



Training Course: Bus Regulation and Planning – Bus Sector Reform



Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH

commissioned by:



Federal Ministry
for Economic Cooperation
and Development

Training Course:

Bus Regulation and Planning – Bus Sector Reform

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Project "Transport Policy Advice"

Commissioned by

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Zusammenarbeit und Entwicklung (BMZ)
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Cover Photo:

Lloyd Wright
TransMilenio bus stop, Bogotá (Colombia)
February 2002

GTZ Transport Photo CD Rom: Urban Transport,
Second Edition, September 2004

Photos:

GTZ Transport Photo CD Rom: Urban Transport,
Second Edition, September 2004

Layout:

Thomas Derstroff, Philip Graze, Oliver Eberz

Eschborn, November 2004

Introduction and Welcome

Welcome to GTZ's training course on 'Bus Regulation and Planning – Bus Sector Reform'.

This course is designed to describe the characteristics of bus systems in the cities of developing countries, together with prescriptions for reform and case studies.

The course will be of interest to government decision-makers, transport professionals, students of transport and consultants.

It is divided into four parts, each covering one fundamental element of the organisation of an effective urban bus system:

- Module 1: A coherent policy and realistic objectives and strategies to achieve them
- Module 2: An industry structure that is amenable to regulation and capable of providing a demand-responsive service
- Module 3: A planning and regulatory framework capable of achieving the policy objectives
- Module 4: A planning and regulatory institution that is capable of administering the regulatory framework

The first module describes the importance of having a clear framework of policy and objectives. Whether or not a transport system is able to recover costs from fares, and consequently whether it is subsidised, is a major factor that distinguishes bus policy in developing cities from policy in developed cities.

Indeed, the use of public funds to support bus services (except where the subsidy is used to fund the deficits of a state-owned undertaking) is a factor that defines the level of development of a city's bus system. This is because administering subsidy requires a fairly sophisticated analytical and administrative capability that is often lacking in developing cities.

The fact that a city subsidises its bus services indicates a policy that, by providing high quality public transport at relatively low fares (relative to operating cost) citizens have an incentive for to use

public transport rather than private transport, thereby preserving the amenity and environmental quality of the city. Increasing the proportion of trips by public transport may also be seen to reduce pressures for the construction of costly road and parking infrastructure.

It is rare to find such a policy in effect in developing cities, although in a few cities in Asia and South America bus systems are both of high quality and able to recover costs from fares. These are described in the case studies.

In most 'third world' developing cities, rapid population growth from natural increase and rural-to-urban migration has overwhelmed formal transport modes (which also tend to be starved of investment), and pressure to provide for ever-increasing volumes of movement has taken precedence over measures to protect the city from the effects of congestion and pollution. But the density of demand and low operating costs make bus services potentially profitable.

A wide variety of bus management strategies are adopted in third world cities, many of them aimed at accommodating the highest volume of demand, at whatever level of quality can be afforded by users. The level of service quality that can be afforded by users is often very low. Several such systems are described in the case studies.

The second module reviews the range of structures of the bus industry. Again, marked differences are observed between developed and developing cities. Because regulatory procedures in developing cities are often merely bureaucratic, usually including basic safety and driver fitness standards, and usually imposing controls on fares, but seldom extending to incentives to improve services, public transport is regarded as a risky investment. As a result, the sector attracts little corporate investment and in many cities the majority of operators are individual owners who usually lease their vehicles to drivers on a daily basis.

This results in public transport being provided by cheap mass-produced vans and pick-ups. The contradiction is that

such systems are extravagant consumers of labour (which is usually available) and fuel (which is a scarce resource). Such systems are also major contributors to urban congestion and pollution.

Experience from many cities demonstrates that it is virtually impossible to effectively regulate a bus industry comprising hundreds, or thousands of individual operators, each of whom is a separate business. Individual operators are vulnerable to illicit control that usually takes the form of protecting routes from competition or other perceived threats. The government regulators often cooperate with controlling groups because they form a conduit for contact with the operators. Illicit control usually results in a rigid network which serves the interests of the operators, but not of the users.

The key challenge in such cities is to break the high-risk, low-revenue, low-quality equilibrium. As is described in the third module, that requires the authority to introduce a systematic planning process and a regulatory framework that balances operators' freedoms and obligations, and that gives operators clear incentives to identify and respond to demand. This creates favourable conditions for consolidating the industry into organisations at least with the financial and managerial capacity to operate a single route. Route-based organisations are much less vulnerable to illicit control than individuals.

However, even this strategy needs political will and consistency that is often not present in practice, or which collapses in the face of opposition from those with interests in the status quo.

The division of a bus network into routes or local networks, procedures to award operating rights to those routes under terms with clearly defined obligations and freedoms, and fair and impartial supervision of licence and franchises requires both a planning and an administrative capability. Principles of organising effective institutions are described in the fourth module, together with some examples.

Whilst the 'developed city' subsidised model is presented in the course because it represents current best practice, the central issue for developing cities is how to adopt a strategy of 'managed competition' in a context of resource shortages, policy discontinuity and low administrative capability.

The course also addresses bus policy issues in the 'second world', the former socialist countries. Here the constraints are different. The transport infrastructure is good, but often comprises high capital cost electric tram and trolleybus systems. Population density is too low to enable cost-recovery, while affordability of fares is low.

Course Programme

| Day | Session | Topic |
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| 1 | Morning | <ul style="list-style-type: none"> ▪ Welcome, Course Overview ▪ Characteristics of Developed and Developing City Transport Systems |
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| 2 | Morning | <ul style="list-style-type: none"> ▪ The Range of Bus Industry Structures and their 'Regulatability' |
| | Afternoon | <ul style="list-style-type: none"> ▪ Case Studies of Industry Structures |
| 3 | Morning | <ul style="list-style-type: none"> ▪ The Planning Process - Inputs and Outputs ▪ Bus Performance and Quality Indicators |
| | Afternoon | <ul style="list-style-type: none"> ▪ Alternative Regulatory Strategies ▪ Creating Competition ▪ Fare-setting |
| 4 | Morning | <ul style="list-style-type: none"> ▪ Award of Operating Rights - Tender Criteria and Procedures |
| | Afternoon | <ul style="list-style-type: none"> ▪ Planning and Regulatory Institutions ▪ Transport Authorities |
| 5 | Morning | <ul style="list-style-type: none"> ▪ Case Studies of Planning and Regulatory Institutions |
| | Afternoon | <ul style="list-style-type: none"> ▪ Course Evaluation and Conclusions |

On request, this course can also be held in a compact form within 3 days

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MODULE I: A coherent Policy with realistic Objectives and Implementation Strategies

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1 Introduction and Definitions

1.1 Introduction

A prescription for an efficient and demand-responsive public transport system rests on four principles:

- a coherent policy and realistic objectives and strategies to achieve them;
- an industry structure that is capable of providing demand-responsive service;
- a planning and regulatory framework capable of achieving the objectives;
- a planning and regulatory institution capable of administering regulatory framework.

Each of these principles is the subject of one module. This is the first of the four modules.

1.2 Definitions

Policies are the basic, universal principles that should guide and govern choices, decisions and actions. Policies address the questions 'what?', and 'why?'.

Strategies set out the steps to operationalize or implement the policy, and address the questions 'how?', 'who?', 'when?' and 'where?'.

Nevertheless, the two terms are often used interchangeably. This is often justified as a document may contain both policies and strategies.

2 Policy Hierarchies

Policies may form a hierarchy, based either on:

- the tiers of government;
- economic sectors, with macro-economic and development policy at the top, through urban development and land use, down to policies for individual transport modes at the bottom.

2.1 The Tiers of Government

Supranational Transport Policy

Before considering policy made by national and local governments within a country, reference must be made to policies made by supranational government. The most topical example is the European Union which has made transport policy to guide the internal policies of its member states.

The transport sector accounts for 10% of the EU's GDP and creates 7% of employment in the EU. Due to the trans-boundary nature of transport, the EU has an important role in determining transportation policies in this sector.

An efficient and effective transport system is regarded as a key factor in the creation and operation of the common internal market in Europe, and the ongoing development of transport policy is central to its success. By its very nature transport is fundamental to the achievement of freedom of movement across the EU, which is a primary objective of EU policy.

The key objectives of the EU in the transport sector are to:

- create a modern and efficient transport system that encourages competition and is sustainable from an economic, social and environmental point of view;
- encourage the liberalisation of railroad transport;
- harmonise legislation regarding the safety of means of transport and transport infrastructures;
- ensure that transport infrastructure and services are provided, managed and used in a manner that protects people from death and injury;
- reduce the environmental impact of transport by establishing limits for the emissions of polluting substances and noise pollution;
- encourage the creation of new and efficient communication routes between the EU and its neighbouring countries.

The EU can achieve its policy objectives by means of legislation, regulation, economic support and exchange of information and technical expertise.

Most countries have several tiers of government, though they vary between countries. The following are the most common government tiers at which policies are made:

National Transport Policy

Most countries have several tiers of government, though they vary between countries. The following are the most common government tiers at which policies are made:

National-level Policy

Central government may set down basic principles, standards and procedures for urban transport development and management which lower tiers of government are bound to follow. These may be incorporated in national laws.

State or Provincial Policy

It is common in a federal system for each state to have an elected government and an administration which have some autonomy in the management of urban transport. In such cases the state may make legislation to regulate urban transport. Where the power to make laws to control urban transport is devolved to local government and responsibility to make transport policy is implicit.

Those matters which are reserved by central government and those devolved to the states are often defined by the Constitution¹.

In those countries which have a provincial tier of government, a similar system may exist. For example, in Sri Lanka, an amendment to the Constitution² was made which devolved certain powers, including the power to regulate intra-provincial bus services, to the elected Councils of the nine provinces. The Provincial Councils were expressly empowered to make statutes to give effect to their regulatory powers. However, national transport policy remained the prerogative of central government³. A similar administrative structure exists in Pakistan where each province is empowered to make its own statutes to regulate transport; however these often take the form of province-specific amendments to a common transport law.

In Indonesia autonomy in managing urban transport was devolved more completely, and to an even lower tier: the 425 regional and city governments. Local governments have autonomy for all local affairs within their boundaries except for defense and security, foreign policy, monetary and fiscal policies, judicial affairs, and religious affairs. Unsurprisingly, with

1 For example: Nigeria, Malaysia

2 The 13th Amendment to the Constitution, 1987

3 Art. 154A of the Constitution. 9th Schedule List 2, item (c) National Transport

provincial governments ruled by different political parties, there are differences in policy between provinces, and coordination problems across boundaries.

In practice, the complexity of urban transport issues means that few local governments have the professional skills to make independent policies. There is dependence on central government for professional guidance. The policy options may also be constrained by the affiliation of local governments to the dominant national political party.

City or Metropolitan Policy⁴

In many countries the capital city, or the few biggest metropolitan cities, are so dominant, and conditions so different from other cities, that special administrative arrangements and policies may be made for the management of transport. In developed countries, transport policy in the capital city may be different from other cities. This is evidently the case in Paris in France, and London in UK⁵, and is often the case in developing countries where many cities have grown to 'megacity'⁶ status in the last few decades.

Metropolitan Transport Authority

Perhaps the optimum strategy for the effective coordination of policy throughout a major conurbation is a transport authority within metropolitan government. Where there is no metropolitan tier of government, an authority may be constituted of representatives of the constituent local authorities. This is a common structure in developed cities, but relatively uncommon in developing cities.

Singapore has a highly integrated urban transport system under the jurisdiction of an authority, but has the advantage of being a city-state with a single tier of government.

Direct Administration by Central Government.

In many developing cities, the capital city dominates the economy which warrants special arrangements for the administration of transport.

In Thailand, in 2001, Bangkok Metropolitan Region accounted for 56 percent of Thailand's GDP and about 20% of its population. There is no metropolitan tier of government and no metropolitan transport authority. For these reasons and because of the political sensitivity of transport issues, central government ministries and the Cabinet still deal extensively with metropolitan transport issues.

Manila is another developing city which dominates the national economy. There is no metropolitan tier of government, although some transport responsibilities are vested in the Metro Manila Development Authority. Others however, including public transport regulation, are vested in the local offices of national ministries.

In China, the governments of the biggest metropolitan cities report directly to central government. Other cities are within the jurisdiction of their respective provincial governments.

One of the strong reasons to establish a metropolitan transport agency is that a coordinated policy may be developed. The existence of a policy statement document is thus strongly associated with a comprehensive approach to policy-making.

4 For a full description of the range of institutions administering urban transport in a variety of developed and developing countries, please refer to Module 4 – Institutions.

5 Note that public transport policy in London is completely different from transport policy in the rest of the UK. In London, all bus services are operated under tendered contracts. Elsewhere in the UK bus services are not subject to regulation, but local authorities offer contracts for services that they consider necessary but which the market will not provide, usually because they are unprofitable.

Public transport in Paris, France is organised in a different way from other cities.

