are you satisfied with the present route network/classification criteria?

if no, what are the deficiencies

- Q. Are you satisfied with the provision of bus stops along your route?
if no, what are the problems
- Q. What are the effects of present inadequate route network
- Q. Are there any problems related to service scheduling (time-tabling and route frequencies on your route(s))?
if so, what
- Q. Have you changed the seating arrangement of your vehicle(s)?
if so, what are the reasons
- Q. What are the reasons for these being bad mechanical conditions of vehicles operating in the city
- Q. Are you in favour of governmental quality regulations?
if so, what should be the governmental intervention
if no, who will be ensuring quality
- Q. What are your suggestions for the improvement in establishing the:
- . route network
 - . bus stops
 - . service scheduling
- Q. Are (is) your vehicle(S) usually caught in traffic congestion?
if so, what are the causes of congestion
- Q. On which sections of roads (in the city) do you face frequent traffic congestion
- Q. What are the key effects of congestion over the operation of buses
- Q. What are your suggestions to enhance bus speed in congested areas

Fare Regulations

Q. Are you satisfied with the present fare structure?

if no, what are defects

Q. Do you envisage any specific dangers with deregulated fares of public transport services?

if so, what

Q. Is there any demand for better quality services (on your route(s)) with premium fares?

if so, how could the services be initiated?

if no, could the present services be made attractive for car and taxi etc users?

if yes, how

if no, why not

Q. What are your suggestions regarding the improvement in fare structure

General

Q. Are you in favour of large bus operation on your route(s)?

if no, what are the reasons

if yes why

Q. Why are private operators not (interested in) investing in large buses in urban areas

Q. In what ways could the large operator participate in the bus industry in urban areas

Q. How long have you been working in public transport service

- Q. Did you purchase new or second hand vehicle(s)
give reasons for purchasing second hand vehicle
- Q. How have you managed to finance the purchase of vehicle(s)
- Q. Are you satisfied with the functioning of your association
if no, what are complaints
if yes, in what regards

**STUDY OF REGULATORY AND TRAFFIC MANAGEMENT SYSTEMS
FOR URBAN PUBLIC TRANSPORT**

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Interview Schedule for Traffic Police)

Interview conducted with.....

Designation.....

Address.....

Safety Regulations

- Q. Are you satisfied with safety standards?
if no, what are the deficiencies
- Q. Are you satisfied with the vehicle examination by motor vehicle examiner/workshops?
if no, in what regards
- Q. Generally, what type of mechanical deficiencies you find in public transport vehicles
- Q. Are you satisfied with the requirements of driver licensing for public passengers transport ?
if no, what are the weaknesses
- Q. Are you satisfied with the enforcement of safety regulations?
if no, what are the flaws
- Q. What are the negative effects of deficient and inadequately enforced safety regulations
- Q. Are public transport vehicles frequently involved in road accidents?
if yes, (a) which type of vehicle(s)
(b) what are the causes of involving public transport
- Q. What improvements in safety regulations do you suggest

Traffic Management/Regulation

- Q. Which mode of transport most frequently violates traffic regulations?
- Q. What is the impact of violations on the operation of public transport
- Q. What do you think are the ways to enhance bus speed in central area and on major corridors
- Q. Are you satisfied with present route network coverage?
- . if no, what are the weaknesses
- Q. What are your views about the provision of bus stops
- Q. What are the reasons for overcrowded wagons
- Q. Do you have any views about the type of measures which should be taken for the improvement of traffic management/regulation
- if so, what
- Q. In your opinion which aspects of enforcement need improvement
- Q. Are your staff well trained to enforce traffic management measures?
- if no, what sort of special training is needed
- Q. Do present ordinance/regulations give adequate powers to Traffic Police to effectively achieve traffic management objectives?
- if no, (a) which additional powers are needed
- (b) would these require amendments in the ordinance?
- Q. What are your suggestions for improving the performance of Traffic Police

**STUDY OF REGULATORY AND TRAFFIC MANAGEMENT SYSTEMS
FOR URBAN PUBLIC TRANSPORT**

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Interview Schedule for Traffic Engineering Agency)

Interview conducted with.....

Designation.....

Address.....