6 A megacity has more than ten million population.

2.2 The Sectoral Policy Hierarchy

Transport is a service activity and as such it influences many areas of economic and social activity. Only if it flows smoothly can we ensure satisfaction to all users and providers.

In economic terms, transport is an 'intermediate good', facilitating the production of final goods and services which directly meet demand. In the hierarchy of development policy, transport policy must be compatible with wider economic, social and environmental objectives.

Transport policy must work in unison with national development programmes, physical planning, investment, economic and monetary policy, legal regulations and other areas. It must move in step with the implementation of these programmes and respond to the changes taking place in society. In many respects, the quality of urban life depends on the success of the transport policy.

Public transport policy is a component of urban traffic and transport policy, and fits into the policy hierarchy as follows:

- economic policy, including poverty alleviation;
- land use and urban development policy;
- environmental policy;
- urban traffic and transport policy;
- public transport policy.

Transport policy needs to be understood as a policy of the citizens, and not only of the state.

3 Policy Statements

3.1 Why Draft a Policy Statement?



Figure I-1: Which future? Transport policy choices determine the kind of city we want to live in. (New Airport Road, Dhaka, Bangladesh)

Karl Fjellstrom, 2004

If policies are well defined, then there are clear guidelines for taking decisions. Without policies, actions can be haphazard, inconsistent, and biased. Once policies are in place, strategies and plans can be derived, which can be used to guide day-by-day decision-making.

While the compilation of urban transport policy into a single policy statement makes its status clear, policy can be inferred from a variety of sources, including:

- statements and documents published by public agencies;
- relevant laws and statutes, especially their preambles and announcements;
- decisions of the courts and regulatory bodies on important issues;
- guidelines and procedure manuals issued by relevant organizations concerned with the management of sector activities.

However, there are many reasons why government should draft a formal policy statement:

- policy inferences from legal and administrative sources may not be comprehensive or fully consistent;
- encourages a formal, rational and comprehensive approach to urban transport issues;
- a series of policy statements over several years enables a progressive, long-term, approach (iterative, consultative, with regular revisions and updates);
- a policy statement gives specific, formal notice to stakeholders of government's proposals and provides a focus, and perhaps a programme for consultation with stakeholders and the wider community;
- a policy statement can address difficult dilemmas on which some community consensus is required (many transport issues balance the interests of the majority (perhaps bus users) against a vociferous minority (perhaps car users or transport operators)). An important element of the policy-making process is to inform the public of the priorities and the sacrifices which it involves;
- a commitment to specific policies discourages short-term, expedient 'ad hocism';
- enables governments performance to be measured against its stated policy objectives.

3.2 Constraints on Formulating a Policy

There are many reasons why governments do not commit themselves to a formal statement of policy:

- transport issues tend to be very complex and difficult to present in a simple rational way;
- government's transport agency may lack the necessary analytical capability or other resources to conduct a comprehensive policy review;
- there may be a lack of internal consensus on policy principles or a lack of political will within government to implement reforms in the transport sector;
- there are usually strongly vested interests in the status quo;
- the public may be acquiescent regarding the quality of public transport services;
- governments tend to prefer to construct new infrastructure rather than to manage existing resources more efficiently to achieve the same level of mobility.

The consequences of a failure to commit to a coherent policy may be:

- a tendency to resort to short-term, politically expedient measures ('ad hoc-ism');

- a tendency to ‘muddle through’, reacting only to immediate issues;
- the legal and institutional means to implement reforms never develop.

3.3 The Policy Formulation Process

The core of a transport policy statement needs to be:

- which urban transport issues should be addressed;
- in which order of priority.

A structured and iterative approach with parallel and coordinated top-down and bottom-up processes is required if resulting policies are to be implementable and sustainable. The approach should seek to integrate the urban transport policy into the framework of wider policies, such as the ones for the road sub-sector, and the transport sector and urban development in general. The nature of the instruments available for policy implementation must be understood.

When the policy-making process is launched, it is advantageous to identify champions for significant policy reforms and a lead organization (for example, the city transport authority or agency).

An initial Stakeholder Workshop may be held to help identify key issues and appropriate policy measures. Stakeholders to be invited to the workshop will include relevant government officials from involved sector departments, and from the different levels of government, representatives of relevant NGOs, associations of transport operators, representatives of transport users, and relevant private sector organizations (e.g. Chamber of Commerce, Transport Operators’ Associations). Facilitation and the use of the logical framework approach with participation and problem, objectives analysis and the establishment of a logical framework is highly recommended.

Policies must be critically reviewed to evaluate if they are capable of achieving their objective. For example,

- a policy to build more urban roads in order to reduce congestion should be reviewed against experience in many cities that increased road capacity generates growth in traffic; constructing new roads without introducing a balanced urban development program that includes demand management, public transport improvement, and supporting land use policies may not improve traffic or environmental conditions;
- a policy to keep public transport fares low, without making provision for fare increases that reflect changes in operating costs, or a system of subsidies that enable operators to recover their costs and to renew assets, is likely to result in a downward spiral of service capacity and quality, and a gap that will be filled by opportunistic paratransit minibuses operating at economic fares, but outside the regulatory system.

3.4 The Policy Implementation Process

A strategy and action plan is required to implement policy. A steering committee with a secretariat should be set up to formulate a strategy and action plan. Strategy needs to distinguish between those measures that can be implemented immediately and those which take longer time. Whereas a strategy may be defined in fairly broad terms at a high level, an action plan is much more detailed. The action plan must be very specific about the activities to be undertaken, the individuals responsible for each component of the strategy, the timing of implementation and the resources required. It should also contain performance indicators to enable the monitoring of the implementation process.

The strategy and action plan should be public documents and consist of a framework document, a corporate plan and business plan.

4 Policy Areas in the Urban Transport Sector

In the public transport sector, policies may be classified into the following:

- the principles governing planning and investment, including the planning process itself and the criteria to be used in choosing between investment alternatives;
- the principles governing operations, competition and the regulatory framework, including measures to safeguard the public interest through the system of regulatory controls and to improve safety and environmental standards;
- the principles governing pricing, cost recovery, taxation and subsidies, including the setting of fares and tariffs, infrastructure financing mechanisms and the use of subsidies to achieve essential non-commercial goals, such as maintaining unremunerative services or infrastructure; and
- the principles governing institutional arrangements, including the respective roles of the public (government) and private sectors and the organization of public-sector functions.

4.1 Policies on Planning and Investment

Transport's social and environmental impacts should be evaluated and addressed. Government and private sector transport projects should be expected to demonstrate, in addition to a minimum economic rate of return, their contribution to the non-economic goals of:

- enhancing the quality of urban life, particularly the mobility of low-income and disadvantaged groups;
- raising safety and environmental standards; and
- supporting desired forms of urban and regional development.

The public should be closely involved in the planning process. Information on transport policies and plans should be widely disseminated. For smaller-scale projects, there should be a decentralization of planning and funding to local levels of government. The role of central government should then focus on providing technical guidelines and standards.

There should be emphasis on integrating transport and land use development; thereby promoting a more efficient urban development structure linked to transport capacity. In megacities, public transport should play a crucial role in improving overall efficiency, enhancing accessibility and preserving the urban environment. Priorities for road network development should take full account of longer-term development goals and the needs of road-based public transport. Projects designed to improve traffic circulation should make special provision for efficient public transport operations.

4.2 Policies on Operations, Competition and the Regulatory Framework

A primary role of regulation is to assure public safety and protect the urban environment. There should be incentives to strictly comply with standards, backed up with effective enforcement procedures and penalties.

Licensing and regulatory controls play a key role in encouraging investment and innovation, upgrading the quality of transport services and improving standards of safety. Restrictions over operational matters such as routes, service frequencies, and fares/tariffs should be critically reviewed and unnecessary restrictions removed.

To ensure their efficiency and effectiveness, government-owned transport enterprises should be subject to strict financial and operational performance targets. Public service contracts should be negotiated which grant a degree of commercial autonomy and which, where

appropriate, make provision for financing services which are socially necessary but unprofitable.

Wherever competitive conditions can be established in the transport market, services should be operated on a commercial basis by the private sector. Where public sector operators exist, they should have equal access to such contracts provided they must meet the same costs as the private operators.

With the need to make efficient use of road space and other public infrastructure, priority must be given to public transport on social and environmental grounds. Urban traffic and congestion management strategies should be developed which maximize the efficiency of the urban transport system as a whole, taking into account the environmental, social and economic costs associated with each mode.

4.3 Policies on Pricing, Cost Recovery, Taxation and Subsidies

Economic and fiscal policies should determine the proportion of the costs to be borne by users associated with their use of transport, but subject to affordability considerations for low-income groups. These costs will include the costs of infrastructure, congestion, accident risk and environmental damage. In congested city centres users should be charged for their use of congested roads so as to influence levels of demand and mode choice in favour of public transport; revenues should be used to upgrade public transport and the environment.



Figure I-2: Bus Rapid Transit provides a sophisticated metro-quality transit service at a cost that most cities, even developing cities, can afford.

Photo courtesy of Advanced Public Transport Systems

Where unprofitable services are deemed necessary in the public interest, public service contracts containing incentives to minimize contract costs should be used as a way of involving private and government-owned operators on an equal footing; such contracts have the advantage that subsidies can be clearly identified and cost-effectiveness periodically reviewed. Experience has shown that under certain conditions, the award of such contracts by competitive tender can produce strong downward pressure on contract costs.

Where a competitive market for transport services can be established, fares and tariffs should generally be set by market forces; unnecessary or ineffective fare/tariff controls should be relaxed. If this is not feasible, fares should be set by objective criteria, such as indexing of input costs, and should not be subject to political considerations.

4.4 Policies on Institutional Arrangements

Government's role in the transport sector should progressively change from one of providing infrastructure and services towards one mainly concerned with policy formulation and planning to secure longer-term economic, social and environmental goals. The following functions are part of this process:

- establishing a policy and strategy framework to guide investment and operational decisions by government agencies and the private sector;
- monitoring sector performance and efficiency, including tariffs;
- monitoring progress towards human development, environmental and quality-of-life objectives;
- regulating market entry and licensing to promote competition, investment and innovation, raise quality and achieve target safety and environmental standards; and
- developing and maintaining those elements of fixed infrastructure which are more appropriately the responsibility of the government sector.

Effective arrangements must ensure coordination between:

1. policy formulation and monitoring;
2. investment planning, project execution and operations; and
3. central, regional and local government administration.

Inter-agency duplication should be avoided. The efficiency and responsiveness of government services will be improved if managers are set specified objectives and made accountable for their performance.

Transport laws, regulations and institutional arrangements should be frequently reviewed and revised to ensure they give full legal effect to the obligations and powers of both the government agencies and the operators.

4.5 Structure of a Public Transport Policy Paper

- Description of current situation, identifying strengths and deficiencies;
- Forecast demand and supply in transport system for two/five/ten year horizons;
- Set transport development trends in the context of wider economic, environmental, and urban development objectives;
- Set objectives for the public transport system: public/private modal split, passengers to be carried by public transport mode, basic performance targets, network coverage, cost recovery, regulatory strategy;
- Include the results of widespread consultation with stakeholders and the wider community;
- Compare broad policy options to achieve the objectives most efficiently within available resources;
- Introduce the proposed strategy and implementation programmes, with time-frame.

Three 'universal' policy principles that have formed the basis of efficient and dynamic public transport systems in Hong Kong and Singapore are:

1. Develop transport infrastructure;
2. Improve public transport systems;
3. Manage demand for road space.

Further reading:

The Mayor's Transport Strategy for London;
www.london.gov.uk/approot/mayor/strategies/transport/index.jsp

Moving into the 21st Century. The White Paper on Transport Policy in Hong Kong. Transport Branch, Government Secretariat. January 1990. www.info.gov.hk

A World Class Transport System – The White Paper on Transport Policy. Singapore Land Transport Authority. Jan 1996. www.lta.gov.sg

Urban Transport Policy Statement for Lahore, Pakistan. The Lahore Urban Transport project. The World Bank 1998.

MODULE II: An Industry Structure that is capable of providing demand-responsive Service

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| | |
|----------------------------------|--|
| Formal sector | Buses operated in a fleet, owned by a company, properly licensed. |
| Informal sector or 'paratransit' | Minibuses or buses owned singly, or in fleets of two or three vehicles, by small entrepreneurs, driven by their owner or leased to a driver. Licensed or unlicensed. |
| Regulatory measures | Specific directives, restrictions or prohibitions imposed by legislation or by the authority. |
| Regulatory framework | The broader concept of the full range of incentives, freedoms and regulatory measures where the authority plays a central role. |
| 'Regulatability' | The amenability of the industry to effective regulatory measures by the authority. |
| Regulatory capture | An authority which is influenced by the operator to exercise its powers in favour of the operator. |

Box II-1: Definitions

1 Factors in 'Regulatability'

A basic policy objective for public transport is that an operating environment is created within which a service is provided that meets demand from users. In simple terms, this may be achieved by a regulatory framework based either on:

- directives: the authority assesses demand, plans and designs services and directs an operators to provide them;
- competition: the authority specifies conditions for entry to the transport market and operators have incentives to provide services that they perceive will be profitable and which, thereby, will satisfy demand.

The regulatory framework may contain a mix of these strategies, for example:

- some modes (usually buses operated by the formal sector) will be subject to directives, while other modes (such as informal minibuses) will be free to compete⁷.
- an operator is directed to provide a specified basic level of services, but the operator is free to provide any services in addition to those specified⁸.

It is a basic requirement for effective regulation that the structure of the public transport industry is amenable to regulation, either by competition or by directives.

The structure of the industry means its composition by:

- the number of undertakings;
- the size of undertakings;
- whether undertakings are in public or private ownership;
- the proportion of vehicles in the informal sector.

⁷ This mix of formal and informal modes is common in Asia: See Case Study 4.1 on Metro Manila and Case Study 4.5 on Hong Kong minibuses.

⁸ The regulatory framework introduced in Bahrain in 2002 is based on this principle.



Figure II-1: Subjects of bus regulation range from paratransit in Cairo, ,camelios' in Havana, microbuses in Surabaya, articulated buses in Bangkok, through to the double-articulated, 270-passenger buses of Curitiba

Karl Fjellstrom, Manfred Breithaupt (Cuba), 2002

These factors determine the incentives that the operators respond to. Where these incentives align with the objective of providing a reliable and efficient service, the regulator may need to intervene infrequently. Where they do not align, as is the case with a monopoly or a highly fragmented informal sector, it is very difficult to impose directives, and regulation is likely to be avoided or resisted.

Regulation in some form is necessary for services to be demand-responsive. Even in a deregulated market with free entry, the authority may have to intervene to ensure that operators or outsiders do not take action to limit competition. Experience has shown that an open, free and competitive market is seldom achieved in practice in developing cities, as

there is a strong incentive for operators to establish territory and exclude newcomers⁹. Regulation is also necessary to ensure that services are provided on unremunerative routes, and at times when a service is necessary for social reasons but which the market finds unprofitable to operate.

All forms of industry structure tend towards serving the interests of the operators at the expense of the users and these require specific corrective regulatory responses.

These are listed in Table II-1.

⁹ This behaviour is well documented among unregulated modes: PLBs in Hong Kong (Case Study 4.5) *Angkor* minibuses in Bandung, Indonesia (Case Study 4.3), and *tuk-tuk* minibuses in Phuket, Thailand (Case Study 8.3).

| Industry Structure | Inherent Problems | Counter-Balancing Regulatory Measures |
|---|---|---|
| 1. Monopoly | <p>Low incentives to productivity and cost control. Low demand-responsiveness. Ill-defined corporate service/financial objectives. Vulnerable to political interventions, especially on fares, staffing. Vulnerable to imposition of social obligations, eg. concessionary passengers, loss-making routes. Tendency for 'regulatory capture'. Illegal operators develop to fill quantity and quality gaps in market.</p> | <p>Establish performance targets and accountability for their achievement within a sound legal basis. Public service obligations to be defined, provision to be tendered, cost to be borne by sponsoring agency. Establish surrogate measures of efficiency & cost-effectiveness. License private operators to provide 'niche' services. Define corporate objectives esp. for public service and cost recovery.</p> |
| 2. Few large-scale operators (oligopoly) | <p>All Private Tend to enter non-competition arrangements. Competitive incentives muted. Lack of competition inflates costs, reduces demand- responsiveness.</p> <p>Mix of state-owned enterprises (SOE) and private operators SOEs enjoy privileged access to best routes and/or are burdened with public service obligations. SOEs enjoy some protection against competition.</p> | <p>All Private Structure franchises to promote competition (operating areas, duration, replaceability). Establish objective, de-politicised fare escalation strategy, possibly including performance incentives.</p> <p>Mix of state-owned enterprises (SOE) and private operators Create 'level playing field' in the market. Establish benchmarking to compare performance. Establish objective, de-politicised, fare escalation strategy.</p> |
| 3. Mix of small- and large-scale public/private operators | <p>Large operators engage in predatory competition against small operators. Large operators buy out small operators. Small operators form association to protect their interests. Private operators neglect unremunerative services.</p> | <p>Regulatory framework to define structure of competition. Establish a de-politicised fare escalation strategy. Encourage small operators to provide 'niche' services. Maintain realistic service and infrastructure obligations. Regulator maintains vigilance thru' systematic surveys & inspections.</p> |
| 4. Multiple small-scale & individual private operators | <p>Each vehicle is a separate business, no operator will accept unremunerative routes and times or be accountable for performance of the whole route. Operators tend to wait until full of passengers, causing uneven headways, lack of capacity, unreliability, downstream. Too many licensees for effective control by authority. Tendency of control of routes, territories by illicit groups. Small-scale operators tend to breach service and vehicle rules.</p> | <p>To establish control must consolidate operators into groups capable of accepting collective responsibility for a route. Since cross-subsidy is not feasible, unremunerative routes must be supported by external subsidy.</p> |

Table II-1: Counter-Balancing Measures for Different Bus Industry Structures in Developing Cities

In each of the industry structures shown in Table II-1 the operators have some inherent incentives which are likely to conflict with the objective of maintaining a regular and adequate service. The two extremes of bus industry structure, monopoly and multiple individual operators (a fragmented industry) present the greatest difficulties in regulation.

Generally, a fragmented industry is typical of a developing city context where supply by the formal sector has been outstripped demand, the gap has been filled by entrepreneurs, and operators in the formal sector have found it difficult to survive the 'unfair' competition from the fragmented informal sector. Once the informal sector has gained a large market share, it acts as a deterrent to new investment by the corporate sector.

Conditions in developed cities have proved unfavourable to the development of the informal sector for several reasons:

- In most developed cities, fare revenue covers only a proportion of operating cost, the balance being made up by subsidy. Informal operators do not have access to subsidy, and cannot compete in the market with subsidised fares. They may find small niches, such as late night services.
- Regulatory and enforcement agencies tend to be very effective, and penalties are heavy. There is a high probability of detection.
- There are exacting entry conditions, including vehicle specifications and driver licensing.

Even in the deregulated environment in the UK, the corporate sector predominates. Individual operators may find a niche in local rural services, but most of these are subsidised.

2 Monopolies

2.1 Public Monopolies

In a public monopoly the operation of public transport is undertaken directly by a state agency with no competition for contracts or services. The operating undertaking may be a government department, a separate agency or a state-owned company. There may be a supervisory authority or representative board which prescribes fares and service levels, but this body is likely to be 'under the same roof' as the operator (usually a department of city government) and vulnerable to regulatory capture.

The main advantage of a public monopoly is that it enables government to exercise close control over services and fares, and thereby to achieve a high degree of service and fare integration between bus services and between buses and other modes, (usually rail). Socially necessary but unprofitable routes may also be maintained, often under political pressure, in order to provide comprehensive service coverage. However, government needs a coherent policy and strategy to draw a clear distinction between maintaining essential but unprofitable services and taking a relaxed view on cost recovery. Such a disciplined approach is often missing and public monopolies, especially in developing cities, tend to accumulate financial burdens of debt and overstaffing, whilst productivity and demand-responsiveness are steadily eroded.

It is generally accepted¹⁰ that monopolies are almost always less efficient than competitive regimes because they are vulnerable to:

- poorly incentivised management;
- power of organised labour to raise labour costs;
- imposition of social and other obligations;

¹⁰ *Review of Urban Public Transport Competition Final Report*, Halcrow Fox Ltd. for Department for International Development of the UK. May 2000.

- political interference;
- unclear or contradictory corporate objectives.

Many writers have observed the negative effects on the incentives of managers and employees of state-owned undertakings, but it has not yet been conclusively shown that public ownership, *per se* is associated with inefficiency¹¹. Some writers have concluded that, while there is ample evidence to show that private companies are more cost effective than their public counterparts, this is due to differences in competition rather than ownership. Others claim that private companies outperform public companies even if competition is taken into account¹².

Public sector transport monopolies were very common prior to the 1980's, but many have been dismantled.

Former Communist Countries

In former communist countries, such as in the cities of the former Soviet Union (FSU), and in China, the provision of organised passenger transport services was regarded as a responsibility of the state. Transport systems were comprehensive, and in the larger cities included bus, trolley-bus, tram and metro systems. Comprehensive services, low fares and few private vehicles generated high ridership but low levels of cost recovery.

In the last decade these operations have become unsustainable in the FSU countries as car ownership rose and replacement rolling stock and spare parts had to be bought in hard currency with little state funding. In many cities, paratransit systems, usually operated by individuals, arose to fill the gap created by the depletion of services of the state undertakings. In several cities of the former Soviet Union, the informal paratransit systems and the depleted state undertakings are operating side-by-side and there are initiatives to introduce tendered contracts as a means of bringing the industry under control.

Europe and US

In many cities of continental Europe public transport has always been a public monopoly. This remains the case, although over the past two decades, a strong trend has been established away from direct provision of services by public monopoly agencies and towards the provision of services by multiple operators under contracts awarded by competitive tender. The number of monopolies is reducing.

France

In France¹³, outside Paris, responsibility for providing planning, procuring and managing public transport is vested in the lowest level of government – the town councils. They are grouped voluntarily into PTUs (urban transport perimeters) for this purpose. These local transport authorities can choose two means of providing the transport services:

- They can operate services directly by a public company (*regie*);
- They can delegate operation to a private or mixed economy company by competitive tender.

About 90% of the authorities have opted to contract out operations, thus about 10% of French towns and cities still maintain a public monopoly in bus services.

¹¹ *The Relative Efficiency of Public and Private Bus Companies*. James Odeck and Øyvind Sunde. Paper to the Seventh International Conference on Competition and Ownership in Land Passenger Transport. June 2001

¹² See authorities quoted by Odeck and Sunde, above.

¹³ *Local Public Transport Organisation in France: A New Deal?* Benoît THOMÉ Paper to the Seventh International Conference on Competition and Ownership in Land Passenger Transport. June 2001

In Paris RATP¹⁴, a state-owned company, held a monopoly to operate bus and metro services in the Paris region, but was not allowed to operate in places other than Paris. Because of a less competitive environment due to mergers and buyouts, it was recently decided to allow RATP to compete in other cities in France and, subject to EC approval, in other cities in Europe.

Germany

Although German public transport is legally based on the principle of free entrepreneurship and market initiative, financial support to companies is organised in such a way that freedom of initiative and entry hardly exists and incumbents (which are mostly publicly owned) have a preferential position.

While commercial (i.e. profitable) services can be granted without tendering to requesting operators, non-commercial (i.e. non-profitable) services have to be tendered since 1996. Despite this, all forms of subsidies (in particular cross-subsidisation from other public utilities, capital grants and investment subsidies) continue to be used to maintain a fiction of profitability and avoid the competitive tendering obligation. The result is that there is still very little competitive tendering to be observed in the bus sector.

The transport authority of Frankfurt (Rhein-Main VVR)¹⁵ is an exception and is planning to move to 100% competitive tendering. Other cities have adopted contracting and quality agreements, but the traditional way of funding public transport deficits *ex post* still prevails in Germany¹⁶

UK

In UK the public transport industry was nationalised in the late 1940's. Buses outside London were operated by municipal corporations in the larger cities, and by two state-owned holding companies¹⁷ elsewhere. Later, the six metropolitan counties (the largest conurbations) took responsibility for bus and rail services within their boundaries. Until the reforms of the 1980's that introduced deregulation outside London, and tendered contracts in London, the UK bus industry comprised state or municipal monopolies.

USA

In the USA the transfer of public transport operations to the public sector took place quite quickly¹⁸ in the 1950's as rapidly rising car ownership eroded public transport ridership. Although there is extensive sub-contracting of functions, including engineering, maintenance and management, most US transit systems remain as public monopolies in municipal ownership.

Asia, Africa, South America

While public and private bus monopolies were relatively common during the colonial period, with some surviving into the 1980's, the failure rate has been high.

¹⁴ Régie Autonome des Transports Parisiens.

¹⁵ See Module 4 for a description of the structure of the Rhein-Main VVR.

¹⁶ For more information on recent developments in Europe see *Regulation and Competition in The European Land Transport Industry: Some Recent Evolution*. Didier van de Velde. 8th Conference on Competition and Ownership in Land Passenger Transport, Rio de Janeiro. September 2003.

¹⁷ The Tilling Association Ltd and the British Electric Traction Group. They were merged into the National Bus Company in 1968.

¹⁸ In 1949, of the 117 largest American cities 107 had privately owned systems. By 1979 only 11 cities had any major private sector carrier.

As in UK and the USA, monopolies often resulted from a takeover of private operators in an effort to secure the provision of adequate services and full integration, often where those private operators had been unprofitable¹⁹.