General

- Q. What important issues do you confront in traffic management
- Q. In your opinion what are the causes of traffic congestion in the city
- Q. What efforts have you made to ameliorate the problem of traffic congestion
- Q. How many improvement schemes have you implemented in last two years (please give details about nature and, expenditure etc)
- Q. What type of additional measures should be taken to achieve improved flow of traffic
- Q. What are your plans for overall management of future growth of traffic
- Q. Are you satisfied with safety regulations?
if no, in what regards
- Q. What improvements in safety regulations do you suggest

Public Transport and Traffic Management

- Q. Are there any traffic management issues (do you face) related specifically to public transport
if yes, what

Q. Do you consider that improved public transport operation is necessary in seeking to alleviate traffic congestion?

if so, in what ways

Q. Are you in favour of introducing priority measures for public transport in the city?

in no, why

Q. How many traffic management schemes have been implemented and are under consideration to assist public transport operation (please give details)

Q. Do you consider are busways desirable in the city?

if so, who will finance

Q. How does the RTA coordinate with your organization and what is your specific role in the route allocation process

Q. Are you satisfied with traffic regulations?

if no, why

Q. What improvements in traffic regulations do you suggest

Q. In your opinion which aspects of enforcement need improvement

Future Issues

Q. Which other agencies would be involved in implementing priority schemes

Q. To what extent do you envisage any institutional barriers for the implementation of priority schemes

Q. Who would finance priority schemes

Q. What sort of support would you have from the police in implementing the priority measures

Q. Are your engineers well trained to prepare and implement priority measures

APPENDIX 2

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Household Survey in Jauhar Town in Lahore)

Name of respondent.....

House No.....Housing Scheme.....

Q.1 How many members reside in your household

Number	Total	Less than 5 years old	5 years & above		Helpers*
Sex			Working	Non-working	
Male					
Female					
Total					

* include servant(s) and driver(s) with same residence

Q.2 How many vehicles are owned by household members

Vehicle	Number
Bicycle	
Motorcycle/scooter	
Car/Jeep	
Pickup/suzuki	
Rickshaw	
Taxi	
Other (specify)	

Q.3 What is the total monthly household income

- Up to 5000
- Rs 5001-10000
- Rs 10001-15000
- Rs 15001-20000
- Over Rs 20000

Q.4 What is the total monthly household expenditure on travel

- Rs 500-1000
- Rs 1000-2000
- Rs 2001-3000
- Rs 3001-4000
- Over 4000

Q.5 Which mode of transport is generally used by household members above 5 years old

Purpose	Mode used for different purposes*					
Members	Work	School	Shopping	Social	Recreation	Other
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

* write following serial numbers in the table for stated mode

- 1. walk
- 2. Bicycle
- 3. Motorcycle/Scooter
- 4. Taxi
- 5. Rickshaw
- 6. Car/Jeep
- 7. Bus
- 8. Van/Suzuki
- 9. Mini/Midibus
- 10. Institutional Bus
- 11. Other

Q.6 Why don't you use public transport (for household members not using)

- . inadequate public transport
- . own vehicles
- . don't like to travel by buses/minibuses
- . institutional buses
- . other (specify)

Q.7 Are you generally satisfied with the provision of public transport

yes
no
don't know

if not,

inadequate services
long walking distance to bus stop
buses are not reliable
other

if bus services are inadequate, how are they inadequate

don't serve destination
don't serve the area they live
no timetable
in-frequent
bad vehicle quality

Q.8 Would you use public transport if adequate services were available

yes
no
don't know

if not, why not

if yes, for what purposes

work
shopping
education
social
other

if yes, would you use better quality public transport at higher fares

yes
no
don't know

if yes, choice for various service:

a. would you willing to pay a premium fare of Rs 8.00 to and from Jauhar Town to Anarkali to have better quality minibus services with a greater reliability and guaranteed seat)

yes

no

if no, why not

b. would you willing to pay a premium fare of Rs 6.00 to and from Jauhar Town to Anarkali to have better quality full size bus services with a greater reliability and guaranteed seat)

yes

no

if not, why not

Q. would you use suzukis as a feeder service to and fro Jauhar Town to Niazbeg at a fare of Rs 2.00 with a guaranteed seat

yes

no

if not, why not

■ Please indicate the importance of the following service aspects in order of your preference

. guaranteed seat

. hours of operation

. service frequency

. timetable

. fares

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Household Survey in Baghban Pura in Lahore)

Name of Respondent.....

House No.....Street.....Area/Mohallah.....

Q.1 How many members reside in your household

Number	Total	Less than 5 years old	5 years & above	
			Working	Non-working
Sex				
Male				
Female				
Total				

* include servant(s) and driver(s) with same residence

Q.2 How many vehicles are owned by household members

Vehicle	Number
Bicycle	
Motorcycle/scooter	
Car/Jeep	
Pickup/suzuki	
Rickshaw	
Taxi	
None	
Other (specify)	

Q.3 What is the total monthly household income

- Up to Rs 3000 []
- Rs 3001-5000 []
- Rs 5001-7000 []
- Over Rs 7000 []

Q.4 What is the total monthly household expenditure on travel

- Up to Rs 300
- Rs 301-400
- Rs 401-500
- Rs 501-600
- Over Rs 600

Q.5 Which mode of transport is generally used by household members above 5 years old

Purpose	Mode used for different purposes*					
	Members	Work	School	Shopping	Social	Recreation
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