Many state-owned bus monopolies have been burdened by poor management, political interference and over-manning and have been subject to a vicious cycle of costs spiralling upwards and productivity and ridership spiralling downwards. Often fares were fixed for socio-political reasons which resulted in continuous decline in revenue.

Governments often failed to take resolute action to arrest the decline of the state bus monopolies, usually because there was no effective regulatory agency with professional expertise; it was often not recognised that a state monopoly required to be regulated. The laws in some countries specifically exempted the state-owned undertaking from the jurisdiction of the regulatory agency²⁰. There were many constraints on reform of the monopolies, including how to resolve the financial problems of accumulated debt and unfunded liabilities, political and other interests, both legitimate and illicit, a back-log of investment and reluctance to raise fares. These tended to preserve the *status quo*.

As state bus monopolies declined in quality and capacity, they created unsatisfied demand. The resulting vacuum was filled by opportunistic 'paratransit' operators who in many cases soon became the main, or sole, fixed-route carrier. The authorities usually tolerated, or even encouraged them, as a temporary expedient to fill the transport gap and they were often given short-term route permits, but no security of tenure. Seldom were new regulations passed which enabled government to manage the paratransit mode effectively. In these circumstances the paratransit operators were regarded as a poor financial risk and were unable to raise capital to invest in expansion or renewal. In many cities they settled into a minimum-cost, minimum-quality, minimum-management equilibrium. The characteristics of the paratransit sector are considered more fully in [Section 5](#) below.

While the conversion of public bus monopolies to multiple service contracts is well established in Europe and beginning in the US, this process requires a high level of professional capability and a sound legal basis and is not generally reflected in cities of developing countries.

There are still examples of public bus monopolies in Asia, notably in Bangkok and Indian cities. In some other countries, such as Sri Lanka, the monopoly has been broken by allowing private buses to run in parallel with public sector buses.

2.2 Private Monopolies

Private monopolies are less common. Singapore Bus Services (SBS) maintained a monopoly from 1978 until 1984. Some African cities awarded monopolies to private companies, but none survives today.

The case for a private monopoly again rests on the potential for comprehensive planning and service integration. Unprofitable routes may be supported by internal cross-subsidy.

As in the case of a public monopoly, the regulator is likely to have relatively little leverage since a private monopoly operator may not easily be replaced, and there is likely to be some degree of 'regulatory capture'

Many of the characteristics of monopolies are shared by oligopolies. The Hong Kong bus industry from 1933 until the mid-1980's was an example of oligopoly. Although there were two franchised bus companies, each had an exclusive operating area, and in effect a

¹⁹ Examples include BMTA in Bangkok, SLCTB in Sri Lanka 1958-1991, and the State Transport Corporations in Indian cities.

²⁰ The Punjab Provincial Motor Vehicles Ordinance 1965 (sections 70-72) of Pakistan exempted the Punjab Road Transport Corporation from the jurisdiction of the Road Transport Authority. A similar provision exempts the Bangladesh Road Transport Corporation from jurisdiction by the RTA.

regional monopoly. Singapore Bus Services had a monopoly from its establishment in 1973 until 1984, when an operating license was awarded to a second bus operator (Trans Island Bus Services) to take over SBS's routes in the north and north-western districts, a measure designed to introduce competition. 17 more routes were transferred from SBS to TIBS in 1995.

2.3 Monopolies – Conclusions

By definition, breaking a public monopoly means that competition is introduced. The evidence is not conclusive whether it is the transfer to the private sector that provides the incentive to improved performance or the introduction of competition because it is very difficult to separate the effects.

The case study of London (Case Study 1.4) demonstrated that the breaking of the public monopoly of London Buses Ltd. and the award of operating rights to private companies through tendered contracts resulted in substantial cost savings.

The case study of Bangkok (Case Study 1.3) describes the working of the BMTA monopoly of bus services whereby private bus operators are sub-licensed to operate alongside the state-owned buses. The private bus operators are able to generate profits while, at the same fares on the same routes the state-owned buses recovered only about 70% of costs.

3 Few large-Scale Operators (Oligopoly)

It is a basic theme of this course that competition is the most effective incentive for efficiency and cost-effectiveness in bus operations. However, the simple presence of several big operators in the market does not assure competition. The regulatory framework must be designed and managed to promote competition. As illustrated by the case of Hong Kong (Case Study 2.1) a few large-scale operators may not generate sufficient competition to achieve positive results.

The case of Hong Kong illustrates that where two or three operators share the market, competition will not necessarily occur. Even though the bus regulations were amended in 1975 to replace the area monopolies by route-by-route franchising, competition did not actually occur until the early 1990's. By then, it was apparent that the two old-established, family-run big franchised operators were not responding to the incentive to invest in bus capacity provided by an assured rate of return on assets. Meanwhile, the potential benefits of competition were already evident from cities overseas so government adopted a policy of promoting 'healthy competition'. Previously, competition had been referred to in policy documents as 'wasteful competition'.

Two operators was too few to generate competition, and subsequently a third major operator was introduced.

Oligopoly may constrain competition in the following ways:

1. A small number of operators may agree, specifically or tacitly, not to compete, in general or in particular aspects such as fares.
2. Where an industry comprises a few large players, replacing one of them becomes a major exercise, with inherent risks. A new investor must bear heavy initial costs of acquiring a depot and a new fleet which may put it at a disadvantage to established operators. Also, investment on a scale of five hundred buses or more requires a long franchise period to amortise capital cost. Replacing operators and attracting new operators is simpler where smaller fleet is required.

4 Mix of Public and Private Operators

Among the wide variety of mixed bus systems in developing cities are public sector operators supplemented by a small-scale corporate private sector or a fragmented individual sector. In many cases the mix of public and private operators is a transitional stage where the state undertaking is declining, or losing market share, and the private sector is expanding.

The following are examples.

| |
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| <p><u>India</u>: 23% of buses are operated by state-owned road transport corporations;</p> <p><u>Sri Lanka</u>: about 30% of buses are operated by the eleven 'regional bus companies' which are 90% owned by the state;</p> <p><u>Mauritius</u>: The state-owned National Transport Corporation operates 27% of the fleet;</p> <p><u>Indonesia</u>: The state-owned DAMRI corporation operates urban buses in 14 of Indonesia's largest cities;</p> <p><u>Bahrain</u>, prior to its winding-up in 2002, the state-owned Public Transport Department accounted for 2% of public transport buses, and less than 4% of capacity;</p> <p><u>Dhaka, Bangladesh</u>. The state-owned Bangladesh Road Transport Corporation operated 400 buses in Dhaka, about 25% of the urban fleet.</p> |
|--|

Box II-2: Mixed Public and Private Bus Industries in Developing Cities

Among developed countries, in France and Germany, state-owned companies compete for bus contracts against the private sector and the two sectors operate side-by-side.

The main issue in regulating a mix of public and private undertakings is how to determine the role and market share of the respective public and private sectors.

It is very common for the state-owned undertaking to have certain legal privileges, such as access to lucrative routes²¹. In this respect competition is unfair.

On the other hand, the state-owned operator may have onerous public service obligations such as accepting concessionary fares for students or the elderly, or maintaining unremunerative routes or trips²².

Disparities in legal and financial status may also complicate a tender strategy where both public and private sector are competing on an equal basis²³. The public sector may use its political influence, resources, or its ability to sustain losses to gain advantage in the tender evaluation.

²¹ DAMRI is the state-owned bus operator in 14 Indonesian cities. In many cities, other bus operators are excluded from the main trunk corridor. For example, the central section of Bandung's main east-west corridor is a DAMRI 'exclusive zone', through which no *angkots* are licensed, although a network of unlicensed *angkots*, serves the zone to supplement DAMRI's inadequate capacity.

²² In Tashkent, Uzbekistan in 1998, seven categories of citizens were allowed to travel free of charge as concessionary passengers. These were estimated to constitute about 15% of passengers. The state-owned bus enterprises were required to carry these passengers, but the private operators refused to carry them unless they paid the normal fare.

²³ For a description of the problems faced in the Uzbekistan tenders see '*Designing Competition in Urban Bus Passenger Transport: Lessons from Uzbekistan*' TWU-41 by Kenneth M. Gwilliam, Richard T. Meakin, Ajay Kumar. Transport Division, World Bank April 2000

5 Multiple Individual Private Operators

5.1 Paratransit

Definition

Paratransit services are usually provided by small vehicles, in individual ownership or in small fleets of a few vehicles. Routes may be established by usage, or by an authority. Paratransit often originates as an unlicensed, 'illegal' mode.

Paratransit represents the 'lowest common denominator' of urban passenger transport. Where affordability of passenger fares is low and owners lack capital and transport expertise, (a typical situation in Asian and African cities) they may seek the lowest cost vehicle, usually a 10-25 seat minibus imported second-hand as a van, fitted locally with windows and bench seating and operated with minimal maintenance, sufficient only to keep it running.



Figure II-2: Manila's Jeepneys are Typical of Paratransit Modes

Gerhard Metschies, 2001

Paratransit services will develop spontaneously where regulatory and market conditions are not favourable to large-scale investment in buses and there is unsatisfied demand due to a shortfall in the capacity or quality range of the formal bus system, and where regulatory and enforcement capability is weak. A fragmented industry structure is never a policy objective, it is a market response to risks and negative factors in the operating environment such as:

- low institutional capability, inability to maintain an orderly market structure;
- low enforcement capability, lack of political will to suppress illegal transport, or tacit acceptance of paratransit as an expedient means of satisfying demand;
- inappropriate regulatory framework, for example, a system based on one licence for each vehicle rather than one licence for each route;
- a lack of clear transport policy objectives and strategies resulting in unpredictable market conditions; e.g. lack of clear policy criteria for granting fare increases, politicisation of fare applications and lack of criteria for setting limits on the supply of transport licences, resulting in over-supply.

Paratransit services can offer severe competition against formal bus services due to their high frequency, flexible routing and very low costs. A shortage of formal transport capacity may arise from a number of circumstances:

- no formal public transport has been provided;

- rapid growth of urban population due to in-migration from rural areas and high birth rates, which has been a characteristic of developing cities, has not been met by expansion of formal bus and rail services²⁴, often due to government-imposed restraints on fares;
- a formal system of public transport (such as a state bus corporation) has collapsed, or is in the process of collapsing²⁵;
- a formal transport system exists but fails to meet significant segments of demand, either down-market demand (basic low-fare services in poor areas), or up-market demand (commuter demand for reliable, direct, fully-seated, perhaps air-conditioned services) to city centres²⁶;
- formal public transport exists, but enforcement of unlicensed competition is weak or ineffective.

Paratransit may contribute to the accelerated decline of the formal operators. A senior manager of a bus group operating buses in a number of African cities in the 1980's explained the constraints he faced in responding to loss of passengers to a rapidly growing informal minibus sector:²⁷

"In most developing world cities there is one large bus operator which is usually publicly owned. Whether publicly or privately-owned this core operator – or perhaps a group of bus operators – will be regulated by government authorities as to the routes operated and the fares charged. Usually some form of subsidy will apply. For a number of reasons, the services are normally not provided as efficiently as the customer would wish, or indeed expect. There may be exceptions, but generally the impact of size, and resultant bureaucracy, supply difficulties, shortage of hard currency, difficult social and economic conditions, lack of consumer purchasing power, lack of expertise and in many cases climatic conditions all combine to inhibit efficiency."

Paratransit does not arise in developed cities because:

- formal public transport is usually heavily subsidised and highly integrated; there are few niches paratransit operators could fill;
- stringent vehicle and labour regulations would make the cost of paratransit prohibitive;
- enforcement action would be taken against any attempt to evade the vehicle or labour requirements.

The paratransit industry is usually divided into owners, who rent out their vehicles on a daily basis, and drivers and conductors who operate the vehicles.

Perhaps the 'original' paratransit mode is the jeepneys of Manila, Philippines which developed after WW2 in an absence of formal public transport services²⁸ using military surplus jeeps. Over 50,000 jeepneys were licensed in Metro Manila 1995, with a further 10,000 entering the city from outlying provinces each day and an unknown number operating without licences. The role and organisation of the jeepneys, the competition they provide to the formal bus system and the problems of regulating them are described in Case Study 4.1.

²⁴ The failure of Hong Kong's two private bus operators in to expand capacity to meet demand in the 1960's and 1970's gave rise to a variety of paratransit modes which later consolidated into the 'public light bus' mode. These are described in Case Study 4.5.

²⁵ The decline of state bus corporations in India and Pakistan in the 1980s and 1990s have been described in Case Study 3.1. The resulting gap was filled by opportunistic minibus operators who in many cases soon became the main, or sole, fixed-route carrier.

²⁶ The development of commuter van services in Bangkok Thailand may be attributed to the failure of the state-owned bus monopoly BMTA to respond to demand for direct, high quality services between the middle-class outer suburbs and the city centre. See Case Study 1.3. Van services in Rio exploited a similar opportunity. See Case Study 4.2.

²⁷ *The Roles of Conventional Buses and Paratransit*. John Clymo, Director United Transport. Developing World Transport. Grosvenor Press. 1989.

²⁸ Manila had an extensive electric tram system before World War 2, but it was not re-constructed after the war.

Unlike jeepneys, paratransit vans in Rio and Bangkok filled a premium niche in the market, air-conditioned, all-seated direct services from the outer suburbs. The origins and role of vans in Rio is described in [Case Study 4.2](#).

Once paratransit operations have become established, despite public dissatisfaction with their aggressive behaviour and unstable services and fares, prohibition is usually a political impossibility. Paratransit becomes entrenched because:

- individual operators are very vulnerable to control by illicit groups. These groups are often supported by influential people who defend the *status quo*;
- where the total number of licences is restricted, a new entrant may only enter the industry by purchasing a license from an existing owner. The right to register a vehicle may be very valuable. Public light bus licences in Hong Kong have been traded for amounts up to USD 40,000.. An owner who has paid a large licence premium has a substantial interest in maintaining the '*status quo*';
- many thousands of people, perhaps five for each vehicle, may depend on paratransit, as owners, drivers, conductors, controllers (legal and illicit), maintenance workers, vehicle and spare parts suppliers. They form a large political constituency. They are well organised, having transport, communications, and perhaps high-level backing. They are capable of militant action to defend their interests against suppression and control. They may use their vehicles to deprive the public of service, and to obstruct roads and formal bus services.

Generally, paratransit operators are regarded as a poor financial risk and are unable to raise capital to invest in expansion or renewal. Most owners buy vehicles on credit, often at very high rates of interest through informal lenders rather than through the formal banking system. In a high-risk environment, they will minimise their investment in the vehicle by buying a used, imported van which may be easily sold. In many cities paratransit has settled into a low-cost, low-quality equilibrium in response to their highly insecure an operating environment.

While in some cities paratransit became established without licensing, in others they have taken advantage of 'loopholes' in licensing legislation. An extensive network of commuter vans has recently developed in Colombo, Sri Lanka. They cater for commuters who want a direct, non-stop, air-conditioned service from the outer suburbs to the city centre, a service category that is not provided by the formal bus sector. The vans are licensed under regulations that allow the contract hire of passenger vehicles. Passengers now pay a weekly or monthly subscription, but this does not comply with the conditions of group hire imposed by the regulations. It is a small step for passengers to pay separate fares on boarding, and a new paratransit mode will have become established.

The factors that produce a large paratransit industry usually reflect fundamental deficiencies in the policy and institutional framework. To reverse the process of fragmentation by consolidating the industry and attracting investment often requires making major changes to policies and regulations and enhancing institutional capability. Once the industry has fragmented, it is very difficult to control or consolidate.

Problems of Regulating Paratransit

A paratransit industry comprising multiple individual private operators is very difficult to regulate. There are several reasons.

1. 'Regulatory overload' – the problem of the regulatory authority having too many clients, sometimes totalling tens of thousands²⁹. The overload is resolved by the authority imposing minimal, arbitrary regulation, extending only to the issue of

²⁹ In 1995 there were more than 53,000 licensed jeepneys in Manila. The number of licensed paratransit vehicles (*danfo and molue*) in Lagos, Nigeria in 2003 was estimated to be 35,000, with a further 40,000 operating without licenses.

permits, assignment of buses to fixed routes and timetables and the collection of fees. In such cases the regulator undertakes little analysis of demand and supply or adjustment of the network to better match demand. The route network, and the timetables become effectively fixed.

2. Each vehicle is a separate business. Vehicle owners tend to be small entrepreneurs, with little capital. They must earn enough rental income to pay for vehicle maintenance, major repairs, lubricants, tyres, insurance (if any) and licensing charges and must accumulate enough surplus to replace the vehicle when it becomes inoperable after three to five years. The driver must generate enough revenue each day to pay for his daily vehicle rental, fuel and running repairs. He must also make payments to illicit groups who often control the terminals, and often to various licensing and enforcement officials.
3. Under system of 'one-vehicle, one-licence', many licensees operate a route, but none has responsibility for the overall efficient operation of the route, or for ensuring that the service meets passenger demand in terms of reliability, regularity, capacity and daily operating times. The authority has little knowledge of operations and operators take advantage of this by breaching licence conditions. These are generally only subject to enforcement when public dissatisfaction reaches a very high level.
4. Theoretically, a fragmented market comprising many separate operators should be highly competitive, but in practice this is seldom the case because of the illicit organisation of routes and terminals. Illicit control makes it difficult for operators to compete with others by switching routes or changing their schedules.
5. Since each vehicle is a separate business, so there is no means for the authority to ensure that unprofitable times and trips, such as early or late journeys, are operated. Left to the market, such trips will be irregular or not operated. Route cooperatives, where they exist may claim to make such arrangements, but they too have no authority over the individual operators.
6. Individual vehicles are not easily distinguishable by users or enforcement officials so accountability is low.
7. Staff of the enforcement agencies are persistently rumoured to be involved in the paratransit business in many cities, gaining an advantage by some immunity from enforcement.
8. The imperative of covering daily costs creates a strong incentive to engage in revenue-maximising malpractices which cause unreliability, such as:
 - deviating from the authorised or customary route;
 - raising the fare in bad weather or during times of peak demand;
 - turning short of the terminus or switching the destination indicator to carry more short-distance passengers;
 - driving fast and aggressively and racing other vehicles in peak periods;
 - delaying departure from the terminal until full thereby leaving no capacity for passengers waiting downstream;
 - dawdling on the route in periods of low demand;
 - withdrawing service at periods of low demand such as early mornings or late evenings.

These practices are a persistent source of complaints from users and from the formal operators with whom paratransit competes. They will be cited by authorities to support proposals to impose controls on paratransit.

In some cities (such as Hong Kong) regulations were passed to control unlicensed paratransit minibuses in order to give them a legal basis, which enables passengers to be insured and licence fees levied, and to control their most criticised operating practices. However, they remained free to operate any route at any fare.

Regulation is usually limited to the issue of an annual route permit, without any assurance of renewal and without any service obligations such as a minimum frequency, capacity and daily operating period.

In many cities, the licence assigns each vehicle permanently to a single, specified route, sometimes requiring the route to be painted permanently on the vehicle³⁰. This prevents competition by operators switching routes and makes control easier, but limits paratransit's main advantage – its flexibility and responsiveness to demand. This may give rise to a 'second-generation' of paratransit which fills the gaps left by the route restrictions on the first generation.

Few cities have succeeded in imposing discipline on paratransit modes, and fewer still have succeeded in imposing any form of consolidation on the industry or imposing any obligation to run a regular service at regular fares.

5.2 A Fragmented Big Bus Industry

Problems in Regulating a Rragmented Bus Industry

While paratransit represents one form of fragmented industry, the 'big bus' industry may also be fragmented among multiple individual owners. The same basic reason applies: regulatory and operating conditions are not conducive to large-scale investment. Small-scale operators can mitigate some of the regulatory and market risks more effectively than a large investor.

Many of the constraints on 'regulatability' observed in paratransit modes apply equally to big buses in individual ownership:

- the practice of renting the bus to a crew on a daily basis is common in big buses, so that the licence holder (the vehicle owner) is not responsible for operation;
- each bus is a separate business and the owner and crew each have to generate sufficient revenue to cover their daily costs. This complicates the licensing of a route to multiple operators as, to ensure that the unremunerative trips are operated, they must develop a means of equalising each bus's opportunity to earn revenue. This may be done by rotating buses around the departures in the schedule but it requires a fairly sophisticated organisation among the operators.

In Mauritius and Sri Lanka each licence requires the bus to accept a 'running number' in the timetable, which is rotated each day so that each bus has equal revenue-earning opportunities. However, as noted below, in both countries the number of permits issued was greatly in excess of the number of buses required to satisfy the timetable.

The incentives for individual operators of big buses to indulge in the same dangerous and disruptive practices as paratransit vehicles are well recorded. The Harvard Case study of Sri Lanka contains the following reference to the situation in 1999 when the number of private buses was about 12,000³¹:

"Most of the private bus operators owned only one or two buses and the competition between them was so intense that it caused problems. The private buses serving a route seldom maintained a regular or coordinated schedule, for example bus drivers were often alleged to race each other to stops or engage in other unsafe behaviour to capture passengers. The buses were usually operated for only one shift per day so

³⁰ Jeepneys in Manila and *angkot* in Indonesia and many *songtaew* in Thailand are required to paint the route served on the side of the vehicle.

³¹ *Sri Lanka Transport (A): The Bus Industry*. Kennedy School of Government Case Study. Harvard University 1997.

there were few on the road after 6pm when passenger traffic thinned. Some large companies reportedly tried to enter the market, but were driven off by the competition.”

Balancing Demand and Supply

Both Sri Lanka and Mauritius have prohibited the licensing of buses below 30 seats, so the fragmented individual sector comprises big buses.

The licensing of individual buses, especially in an environment where capability to monitor supply and demand is low, makes it very difficult to determine how many buses should be licensed for each route and how many there should be in total. Because buses are assigned to a single route, an excess of buses on one route cannot be switched to correct a shortage of capacity on another route.

In Sri Lanka, bus licences for routes within a province are issued by the provincial government. If public pressure builds up because a service is not adequate, the authority may simply issue more permits for that route. Since there is no reliable indication of how many vehicles is appropriate to meet demand on a route, the authority may issue excess permits.

“In Sri Lanka a calculation was made of the number of buses required to operate the busiest route in Western province (Route 138 between Colombo – Homagama). Using normal running times and a 15% allowance for layovers in the terminals, it was estimated that the current timetable could be run with 224 buses. There are actually 293 buses deployed on the route each day. The excess daily capacity is taken up by buses queuing in the terminal. The provincial transport authority has issued permits to 348 buses to operate the route, an excess of 55%. This is managed by omitting some buses from the roster each day, giving them a ‘rest day’, while others stand-by in case a rostered bus fails to operate”.³²

Allegations that corruption is involved in the issue of route permits are quite common. Bribery may be involved, or permits may be a way of rewarding political favours. In Mauritius it was alleged that bus permits were issued as a reward to operators for carrying political campaign workers or providing free transport for voters from a particular party’s stronghold on election day. As in Sri Lanka, many more permits had been issued than were required to operate the timetable approved by the authority.³³

In Mauritius the stage carriage bus industry comprised three sectors:

- The state-owned National Transport Cooperation with 27% of the total bus fleet;
- Four large private companies with 29%;
- The individually-owned fleet of which 660 different individuals owned 763 buses, accounting for 44% of the total fleet.

A analysis was undertaken of the number of buses required to operate a sample of routes the timetable set by the regulatory authority (the National Transport Authority). The results showed that the number of buses for which permits had been issued ranged between 35% and 300% in excess of the number required. The excess was absorbed mainly by buses queuing in the terminals for their scheduled departure time, sometimes for as long as eight hours.

A difficulty the authority faces is that, while it knows the number of permits issued, it often cannot determine how many vehicles are actually operating. In some cities the number of licensed vehicles may be depleted by non-operational vehicles due to maintenance or repair, or owners may hold the licences in the hope of future appreciation of its value without owning or operating a vehicle. If the market is over-supplied and revenue is poor, owners may opt not to operate their vehicles until times improve.

In Bandung it was estimated that about 15% of licensed vehicles did not operate.

³² Interim Report of the Passenger Transport Services Improvement Project. Wilbur Smith Associates. February 2004.

³³ The Integrated National Transport Study. Halcrow Ltd. August 2000.



Figure II-3: Lagos, Nigeria. Up to 75,000 12-seat 'danfo' VW minibuses (top photo, left side) provide most public transport capacity in Lagos, Nigeria. A few hundred 'molue' buses (top photo, right side) ply the main routes. The regulatory and operating environment has been unfavourable to investment in the formal bus sector. New buses are available to the small-scale private sector with concessionary finance terms, but there have been few takers. A stock of new buses has been waiting for several years (photo below).

Richard Meakin



Conversely, in some cities the number of vehicles in operation exceed the number licensed as many vehicles operate without permits. In Lagos, Nigeria, some estimates put the number of actual minibuses in operation at 75,000, more than double the number licensed. If enforcement is ineffective or spasmodic, and penalties are not sufficient to act as a deterrent (as is usually the case in a fragmented industry) vehicles may operate without licences, or owners may operate several vehicles all carrying the same licence number. This kind of offence is very difficult to detect.

5.3 Illicit Control

Forms of Illicit Control

Buses and minibuses in individual ownership are very vulnerable to control by intimidation. This usually takes the form of extortion of 'route membership' or 'departure' fees, for which token services such as vehicle washing, parking, or timetable co-ordination may be offered to legitimise control. Passenger shelters, or other infrastructure, may be built to establish territorial rights at key loading points.