* write following serial numbers in the table for stated mode

- 1. walk 2. Bicycle 3. Motorcycle/Scooter
- 4. Taxi 5. Rickshaw 6. Car/Jeep
- 7. Bus 8. Van/Suzuki 9. Mini/Midibus
- 10. Tonga 11. Institutional Bus
- 12. Other

Q.7 Why you don't use public transport (if household members not using)

- . area not linked with route network
- . own vehicles
- . institutional buses
- . can't afford to use public transport
- . suzukis are overloaded
- . living close to their activities
- . other (specify)

Q.8 Would you use public transport if your area was connected

yes / no / don't know

if not, why not

if yes, for what purposes

work / shopping / education / social / other

if yes, would you use better quality public transport at higher fares

yes / no / don't know

if yes, would you use the following modes of public transport to and from the Railway station with a guaranteed seat:

- . suzuki at a fare of Rs 2.50 yes / no
- . minibus at a fare of Rs 3.50 yes / no
- . full size bus at a fare of Rs 3.00 yes / no

■ Please indicate the importance of the following service aspects in order of your preference

- . guaranteed seat []
- . hours of operation []
- . service frequency []
- . timetable []
- . fares []

APPENDIX 3

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Survey of Suzuki Passengers in Faisalabad)

Day.....Location.....Route No.....

Date..... Sex.....Age.....years

Occupation.....Monthly income (Rs).....

Monthly travel expenditure (Rs).....

Q.1 For what trip purposes do you use suzukis?

education	Regularly / Occasionally
work	Regularly / Occasionally
shopping	Regularly / Occasionally
social	Regularly / Occasionally
other (specify)	Regularly / Occasionally

Q.2 What is the purpose of this specific trip?

work / education / shopping / social / other

Q.3 What are the reasons for travelling you in suzukis?

low fare
limited number of FUTS vehicles
no FUTS service
origin/destination is not linked with FUTS service
other (specify)

Q.4 If your area was linked, would you travel by FUTS service? yes / no / don't know

if not, why not?
high fares
other (specify)

Q.5 If a suzuki service in connecting your area is organized by the FUTS, would you be prepared to pay 50% in addition to the present fare? yes / no / don't know

Q.6 What are your complaints about existing public transport services?

Q.7 What are your suggestions to improving public transport service in your area?

**School of Planning and Housing
Edinburgh College of Art
Heriot-Watt University Edinburgh UK**

(Survey of FUTS Passengers in Faisalabad)

Day.....Location.....Route No.....

Date..... Sex.....Age.....years

Occupation.....Monthly income (Rs).....

Monthly travel expenditure (Rs).....

Q.1 How often do you use FUTS service?

education	regularly / occasionally
work	regularly / occasionally
shopping	regularly / occasionally
social	regularly / occasionally
other (specify)	regularly / occasionally

Q.2 What is the purpose of this specific trip?

work / education / shopping / social / other

Q.3 Why did you choose to travel in FUTS service for this specific trip?

guaranteed seat
reliability of service
non-availability of cheaper public transport
no alternative mode
other (specify)

Q.4 Which mode of transport was being used by you prior to FUTS service?

walk / suzuki / rickshaw / car / motorcycle / tonga / bicycle / other (specify)

Q.5 Are you generally satisfied with FUTS services?

yes / no / don't know

Q.6 Do you wait for FUTS minibuses i.e. rather than take an alternative mode?

yes / no / sometimes

Q.7 How long do you wait on average for your minibus.....minutes

Q.8 Do the FUTS drivers stop minibuses at designated stops?

never / rarely / sometimes / frequently / always

Q.9 Do the FUTS drivers shorten specified route?

never / rarely / sometimes / frequently

Q.10 Do the FUTS services overcharge during their hours of operation?

never / rarely / sometimes / frequently

Q.11 Do you find overloading on the FUTS services?

peak / off-peak / peak & off-peak / never

Q.12 How long is your walk to the bus stop..... minutes

Q.13 Are you satisfied with the mechanical condition of FUTS minibuses?

yes / no / no opinion

if no, what complaints

windows broken

seats not comfortable

emit smoke

other (specify)

Q.14 Are you satisfied with the cleanliness FUTS vehicles?

yes / no / no opinion

Q.15 What are your views about present fares level?

slightly high
too high
realistic

Q.16 Are you generally satisfied with the safety aspects of FUTS service?

yes / no / no opinion
if not, what complaints
irresponsible drivers
crew always in hurry
probability of accidents
other (specify)

Q.17 Do you feel the popularity of FUTS services is:

increasing
decreasing
unchanged
don't know

Q.18 What complaints do you have about FUTS services?

Q.19 What improvements would you like to suggest for FUTS service?