'Membership' may serve operators' interests in some respects. The number of vehicles competing for passengers may be reduced, so fares and loadings may be higher. Sometimes

protection from enforcement is offered. Payments to police or licensing authorities (the payments may be syndicated within those organisations) may ensure that members' vehicles enjoy immunity while non-members vehicles are harassed or prosecuted. If relations with police or licensing authorities and syndication are well institutionalised, members' minibuses may carry distinguishing marks which give them protection from enforcement action wherever they operate. Police officers may be involved in the minibus trade as owners or part-time drivers.

The focus of illicit control may be a route (where routes are well-defined) or a terminal, especially where this is a major passenger loading point. The illicit controllers patrol the terminus and exclude non-members vehicles. Intimidation may be used. Threats of physical violence or damage to vehicles (especially glass and tyres) act as a deterrent. The regulators may enforce a departure schedule according to their own internal rules.

Often the control of minibus operations will be part of a larger syndicate or criminal organisation; a large organisation is better able to resist attempts by rival groups to take control of a terminal by force. Disputes over control of terminal may be resolved by negotiation, or failing that, by gang warfare.

Where a large organisation has been able to control many termini, it is more likely to be able to reach an accommodation with the police or licensing authority to recognise and secure its status.

The illicit control of taxis, which do not depend on fixed routes or terminal points, or buses owned by companies, is much less common.

Conditions Favouring Illicit Control

Illicit control of minibuses and paratransit vehicles is very common in developing countries. Their vulnerability is partly because they often operate wholly or partly outside the regulatory system and may be:

- unlicensed and illegal, but tolerated, with no official controls on routes, terminals or stopping places, or
- licensed, but licence conditions or other legal requirements are inappropriate or ineffective and widely disregarded. This supports illicit control by enabling selective or discriminatory enforcement of regulations by officials.

Other factors contributing to vulnerability are:

1. Vehicles providing informal services tend to be owned individually

Individual owners and drivers are more vulnerable to intimidation than structured organisations such as companies or cooperatives. The vehicle may represent a substantial proportion of an individual owner's assets, and he is likely to be dependent on daily income from it. The cost of repairs, spare parts and the loss of income while a damaged vehicle is repaired may cause hardship to a small owner. Drivers are also susceptible to threats of physical violence. The existence of a cohesive organisation or cooperative of minibus owners and/or drivers may enable extortion to be resisted or at least negotiated.

2. Low awareness

Owners and drivers of paratransit tend to be part of the informal economy – many are new migrants to the city from rural areas with low education and low awareness of their rights or how to assert them. There may be few alternative occupations open to them and they may accept very low revenue returns.

3. Terminals tend to be lucrative

Informal transport services tend to be highly sensitive to demand and certain routes or terminals may be particularly lucrative. Illicit fees to use such termini may be

substantial while still allowing operators an acceptable return. In many cities, (such as in Indonesia) licensing authorities require minibus routes to start and end at a designated terminus; effective control of the terminus thus enables the control of access to the route.

4. *Low official salaries*

Salaries of licensing, regulatory and enforcement staff who exercise discretionary powers are below levels that provide a reasonable standard of living.

These conditions generally prevail in many cities in developing countries where a variety of forms of extortion and illicit control may be observed.

5.4 Consolidating a Fragmented Industry

Constraints on Consolidation

Consolidating a fragmented industry into cohesive route associations or cooperatives, enabling them to hold a single route licence which imposes some collective service obligations, is often recommended as the first step in bringing a fragmented industry under regulatory control. However, this is not easily achieved in practice, for several reasons:

- A vehicle licence may have a substantial trading value, separate from the vehicle itself, especially where the number of licences is limited³⁴. Even where licences are declared non-transferable by the authority, they may still be traded by using a power of attorney or another legal device.
- Under a collective route licence, the value of the right to operate a vehicle depends on the financial viability of the particular route. Operators need an element of trust in the licence holder, which is often absent. The same 'strong-arm men' who control the disorderly operations in the 'before' situation will also tend to take control of the cooperative, and run it dictatorially for their own benefit.
- Vehicle owners who rent out their vehicles are small entrepreneurial businessmen, not transport professionals. They do not drive the vehicle so have little knowledge of the market. They may lack the management skills to make the transition from owner to manager and may leave the business rather than risk the change.
- Owning a separate vehicle and licence with discretion whether to operate or not, and the times of operation, offers scope for profit and little risk of operating deficits or capital loss. Further, the option exists to sell the vehicle and licence. A collective licence held by a joint organisation such as a cooperative, which includes all the vehicles on a route, perhaps extending to pooling of revenue, involves a loss of autonomy. Being one of many operators committed to jointly running a service which is specified by the authority, and for which fares are specified by the authority, carries greater perceived risk, although there is also a prospect of greater security and market development.
- Fragmentation of public transport into individually-owned vehicles often reflects shortcomings in the regulatory strategy and the effectiveness of the regulatory body. Where paratransit operators have become established, and they are seen to be immune from regulation, their presence may also act as a deterrent to individual paratransit operators committing themselves to consolidation. By committing to run a scheduled service they may be exposed to competition from a new generation of paratransit operators. Thus, confidence in consolidation requires that the regulator will be capable of safeguarding the operators' rights.

³⁴ Note that minibus licences in Hong Kong and Indonesia, and bus licences in Mauritius have premium value – see the Case Studies.

- From an enforcement point of view, route associations are most needed where there are many overlapping routes and many small vehicle operators (e.g. where large cooperatives exist). However, because of the large numbers of vehicles the concept would be difficult to implement and maintain.

The objective of consolidating individual bus owners into a route organisation is that the body may take responsibility for the management of the route according to a service specification laid down by the authority. The schedule is likely to include trips at times when demand is low, so management might need to organise some internal cross-subsidy or rotation to equalise revenue among vehicles.

A further stage in consolidation is where ownership of the vehicle is transferred to the cooperative or company. All revenue then accrues to the company, and the members receive a dividend on their investment, which may be in the form of shares, depending on the profitability of the business. When this happens, many of the constraints and complications that arise from each vehicle being a separate business are eliminated.

Conclusions

Paratransit and individual ownership of buses is very rare in developed cities. This is because the regulatory framework and operating environment favour a formal, corporate industry structure.

However, many cities of developing countries rely on fleets of individually-owned public transport vehicles for all, or a significant part, of their public transport capacity.

Individual paratransit vehicles represent a basic form of public transport that will often develop spontaneously where there is unsatisfied demand, either because no formal bus service exists, or the formal service is in some way inadequate to fully meet demand.

The fact that formal public transport does not exist, or is inadequate, usually reflects deficiencies in the regulatory framework and the institutions that administer it. Failure to suppress or control paratransit operations is also a reflection on deficiencies in the regulatory framework and enforcement.

Paratransit modes tend to engage in 'unfair' competition with formal buses by operating only the most lucrative sections of routes and times. They may also undercut bus fares where necessary as they have a very low cost base. This contributes to the decline of ridership and revenue of the formal bus service.

Paratransit operators tend not to engage in free competition with each other. They usually form territorial or route-based associations to protect their operations from outsiders³⁵. Where several informal modes of passenger transport exist, as in Indonesian cities, the result may be the division of the city into a patchwork of local catchment areas, each served exclusively by one paratransit mode and each defended from incursion by other modes. These protective functions are often imposed by groups extraneous to the industry, sometimes criminal gangs, who may use intimidation and the threat of violence to protect their interests.

A preponderance of paratransit vehicles usually reflects perceived high risk and insecurity in the business. These risks derive from the regulatory framework – short licence tenure, no assurance of licence renewal, perhaps licences that do not have a proper legal basis, bureaucratic regulatory procedures, and risk of restrictive regulatory measures such as controls on fares. The trade may be vulnerable to periodic government campaigns to 'clamp down' on paratransit vehicles in response to public complaints. These campaigns may amount to little more than harassment unless changes to the regulatory framework are made to reduce perceived risks and attract large-scale investment in buses.

However, a substantial paratransit sector in the market, and evidence of ineffective management of the market by the regulator may deter large-scale investment in public

³⁵ See for example, the Case Study of tuk-tuks in Phuket, Thailand

transport, due to the prevalence of 'unfair' competition. As formal transport declines, the paratransit mode may dominate the market.

Even though they are very responsive to demand, many aspects of the service provided by paratransit modes draw criticism by users and local officials.

However, reversing the situation – replacing the paratransit mode by a formal mode, or consolidating paratransit so it may be regulated and accept service standards to operate like a formal mode – is extremely difficult.

There must be a coherent strategy for re-structuring the sector. Two broad options are possible:

- Bring paratransit under effective regulatory control. This is only feasible if all the separate vehicle licences are replaced by a route licence which covers all vehicles on the route. A route licence will impose an obligation to operate the route to a standard and level specified by the authority. This, in turn, is facilitated by the separation of the permit to operate a public transport vehicle from the permit to operate that vehicle on a particular route.
- Abolish the paratransit sector and replace it by a new formal bus system, either in one exercise, or in stages. To attract substantial investment into public transport, confidence in the capability of the regulators to manage the market must be restored. In particular, investors will be concerned that the regulator must have the capability to prevent a resurgence of paratransit. More generally, they will want assurance that regulation will be fair and that their service obligations will be defined and balanced against their commercial interests.

High calibre regulatory capability is essential to implement either strategy. This is described in Module 4 – Institutions.

International experience shows very few cases where a paratransit mode has been successfully consolidated into route or district organisations under a single route licence and which have been able to accept service obligations. Further, there is no case where paratransit operators have surrendered ownership of their individual vehicles in exchange for shares in a company which held a route licence. These are rational and feasible strategies, but they are very difficult to implement in practice, mainly because of the operator's reluctance to surrender autonomy over his vehicle and the need to entrust his livelihood to others: the managers of the consolidated company or cooperative and the regulatory body.

6 Case Studies

6.1 Case Studies of Public Monopolies

Case Study 1.1 – Indian State Road Transport Corporations

There are 21 state-owned bus corporations in India operating a total of 115,000 buses. In the first three decades of independence, government's policy was that bus transport was an essential social service especially for the rural poor, and should be assured by the state. In the light of big financial deficits and many complaints of poor services, the policy has recently swung towards privatisation.

Bus transport in India was nationalized by the Road Transport Corporations Act of 1950. Road Transport Corporations (RTCs) were formed in each state, and progressively absorbed private bus companies until they operated up to 95% of bus routes in their state. As a matter of policy they were highly self-sufficient with extensive maintenance and repair infrastructure. RTCs carried out most fleet maintenance themselves, including overhauling sub-assemblies like engines, gearboxes, front axle, rear axles, bus body repairs and re-treading tyres. Little activity was contracted out. With an absence of automation or mechanization, the RTCs became very labour-intensive with manpower accounting for a sizeable proportion of the total cost.

Despite increasing demand for transport due to economic growth and migration of population to the cities, historic rates of investment in buses and infrastructure have not been maintained, and are falling in some states.

Paratransit services have developed to fill the gap. In the 1990s financial losses of the RTCs increased and they experienced a drop in ridership due to increasing competition from privately-owned jeeps, buses, vans, minibuses and contracted vehicles. Throughout India, locally manufactured vehicles are used increasingly to operate passenger services, especially for lower-income users. The jeep has become a source of self-employment and entrepreneurship for the unemployed who are able to get finance by way of loans. These vehicles engage in predatory competition on the RTCs routes. Some have been licensed, but many operate illegally.

The RTCs are critical of the licensing authority for failing to enforce the RTCs' rights to a monopoly on their routes. Meanwhile, governments restrained the size and frequency of fare increases, to every 2, 3 or even 5 years.

| | 1997 | 2001 | % Change |
|-------------------------------------|---------|---------|----------|
| Combined fleet | 107,514 | 114,970 | + 6.9 |
| Kilometres operated (million) | 10,845 | 11,967 | + 10.3 |
| Total revenue (INR million) | 75,637 | 153,255 | + 102.6 |
| Total cost inc depreciation (INR m) | 93,705 | 172,720 | + 84.3 |
| Total losses (INR m) | -18,068 | -19,465 | + 7.7 |
| Cost Recovery Ratio (%) | 80.7 | 88.7 | + 9.9 |
| Total Manpower | 755,939 | 743,115 | - 1.7 |
| Staff per bus | 7.03 | 6.46 | - 8.1 |

Table II-2: Recent Performance of the RTCs in India

Source: Central Institute of Road Transport. Pune. www.cirtpune.com

Most RTCs were incurring substantial losses in the mid-1990s. Since then, government has accepted the necessity to raise fares in line with increasing costs. This had the effect of raising the cost recovery ratio to nearly 90%. The total amount of the deficits has stabilised in the last five years.

The growth in fleet of RTCs is stunted because they are mostly incurring substantial losses. There has been no generation profits and hence no growth in internal reserves of the RTCs. The reliance on borrowings is increasing, leading to interest costs.