APPENDIX 4

Annual operating cost of a full size bus in Lahore

Fuel costs	Rs 133,800
Diesel Rs 428/day (26 days/month)	Rs 105,000
Engine oil+filter changed after 2000 km	Rs 19,200
Brake, gear oil+grease @ Rs 800/month	Rs 9,600
Maintenance	Rs 30,000
Labour Rs 500/month	Rs 6,000
Parts Rs 2000/month	Rs 24,000
Tyre and tubes	Rs 20,000
2 sets @ Rs 10000/set second hand	Rs 20,000
Salaries/wages	Rs 96,000
Driver and conductors Rs 8000/month	Rs 96,000
Taxes	Rs 19,350
Token tax	Rs 11,700
Permit fee	Rs 1,050
Fitness fee @ Rs 300/6 months	Rs 600
Octroi Rs 20/day (25 operating days)	Rs 6,000
Contingencies	Rs 39,920
Fines average Rs 800/month	Rs 9,600
Bus stand fee (adda fee) Rs 1200/month	Rs 14,400
Gratification to Police, RTA, PTA & MVE	Rs 2,000
Union fee Rs 20/month	Rs 120
Timekeeper Rs 100/month	Rs 1,200
Unforeseen expenses (accidents etc)	Rs 15,000

Source: Costs are based on information given by the operators during field visits in 1996

APPENDIX 4B

Annual operating cost of a minibus in Lahore

Fuel costs	Rs 116400
Diesel Rs 300/day (25 days/month)	Rs 90000
Engine oil+filter changed after 2000 km	Rs 19200
Brake, gear oil+grease @ Rs 600/month	Rs 7200
Maintenance	Rs 25200
Labour Rs 600/month	Rs 7200
Parts Rs 1500/month	Rs 18000
Tyre and tubes	Rs 30000
2 sets @ Rs 15000/set	Rs 30000
Salaries/wages	Rs 86400
Driver and conductors Rs 7200/month	Rs 86400
Taxes	Rs 11700
Token tax	Rs 4050
Permit fee	Rs 1050
Fitness fee @ Rs 300/6 months	Rs 600
Octroi Rs 20/day (25 operating days)	Rs 6000
Contingencies	Rs 42040
Fines average Rs 800/month	Rs 9600
Bus stand fee (adda fee) Rs 1500/month	Rs 18000
Gratification to Police, RTA, PTA & MVE	Rs 3000
Union fee Rs 20/month	Rs 240
Timekeeper Rs 100/month	Rs 1200
Unforeseen expenses (accidents etc)	Rs 10000

Source: Costs are based on information given by the operators during field visits in 1996

APPENDIX 4C

Annual operating cost of a suzuki in Lahore

Fuel costs	Rs 69,600
Diesel Rs 200/day (25 days/month)	Rs 60,000
Engine oil+filter changed after 3000 km	Rs 6,000
Brake, gear oil+grease @ Rs 300/month	Rs 3,600
Maintenance	Rs 12,000
Labour Rs 250/month	Rs 3,000
Parts Rs 7500/month	Rs 9,000
Tyre and tubes	Rs 10,000
2 sets @ Rs 5000/set	Rs 10,000
Salaries/wages	Rs 60,000
Driver and conductors Rs 5000/month	Rs 60,000
Taxes	Rs 3,500
Token tax	Rs 2,250
Permit fee	Rs 1050
Fitness fee @ Rs 100/6 months	Rs 200
Contingencies	Rs 18,260
Fines average Rs 500/month	Rs 6,000
Bus stand fee (adda fee) Rs 300/month	Rs 3,600
Gratification to Police, RTA, PTA & MVE	Rs 3,000
Union fee Rs 20/month	Rs 60
Timekeeper Rs 100/month	Rs 600
Unforeseen expenses (accidents etc)	Rs 5,000

Source: Costs are based on information given by the operators during field visits in 1996

APPENDIX 4D**Annual operating cost of a taxi in Lahore**

Fuel costs	Rs 56,400
Diesel Rs 150/day (28 days/month)	Rs 50,400
Engine oil+filter changed after 3000 km	Rs 6,000
Maintenance	Rs 4,500
Labour Rs 166/month	Rs 2,000
Parts Rs 208/month	Rs 2,500
Tyre and tubes	Rs 5,000
1 set of Rs 5000	Rs 5,000
Salaries	Rs 48,000
Driver salary Rs 4000/month	Rs 48,000
Taxes	Rs 1,307
Token tax	Rs 900
Permit fee	Rs 207
Fitness fee @ Rs 100/6 months	Rs 200
Contingencies	Rs 7,060
Fines average Rs 250/month	Rs 3,000
Bus stand fee (adda fee) Rs 125/month	Rs 1,500
Gratification to Police, RTA, PTA & MVE	Rs 500
Union fee Rs 20/month	Rs 600
Unforeseen expenses (accidents etc)	Rs 2,000

Source: Costs are based on information given by the operators during field visits in 1996

APPENDIX 5

From

The Commissioner/Chairman,
R.T.A./Faisalabad Urban Transport Society,
Faisalabad.

To

The Secretary,
Government of the Punjab,
Transport Department,
Lahore.

No. 163 - /RTA-FD/97.

Dated:- 5-4-1997.

SUB: DEREGULATION OF RATES OF FARES ON URBAN ROUTES
COVERED BY THE FAISALABAD URBAN TRANSPORT SOCIETY
FAISALABAD(N.G.O.).

As telephonically communicated by you, the memo issued vide this office endorsement No.148/RTA-FD/97, dated 02-4-97 to your address, is hereby withdrawn.

2. As you are aware, the Faisalabad Urban Transport Society came into being as an N.G.O. in March 1994 with a view to facilitating the general public in travelling in and across the city at competitive fares. The fare table was initially enforced with the approval of the governing body of FUTS keeping in view various relevant factors including the price of diesel which was at that time selling @ Rs.6.18 per litre.

3. Some of the salient features of the FUTS transport system are enumerated below:-

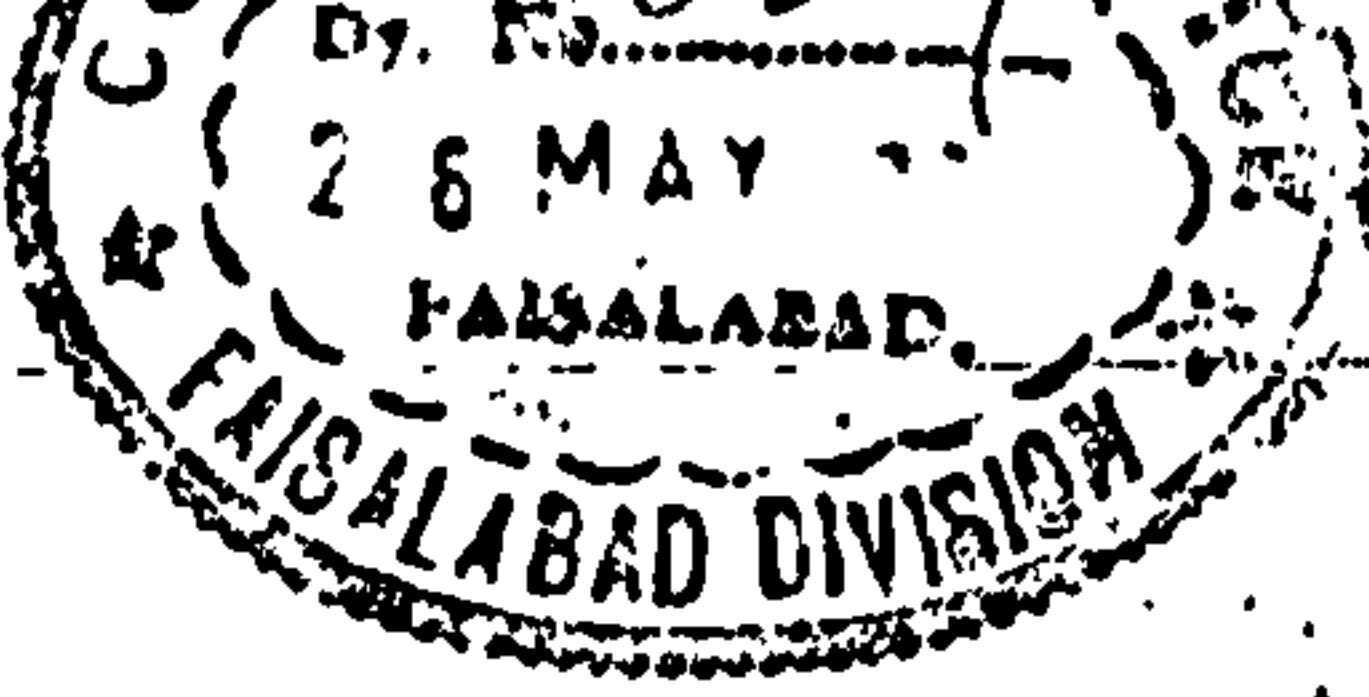
- a) Every vehicle will not allow more than 15 passengers at a time.
- b) Specific seats have been allocated for women.
- c) Music, smoking and the use of pressure horns is disallowed.
- d) The service provided by the FUTS vehicles is better than rickshaw service/non-FUTS vehicles.
- e) FUTS has its own security/traffic checking system besides the traffic police agency.

4. In view of the upward trend in the prices of diesel and allied products (diesel being now sold @ Rs.9.81

Under the circumstances, a new fare table is required to be promulgated. The governing body of the Society has already approved proposals for revised fares in a recent meeting held under the chairmanship of the undersigned.