State governments have generally tolerated the influx of private buses and paratransit vehicles, and many have been licensed. The growth of the private sector bus fleet is illustrated in Table II-3 below:

| Year | Public Sector (000's) | Private Sector (000's) | Total (000's) | % Fleet in Public Sector | % Fleet in Private Sector |
|------|--------------------------|---------------------------|------------------|-----------------------------|------------------------------|
| 1991 | 106.1 | 225.0 | 331.1 | 32.0% | 68.0% |
| 1997 | 111.0 | 377.1 | 488.1 | 22.7% | 77.3% |

Table II-3: Bus Fleet Owned By Public & Private Sectors In India

The public sector fleet had declined to only 22.7% in 1997.

The growth of the private sector will accelerate in future as central government is encouraging the RTCs to transfer routes to the private sector as a 'first step' to privatising bus operations. As yet, however, there is no scheme to offer subsidies to support the operation of loss-making routes.

The privatisation scheme has met with objections on legal and social grounds in a number of states.

But the public sector has built up substantial infrastructure over the last four decades while the private sector has generally made little investment in supporting infrastructure.

Case Study 1.2 – Sri Lanka Central Transport Board

Bus operations in Sri Lanka were nationalised in 1958 and a monopoly Ceylon Transport Board was created to operate all services (*see the Sri Lanka case study*). In January 1990, the fleet of the (then re-named) Sri Lanka Central Transport Board³⁶ numbered about 7,000 buses, of which only 2,900 were fit for service, due mainly to a lack of tyres and spare parts, and of funds to buy spare parts. Meanwhile, the CTB workforce numbered 50,500 in January 1990, a staffing ratio of 7.2 staff per bus owned, and 17 per operational bus. These compare with international benchmark staffing ratios of 5.3 staff per bus for driver and conductor crews, and 3.1 for buses operated by the driver alone. A target staffing of 32,400 staff was proposed in order to enable the 'peoplisation' (restructuring of the each of the 94 CTB depots into a separate company with 49% of shares held by the staff and 51% by the government) to proceed and for the new companies to be commercially viable. The excess staff were removed by normal retirement, a voluntary retirement scheme funded by the World Bank and transfer of 4,600 staff to the new regulatory agency (the National Transport Commission) and to manage bus terminals.

³⁶ A Report on the Progress of the Program to Peoplisthe Bus Operations of the Sri Lanka Central Transport Board. R T Meakin. World Bank. May 1991

Case Study 1.3 – Thailand Bangkok Mass Transit Authority³⁷

On its creation in 1979, Bangkok Mass Transit Authority (BMTA), a state-owned enterprise, took over most of the city's ailing private bus companies and was granted a legal monopoly of bus services in Bangkok. The few private companies not taken over came under BMTA's control as 'joint-service partners' on its routes operating under 'sub-licences' for which BMTA levies fees which amount to about 3% of its total revenue. There is no competitive process.

There is a regulatory agency (Land Transport Control Board – LTCB) in the Ministry of Transport, but the regulator is required to 'take into account BMTA's interests' in the award of bus service licenses.

BMTA has incurred losses since its establishment, but political constraints on fares and a spiral of falling ridership and rising costs have sharply increased its deficits in recent years. Operating costs increased at an average annual rate of over 30% between 1990 and 1997. The proportion of operating costs recovered from revenue fell sharply, from 91.5% in 1993 to 77.2% in 1996 and BMTA's operating deficit exceeded 3 billion baht in 1997/98. The accumulated operating deficit stated in BMTA's Annual Report for fiscal year 1997 was 19.2 billion baht based on a very narrow definition which did not include debts already met by government.

In 1997 BMTA estimated that its rate of recovery of operating cost from the low-fare (3.50 baht) non-air-conditioned buses was 71%. However, the private sector is able to cover 100% of its costs from the same routes at the same fares due to lower operating and maintenance costs, albeit using older buses, most acquired from BMTA.

BMTA's constitution makes it very vulnerable to political and budgetary constraints and procedures, and it has faced a long-standing dilemma between providing below-cost services for the poor and reducing its deficits. Many of its board members are political appointees but accountability is low. Previous efforts to reform BMTA and increase its efficiency have met institutional and political resistance.

A recent analysis of BMTA's costs³⁸ compared with international benchmarks and with the performance of the sub-contracted private sector in Bangkok showed that wage rates and manning levels (mainly management and supervision staff) were significantly higher than the private sector. Bus maintenance costs were 30-60% higher than international norms, while fuel costs could be reduced by 5% by improved purchasing arrangements.

Case Study 1.4 – London Buses: Transition from Monopoly to Controlled Competition³⁹

The staged transition of London Buses from a public monopoly to 'controlled competition' a 'before and after' comparison of the effects on monopoly.

Elements of the Reforms

London buses became a monopoly in 1933 when the London Passenger Transport Board, a public authority, acquired control of 11 municipal undertakings. The transition of London buses to a regime of controlled competition in 1985-1990 demonstrated that monopoly costs were substantially higher.

³⁷ The material in this section is drawn from The Bangkok Urban Transport Sector Review. The World Bank 1999.

³⁸ Potential for Cost Reductions at BMTA. GTZ Bus Sector Reform Study. April 2003

³⁹ Much of the material for this section was drawn from:

The London Bus Tendering Regime – Principles and Practice. Toner, JP. Thredbo 7

Competitive Tendering and Deregulation in the British Bus Market – a Comparison of Impacts on Costs and Demand in London and the British Metropolitan Areas. Bryan Matthews, Abigail Bristow and Chris Nash.

Thredbo 7.

Four key reforms were introduced by the London Regional Transport Act (1984):

1. controlled competition for the supply of bus services;
2. progressive introduction of competitive tendering;
3. privatisation of London Buses Ltd; and
4. the preservation and development of integrated fares, ticketing and service planning

Operating Cost Reductions

The substantial reduction in bus operating costs produced by these reforms has been well documented.

Cost reductions per vehicle km of about 20% were estimated to have been achieved by the early 1990s, while more recent data indicates cost reductions of 47% per bus km between 1985/6 and 1998/9.

It was apparent that much of the cost reduction was attributable to a fall in real wages in the bus industry, as well as a fall in numbers employed. For example, the number of maintenance and administrative staff fell by about 15% between 1985 and 1991. Since service levels increased over the period, this indicated large productivity gains.

However, it has been suggested that the downward pressures on staff costs has contributed to increased staff turnover, difficulties in recruiting bus drivers and lower driving standards.

Increased Demand for Bus Services

Demand for bus travel in London was falling prior to the regulatory reforms; from 1970 until the early 1980s demand fell by almost a third, though there was a small increase immediately prior to the reforms.

During the first 12 years of the reforms between 1985 and 1997/98, bus passenger journeys in London grew by 24%. In contrast, in the six other large English cities bus passenger journeys decreased by 38%.

In 2002/03 demand for buses increased by about 10% after the introduction of congestion charges for private vehicles in central London and changes to the fare system.

Service Quality

London Transport Buses (1999) claims “a dramatic improvement” in the quality of bus services provided as well as the value for money achieved.

Reliability is a basic measure of service quality, and the proportion of timetabled services actually operated increased after tendering and privatisation were introduced⁴⁰.

Meanwhile, a reduction in the number of bids per contract was observed, from 7 in early 1995 to 3 in late 1996; the lower intensity of competition reduced downward pressure on contract prices.

The London tender system offers routes in tranches of two to ten routes, with each route requiring between two and fifty buses.

6.2 Case Studies of Few Large Operators

Case Study 2.1 – Evolution of Competition in the Hong Kong Bus Industry

In the case of Hong Kong, from 1933 to 1975 the legislation was framed to avoid competition both for the market and in the market. The two bus operators (CMB and KMB) were granted

⁴⁰ Department for the Environment, Transport and the Regions, 1998.

monopoly rights in their respective operating areas which were separated by Victoria Harbour. A third operator was confined to an outlying island.

In 1974 the first cross-harbour tunnel allowed buses to cross the harbour for the first time, but government negotiated an agreement with the two bus operators that they would each contribute a number of buses to the cross-harbour routes in proportion to the length of the routes on their side of the harbour. Both operators would charge the same fares.

In 1975 new bus licensing legislation was enacted, (the 1975 Public Bus Services Ordinance) which replaced the area monopolies with ten-year route franchises. This provided scope for competition for the market, and competition in the market. However, the territorial monopoly concept was so entrenched that it was not until 1992 that there was more active competition among franchised bus operators.



Figure II-4: Hong Kong's five franchised bus companies carry more than half of daily passenger trips in Hong Kong. Here buses of KMB and Citybus are seen operating alongside the 100-year old tram system in Central District Hong Kong Island.

Karl Fjellstrom, 2001

The 1975 Public Omnibus Service Ordinance also introduced a 'profit control scheme' whereby a franchised bus company was permitted to earn a maximum percentage return based on its average net fixed assets. Any profits in excess of the permitted return were deposited in a 'development fund' to be invested in assets. The development fund provided a means of evening out profits from high-revenue years (for instance the year following a fare increase) and low-revenue years. The main purpose of the profit control scheme was to provide an incentive for the operators to invest in buses and infrastructure to meet the rapidly growing demand for buses driven by high economic growth and the distribution of the population to new towns. The rate of return was set at 15 % and 16 % for the two franchised bus companies. The companies came to regard the maximum return as an assured level of return.

While one of the operators (KMB) responded to the scheme (and sustained government pressure) to expand its fleet in belated response to demand, the other operator (CMB) failed to do so, buying the minimum numbers of buses, many of them second-hand.

The profit control scheme came under increasing criticism because it assured the companies a guaranteed return without regard to service quality and efficiency – both of which were the

subject of public dissatisfaction. The scheme also had the effect of triggering fare increases which themselves were very controversial.

In 1992, the government considered that the franchising arrangement would need to be changed by:

- abolishing the profit control scheme;
- withdrawing the franchise for a proportion of routes belonging to one under-performing company ; and
- encouraging competition by inviting a tender for a fourth franchised bus operator to provide bus services

Between 1992 and 1996, the government launched two tender exercises inviting bids for packages of routes to serve new development areas resulting in two new franchised bus companies, (Citybus and Long Win) bringing the total to five.

In 1998 the franchise of the under-performing bus company CMB was not renewed, and bids were invited for a new operator to take over its routes. The introduction of two new bus operators and the replacement of CMB by an aggressive new operator effectively introduced competition in the market. Some 400 old buses were replaced by new air-conditioned Euro 2 buses within two years and the number of complaints on inadequate bus services dropped drastically. Indeed, by 2003, five years after the major revamp of the franchised bus industry, there are indications that there are too many buses along the busy urban corridors and for the first time there is adequate capacity in the peak hours.

6.3 Case Studies of Mixed Public & Private Sector

Case Study 3.1 – State-Owned Bus Corporations in Four Asian Countries

In 2002 the state-owned Bangladesh Road Transport Corporation (BRTC) operated 348 buses in Dhaka, and carried about 10% of urban bus passengers, while the private sector operated about 1,250 buses, many of them owned individually or in small fleets. BRTC was exempt from regulation under the Motor Vehicles Ordinance while the private sector required route permits.

Unlike the private operators, BRTC did not pay import taxes on its buses, and was not bound by commercial constraints. The cost of many of its buses was offset by grants and low-cost credit⁴¹.

Government's policy was that 'BRTC will not compete with the private sector, but will set standards in vehicle operating practices'. Government proposed 'greater private sector participation in the operation of BRTC buses' and 'commercial uses of BRTC property may be encouraged.' In practice, BRTC transformed into a bus leasing enterprise. Buses (except 50 new Volvo double-deckers) were rented to private individuals who operated them on BRTC's routes and retained the revenue. BRTC thus employed very few drivers or conductors. BRTC undertook mechanical maintenance on short leases and the hirer undertook maintenance of buses on long leases. Although BRTC buses operated on many of the most profitable urban corridors there was keen competition from the private sector. BRTC covered only 71% of its costs from revenue.

⁴¹ It is reported that the cost of 50 Volvo double-deckers was discounted by 42.5% through a grant from the Government of Sweden. By contrast, private operators stated that they were charged taxes amounting to about 37% on imported buses.

DAMRI in Indonesia

DAMRI is a wholly state-owned company directly supervised by the Ministry of Communications. DAMRI operates urban bus services through subsidiaries in about 15 of the largest cities in Indonesia.

DAMRI's main obligation, according to its statute, is to provide transport services for people and goods, but the company is also expected to act as a 'stabilizer, and 'dynamizer' in the bus sector.

However, DAMRI has had an exclusive right to the busiest and most profitable routes in the cities where it operates. A 1987 decree of the Minister of Communications gave DAMRI exclusive rights to operate urban trunk routes, while private buses and angkots were to operate on feeder and sub-feeder routes. This decree gave DAMRI buses an effective monopoly in the most densely trafficked corridors of many cities. It is believed that this decree was implicitly overruled by new licensing legislation in 1993, but in some cities the exclusive right remains in effect, and no routes have been introduced in contravention of it.



Figure II-5: Bandung, Indonesia. The state-owned bus operator DAMRI enjoys a monopoly of passengers in the central areas of Bandung, Indonesia (above) but fails to provide enough capacity to meet demand. This has led to the growth of unlicensed minibus services (below).