5. It is therefore, requested that deregulation of notification No. SOTR.I/2-75/96, dated 30-12-1996 issued by the Government of the Punjab, Transport Department, Lahore may kindly be allowed in respect of the FUTS as an N.G.O. with a view to enabling it to revise the rates of fares of wagons on urban routes within its area of operation in accordance with the prevailing circumstances, in public interest.

0/6
COMMISSIONER/CHAIRMAN,
R.T.A./FAISALABAD URBAN
TRANSPORT SOCIETY,
FAISALABAD.



Dated Lahore, the 21st May, 1997.

To

The Commissioner/
Chairman, FUTS,
Faisalabad Division, Faisalabad.

SUBJECT: DEREGULATION OF RATES OF FARES ON URBAN ROUTES COVERED BY THE FAISALABAD URBAN TRANSPORT SOCIETY, FAISALABAD (N.G.O.)

Please refer to your letter No. 163/RTA-FD/97 dated 5.4.1997 on the subject noted above.

Jp 25.5.97

COMMISSIONER
FAISALABAD.

2. The Government of the Punjab in the Transport Department has been pleased to allow de-regulation of fares to Faisalabad Urban Transport System run by an N.G.O. under the Chairmanship of the Divisional Commissioner. However, permission will be exclusively applicable to this N.G.O. subject to the general control of the Transport Department. The proposal for increase in fares has also been approved.

However, whenever, the FUTS wants to revise the fares, they will get prior approval from the Government of the Punjab, Transport Department.

(CH. MUHAMMAD SIDDIQ.)
Secretary Transport.

23 RTA/FD

5-5-97

*c/s
Muzaf*

NO. & DATE EVEN

A copy is forwarded for information & necessary.

*26.5.97
Secretary
Faisalabad*

action to:-

1. The Secretary, Punjab Provincial Transport Authority, Lahore.
2. The Secretary, Regional Transport Authority, Faisalabad.

Acc/Sec/FUTS for info

Colp M. T.

SECRETARY TRANSPORT

APPENDIX 6

Previous Story



Next Story

- Front Page
- National
- International
- Local
- Business
- KSE Rates
- Forex Rates
- Sports
- Editorial
- Opinion

- Letters
- Features
- Today's Cartoon
- PTV 2 Guide

- Cowasjee
- Mazdak

- Magazines
- The Review
- The Magazine
- Young World

- Isaki
- DAWN Group
- Subscription
- To Advertise

- Back Issues

- Feedback

- Help

15 October 1997

Wednesday

12 Jamadi-us-Saani 1418

LAHORE: Refurbished Volvos on roads by May

By Our Staff Reporter

LAHORE, Oct 14: Three foreign firms are likely to cater for the transport needs of the people of Lahore by operating refurbished Volvo buses as part of the Lahore Transport System.

The first batch of these buses may be pressed into service by April or May next year, Punjab Governor Shahid Hamid told Dawn on Tuesday.

Talks with a London-based firm MTH have already been concluded while similar negotiations with operators from America and Singapore are in progress.

These firms are supposed to procure about 650 Volvo buses from the Transmobile, a Karachi-based transport company, which purchased in an open bid about 650 Volvo buses about three months ago.

The buses, declared as off-road vehicles after the winding up of the Punjab Road Transport Corporation, were sold to the Karachi transport company on the condition that they would be refurbished and plied in Lahore. Transmobile has now decided to sell all these buses for other parties to operate.

DAEWOO: Meanwhile, the South Korean firm, Daewoo, has become the first company to be allowed to ply luxury buses on motorway between Lahore and Rawalpindi.

An agreement in this connection has been struck between the Punjab government and the South Korean firm which was made public on Tuesday.

According to an official handout, the buses will be loaded with facilities like television, VCR, toilet and kitchen and drinks and eatables would be served on board. Each of the buses would also be equipped with first-aid kits.

A six-member South Korean delegation called on Punjab Minister for Transport Arshad Khan Lodhi and discussed with him matters relating to providing terminals for the buses at Lahore and Rawalpindi. The minister assured the delegation of all possible facilities



03 October 1997

Friday

30 Jamadi-ul-Awal 1418

RAWALPINDI: Transport service for women being finalized

By Our Correspondent

RAWALPINDI, October 2: The district administration has decided to utilize 10 minibuses and 20 pick-ups to launch the first ever Women Transport Service (WTS) in Rawalpindi, the assistant commissioner traffic, Ali Mumtaz Zaidi said.

Talking to Dawn on Wednesday, the newly appointed assistant commissioner traffic said he was holding a meeting with transporters on Thursday in which the plan of launching the service would be finalized. He said it was a difficult task from the district administration to launch a transport service for female passengers and yet all necessary work had been completed.

Though the assistant commissioner claimed that it would be the "country's first transport service exclusively for female commuters," our readers may recall that just a few years ago a bus service meant only for women was launched with much fanfare in Karachi also. But the scheme, despite the noble intentions behind it, had died without a whimper due to reasons best known to the people who started it but could not run it after spending quite a sum on it.

The assistant commissioner traffic said the minibuses would be plied on the main route from Octroi No 22 to Secretariat, Islamabad, while the pick-ups would be employed in congested internal areas of the city.

He said the transport service for women commuters was being introduced to provide better travelling facilities to the female passengers as well as to save them from the hardships which they face while travelling with male commuters.

The official said in the beginning, the bus service would be plied only during the rush hours, but the timings of the service could be extended, if demanded by the passengers.

Giving the details about the routes and stops of the transport service, he said the service would begin from Octroi No-22 and stop at GPO, Liaquat Bagh, 6th Road and Faizabad and Secretariat (Islamabad). He said if the service proves successful, it would be extended to other areas.



site by

XIBERCOM

"Due to traffic congestion in the city, the transporters are not to use new vehicles for this service. Only old vehicles would be used for this purpose," he explained.

He said that the district administration was acquiring assistance of some NGOs for the publicity of the new service.

The RTA will also install banners at different spots of the city to create awareness about the service and advertise in national dailies.

At least one woman police constable would be deployed at every bus stop to keep male passengers from boarding the women's exclusive transport vehicles.

Earlier, the district administration had decided to ask the transporters for a different paintwork on the vehicles of WTS. But if the transporters did not agree, stickers inscribed with "Women Transport Service" would be displayed on the vehicles.


[Previous Story](#)


[Top of Page](#)


[Next Story](#)

© DAWN Group of Newspapers, 1997

- Front Page**
- National**
- International**
- Local**
- Business**
- Stocks**
- Forex & Gold**
- Sport**
- Editorial**
- Opinion**



25 April 1998

Saturday

27 Zul Hijjah 1418

DAWN Country Report on 

- Letters**
- Features**
- Cartoon**
- PTV 2 Guide**

KARACHI: KU, NED to get 18 buses today

By Our Staff Reporter

- Cowasjee**
- Mazdak**

KARACHI, April 24: The Sindh government will hand over 18 buses to Karachi University and NED University of Engineering and Technology on Saturday.

- Magazines**
- The Review**
- The Magazine**
- Young World**
- Images**

These 18 buses belong to the fleet of the defunct Karachi Transport Corporation. The Karachi University will get 16 buses and two will go to NED university.

- Lead**
- DAWN Group**
- Subscription**
- To Advertise**

The keys of these buses will be handed over to the vice chancellors of the two universities at a ceremony at the KU campus. The Sindh government is expected to be represented, among others, by provincial ministers Dr Farooq Sattar and Bashir Farooqui.

- Back Issues**

According to the Karachi University, the varsity will be handed over 16 buses from the fleet of defunct Karachi Transport Corporation.

- Feedback**

The university said the buses given to the university needed massive repairs and the government had announced an amount of Rs 4million to bring these buses into running condition.

- Help**

A three-member committee headed by transport adviser Khalid bin Waleed and comprising transport secretary Tahir Soomro and a university representative have been planning the work relating to the overhauling of these buses.

The induction of 16 buses will bring the total strength of Karachi University fleet to 42. At present, university has 26 buses, which have been running as shuttle service on different routes such as NIPA, Saddar and Ghulshan Chowrangi.

The university has plans to introduce some more shuttle points from other areas, which include Shahra-i-Faisal.

The students of Karachi University have been facing serious problems in the



RAWALPINDI: RTA opens special route

By Our Correspondent

RAWALPINDI, May 19: The Regional Transport Authority (RTA) has started a special public transport route (No-24) between the twin cities of Rawalpindi and Islamabad to provide better transport facilities to the citizens, an official of RTA said.

Talking to Dawn on Monday, the official said the route had been started but the response was not good so far.

He said the administration had imposed ban since 1994 on the issuance of new route permits. However, the new route was allowed in view of the convenience of the people.

He said so far the RTA had issued 37 route permits and many others were expected to be issued if the new route got better public response.

He said the new route did not pass through the city, but from areas outside the city. He said that only wagons were allowed to ply on the route.

"The transporters demanded new route which touched the Murree Road, but we could not issue any new route which passed through the city specially on Murree Road as it would create further complications for the police as well as the general public," he added.

The official said they had received 37 applications from different transporters for the issuance of route permits for the special route and all of them had received route permits.

Giving details about the new route, he said the route would start from Lalkurti and after touching the areas of CMH, R.A Bazar, Qasim Market, Transit Camp, Bakery Chowk, Pir Vedhai, sector I-11, I-10, H-8, T&T Colony, G-9, G-7 and G-6 sectors it would conclude at Secretariat in

Front Page

National

International

WEB SIDE
STATISTICS Story

Stocks

Forex & Gold

Sport

Editorial

Opinion

Letters

Features

Cartoon

PTV 2 Guide

Cowasjee

Mazdak

Magazines

The Review

The Magazine

Young World

Images

Urdu

DAWN Group

Subscription

To Advertise

Back Issues

Feedback

Help

absence of point service buses.

At present, around 14 Karachi University buses shuttle between NIPA roundabout and the university campus, resulting in hardship for students in attending their morning classes.

Besides, a good number of students have to change upto three buses to reach university, causing a financial burden on them as they have to pay normal fare while travelling in coaches, besides mental and physical fatigue and waste of time.

The contract service introduced as a stop-gap arrangement by the Sindh government came to an end following the death of a Karachi University student on March 28, 1997.

The girl student was run over by a contract bus while alighting from it. Her death led to protests. As a sequel of those protests, a contract bus was set ablaze the following day by the students.

Prior to the withdrawal of point service by private contractors, the Karachi University had decided not to enter into any agreement with the government unless it was provided with at least 40 wide-bodied buses.

The university authorities were of the view that the buses provided by the contractors had smaller capacity than what they had quoted earlier, resulting in overloading with students even sitting on top of the buses.

Besides, the university found that the number of buses provided by contractors varied daily, and the fleet had to be supplemented by the university buses.

The university students have been protesting against the lack of adequate transport arrangements after the closure of the Karachi Transport Corporation, which had been catering to - though not fully - the transport needs of university students, majority of them girl students.

Subsequent governments have been assuring the university that the students would be provided with adequate transport arrangement.

A transport plan enunciating a new arrangement for the Karachi University students which was expected to be introduced by the last year end under the Karachi Public Transport Society has also hit bureaucratic snags.

That plan proposed the partnership of the government, university and the students in this system to make the transport scheme a financially viable proposition.

APPENDIX 7

The Lahore Transport System

The newly elected Government of the Punjab province has been introducing various measures for the improvement of public transport in major urban areas. One of the initiatives includes the introduction of better quality services under the NGO control. The Chief Minister of the Punjab directed the Divisional Commissioner for Lahore to organise an NGO on the pattern of FUTS (*Daily Jang*, March 31 1997). The Divisional Commissioner formed a committee to prepare recommendations for the establishment of an NGO. The committee comprised of the following government officials. (1) Tasneem M. Noorani (who introduced the FUTS), the provincial Secretary of the Education Department (the chairman of the committee). (2) The Divisional Commissioner for Lahore Division (member). (3) The Director Local Government for Lahore (member). (4) The Deputy Inspector General Traffic (5) The Secretary of the RTA Lahore.

The committee presented the following recommendations to the Chief Minister for his approval. First, the formation of an NGO comprising operators, passengers and government officials; second, the introduction a better quality bus services from initially from three points (Gulberg, Railway Station and Civil Secretariat); third, the governing body (GB) of the proposed NGO to be comprised of 50 percent government officials and the remaining members from the operators and the passengers; fourth, the proposed NGO to function on the FUTS pattern. Moreover, the committee also proposed some incentives (such as import of duty free buses) for operators working under the NGO. The Chief Minister approved all these recommendations and eventually a new NGO named the Lahore Transport System (LTS) was formed in Lahore on 25 June 1997 (*The Nation* 26 June 1997).

The newly formed NGO initiated its operation in the last week of June, 1997. The functioning of the LTS is similar to FUTS except for the following aspects. First, a phased approach being adopted

in the city with full size buses being introduced along major roads in the first phase (see the enclosed plate in this appendix). Second, the full route fare is fixed at a different level (Rs 9 instead of government fixed fare at Rs 6). Similarly, the student concessionary fare has been raised from Rs 0.25 to Rs 1.0 for a single trip. Third, the president of the Local Bus Owner Association (see chapter 5 section 5.3) is placed on the GB. Fourth, two members of the provincial assembly (supposedly representing passengers!) have been nominated by the provincial government to the GB.

The LTS started with one route with 12 buses and by March, 1998 over 60 buses were operating on three routes. Most of the LUTP operators are now joining the LTS. The services compete with minibuses which still operate under government controls. Correspondence reports no overloading with the drivers operating to schedules and not waiting for additional passengers for varying times at different bus stops. LTS supervisory staff arrange a boarding/alighting place for their buses at the busiest bus stops. In this way LTS buses are protected from the cowboy-style of minibus drivers. No decline in the number of minibuses is reported. This small scale start reflects an insistence on better quality full size buses, which are in short supply. Recently, the Government of the Punjab has requested the Federal Government to allow the import of duty free full size buses for LTS operation.



Plate 7.2a A full size bus under LTS operation in Lahore



Plate 7.2b A full size bus under LTS operation in Lahore