Richard Meakin



Local DAMRI subsidiaries are required to make an operating surplus and no direct subsidy is paid. However, subsidiaries do not operate on a fully cost-recovering commercial basis because: the operating cost of certain routes in developing areas, categorized as 'pioneer routes', is paid to subsidiaries by central government through DAMRI's head office in Jakarta, there is cross-subsidy between subsidiaries in different cities, DAMRI has access to loans on favourable terms.

Capital investment for all the subsidiaries is provided to DAMRI head office through an annual budget approved by the Ministry of Finance. Buses are supplied to the subsidiaries by the head office. The local DAMRI subsidiaries are expected to repay the capital investment by remittances from revenue. The capital cost and interest charges for new buses are repaid over 5 years. The DAMRI subsidiaries pay for spares, fuel, wages and some spare parts from their own resources.

Management and budgeting is carried out in DAMRI head office in Jakarta and they are not accountable to local regulators in the cities.

SLCTB in Sri Lanka

As the Sri Lanka case study shows, during the periods when private buses and state-owned bus undertakings operated together (1979-1991 and 1996 until the present) the state-owned companies have had to bear most of the obligation to operate unremunerative trips (loss-making rural routes, school and student fare concessions). It was government's stated policy to reimburse the companies for the deficits incurred by these operations, but only partial payments, or no payment were received.

The private sector operated the profitable routes and times. Opportunities for revenue earning were equalised between all the operators assigned to a route by means of a rota. Buses rotated around the timetable, and (because there were more buses allocated to the routes than necessary to operate the schedule) also to stand-by and rest-day slots.



Figure II-6: Kandy, Sri Lanka. Private sector buses (top photo, right side) and subsidised state-owned buses (top photo yellow buses on left side of photo) operate jointly on many routes in Sri Lanka. An excessive number of route permits has been issued to private buses and they must queue many hours between trips (photo next page).

Richard Meakin



KTC in Karachi, Pakistan⁴²

In 1992 public transport services in Karachi were provided by some 450 large public sector buses operated by Karachi Transport Corporation and a very large number of private sector vehicles including 1,000 medium buses, 2,000 large minibuses, 1,000 small minibuses, 6,000 taxis and 10,000 auto-rickshaws. Private sector buses and minibuses carried more than 95% of all public transport trips in Karachi. Bus fares were set by the provincial government. While increases were made periodically, they were not sufficient to encourage badly-needed investment; fares were then less than half those in most other large third world cities.

Due to an excessively large workforce of about 4,000, and substantial revenue leakage and management problems, KTC operated at very substantial losses estimated at USD 6 million per year. Also, with very low productivity KTC had very little impact in meeting the needs of the city.⁴³

PRTC in Punjab, Pakistan

The state-owned Punjab Road Transport Corporation in Pakistan reached a point in early 1997 where only 27 buses of its fleet of 845 buses was fit to operate, but it had more than 10,000 staff on its payroll. The staff were retrenched with World Bank assistance at a cost of PKR 2 billion.

6.4 Case Studies of Problems of Regulating the Paratransit Industry

Case Study 4.1 – The Origins and Organisation of Jeepneys in Manila, Philippines⁴⁴

Manila's Public Transport System

The Philippines has a population of 70m. Metro Manila, the National Capital Region, is one of 15 administrative regions in the Philippines. It is composed of 8 cities and 9 municipalities with a land area of 636.0 km² and a total population of 9.2 m in 1995. The population of the metropolis grew rapidly, by 33.8% between 1980 and 1990, outstripping housing capacity. It was estimated that 36% of Metro Manila's population are squatters.

⁴² Extract from 'Public Transport in Third World Cities' by Alan Armstrong-Wright. Transport Research Laboratory UK. 1993.

⁴³ Note: KTC was wound up in 1997, with substantial redundancy payments to staff.

⁴⁴ Source: 'Public Transport in Metro Manila'. A Briefing Paper on Metro Manila and its Urban Transport System by RS Santiago. June 1996.

Metro Manila has an extensive public transport system, largely provided by the private sector. About 70% of total daily trips are carried on various public transport modes, consisting of light rail, buses (air-conditioned and regular) and jeepneys. Tricycles and pedicabs operate mainly as taxis within neighbourhoods.

A regular bus averages 60 passengers but usually carries 80-100 in rush hours. In 1995, 7,824 buses were registered to operate in metro Manila, belonging to more than 100 bus operators, most of whom were members of the Integrated Metro Bus Operators Association. Officially a minimum of 10 buses was required for a bus operator to get licensed. In practice many operators ran less than ten. A handful of operators had fleets of 50 to 100 buses. From 1975 to 1994 a government-owned bus company operated with the largest fleet of more than 500 buses. It was eventually closed and its much-reduced fleet sold to a government-sponsored cooperative. Before its closure however, the Metro Manila Transit Corporation served as a conduit to help private bus operators acquire vehicles during three crisis occasions when the fleet dwindled because of low fares. It also pioneered the Love Bus air-conditioned bus service. Buses operated on about 350 km of the major corridors, typically passing through circumferential roads such as EDSA.

The Role of Jeepneys

The jeepneys are unique to Metro Manila. With a capacity of 15 passengers, they numbered 53,362 in 1995. More than 90% could be counted under an umbrella group called FEJODAP. The government has promoted jeepney cooperatives, where drivers got to own the units they drove, but their number was less than 15% of the jeepney population. On a given day the number of jeepneys probably exceeded 60,000 since many were registered in nearby provinces and carried commuters in and out of the metropolis. Jeepneys covered more than 610 km of roads in Metro Manila. Their routes were generally shorter than buses and passed through radial roads. They were prohibited along EDSA, Roxas Boulevard and South Superhighway.



Figure II-7: About 50,000 Jeepneys continue to compete effectively against big buses in Manila.

Gerhard Metschies, 1986

Jeepneys and buses tended to complement each other. However, on about 300 km of roads they ran in parallel and in competition. Where there was direct competition, the jeepneys often prevailed. A jeepney charged PHP 1.50 for the first 4 km and PHP 0.43/km thereafter. Regular bus fares were about the same. However, effectively jeepneys earned more per kilometre because of their shorter trip lengths (3.8 km vs 7.8 km for bus). Rates for air-conditioned buses were deregulated but converged at PHP 1.00 per km.

Government, through a quasi-judicial agency, the Land Transport Franchising and Regulatory Board (LTFRB) controlled the number of bus operators, fleet size and the

transport fares. Occasionally, applications were frozen on the pretext that approvals would only serve to add to traffic congestion. Jeepneys were licensed to operate on a single, fixed route which was painted on the vehicle.

The perennial calls for phasing out jeepneys stemmed from policy ambiguities on the roles of buses, jeepneys and other low-capacity modes such as taxis and tricycles. Buses and jeepneys tended to compete on the feeder routes, except for some main corridors where buses dominated as the line-haul mode.

The roles of the different public transport modes arose out of the historical development of the urban transport market. Because of their agility and small capacity, jeepneys were the ideal mode during the early phases of urban development when demand in a particular corridor was small and trips were short. But as the city spread out and urban development intensified, the roads became inadequate. Expansion of the roads and enlargement of trip demand only generated more low occupancy vehicles rather than more high occupancy vehicles. Historical inertia, as well as prior-operator claims precluded a smooth shift in route assignments. In traditional bus-only routes the entry of jeepneys inevitably displaced the former, but the reverse phenomenon was rarely observed. When light rail transit started operating in 1984, the jeepneys were the most worried. The actual result was different from earlier prognosis – the buses lost market share along the LRT alignment.

Problems caused by Jeepneys

While the jeepney was so heavily patronised and largely unsubsidised (except for the non-payment of the 3% common carriers tax) it was considered by many as an anachronism. For one, its design remained unchanged for the last 50 years, and its rear open access was deemed unsafe. It also contributed most among all the modes to the air pollution problem in Metro Manila arising from particulate emissions from used diesel engines. The most-criticised feature of the jeepney was its traffic behaviour: stop and load anywhere, lane weaving, pre-emption of busy streets as its terminals. The jeepney driver was not an employee, but a lessor of the vehicle from the owner at an agreed rate per day, called 'boundary fee'; whatever amount was left after paying for fuel is his income. Operating risk therefore lay with the driver, rather than the owner who was licensed by government.

Case Study 4.2 – Competition Between Buses and Vans in Rio de Janeiro⁴⁵

Introduction

Paratransit services operate in many cities of developed and developing countries. Although some legal services exist, most of them operate illegally. These illegal services develop on heavy urban routes where kerbside conflicts may occur. Bus systems are generally the main target of paratransit operations. As passengers congregate at the curb, waiting for a bus, paratransit operators interlope on the scheduled service and passengers will probably board the vehicle that comes first.

Paratransit services are in most cases loosely regulated and run by owner-operated vehicles. The services run on semi-fixed routes with some deviations to respond to the user needs. When paratransit services are operated by small vehicles they provide clear advantages over bigger buses: less time to board and alight passengers; higher frequency; and fewer stops along the route.

In Brazilian cities, until recently, old buses were the most common types of paratransit competing with scheduled bus services along busy routes. Since the mid 90's van services have become very popular in most cities, especially on longer distance routes where an available seat during the whole trip is an attractive feature.

⁴⁵ Source: *Buses & Vans – Assessing Public Transport Competition in Rio de Janeiro – Brazil*. Ronaldo Balassiano; Marilita G.C. Braga. Thredbo 1999.

Public transport operation in Rio

Rio de Janeiro is one of Brazil's biggest cities. It has an area of 1,171 km² and the Metropolitan Region comprises 5,610 km². It is located in the most prosperous region of the country – the Southeast. The population in the Metropolitan Region is currently (in 1999) around 10.4 million inhabitants. Approximately 5.7 million live in the city of Rio. The city's regulated transport system is very complex including buses, the underground system, the suburban train, the ferry boat and one remaining tram route. The railway network in the Metropolitan Region is 740 km long, from which only 143 km are operated within the municipality of Rio de Janeiro. Of the total length, 400 km are electrified. Paratransit vans are also operating on the busy corridors of the metropolitan area.

During the 90's, rail services (the underground, and the suburban train) deteriorated, with a decline in passengers which accelerated in the mid-1990s. Between 1995 and 1998 rail passengers fell by more than 60%, mainly due to lack of investment which caused unreliability. The suburban rail and underground operations have since been privatised, new investment has been made and passenger usage is recovering.

The bus network is currently the main means of motorised public transport carrying more than 90% of daily passenger trips. Buses operating within the city of Rio are regulated by the municipality transport authority while those bus routes linking the city of Rio de Janeiro to other municipalities in the Metropolitan Region are under the state transport authority regulation.

Total daily PT trips fell steadily during the 1990s. Although buses carried less passengers, their share in the public transport market (regulated) increased in that period from 88.2% to 92.2%.

Bus operators claim that paratransit operation is the main reason for the decline in passengers, but the growth of private vehicles at a rate of 9% per year was also a factor. Vehicle ownership per head is almost 30% higher in 1998 compared to 1995. Car ownership was around 28 cars/100 pop. in 1998. In high income districts the level of car ownership has reached 80 cars/100 pop.

Thus, there are several reasons for the expansion of paratransit services:

- The low level of bus services especially in long distance routes linking the city centre to far districts and other municipalities (low frequencies during inter peak periods and inadequate capacity and overloading during the peak period);
- tax import reductions in the country allowing imported vehicles to be priced similar to national ones (most vans are assembled in Asia);
- the voluntary redundancy programmes co-ordinated by the federal and the state government (many civil servants have been motivated to leave their jobs and run their own private business in the last 5 years);
- users' need for a more diversified road transport (until 1995 the only differentiated road services available were a few buses with air-conditioning and some minibus services).

These conditions were very favourable to an increase in van operation along bus corridors especially during peak periods.

The Development of Paratransit in Rio

Paratransit has been operating in Rio for many decades, but until the 90's operation was stable. Paratransit only operated on specific, longer, bus routes, generally those run by poorly managed independent operators with badly maintained buses more than 10 years old.

It was estimated that about 600 paratransit vehicles operated in the early 1990s, equivalent to about 10% of the conventional bus fleet in the municipality. They usually operated only one or two trips per day in the peak periods in the peak direction.

There were also some Volkswagen microbus (“kombi”) services operating short distance routes on narrow or steep roads where buses could not run. Some of these services are currently regulated by the transport authority as ‘complementary services’ to serve low-income communities.

Since the 90’s, this scenario has changed with the great expansion of van services.

Van services

Van services initially operated in the mid 90’s under contracts for companies, schools, tourist agencies etc. Van operators then identified a market niche on long commuter routes during peak periods. Passengers were willing to pay a premium fare for a seat in a comfortable vehicle.

Some municipalities have regulated van operations but not in Rio where vans are allowed to operate only on contract. It is illegal for them to pick up passengers along bus routes. The competition with buses along most routes is considered illegal by transport authorities. It must be stressed that in the municipality core where van services have to compete with high frequency and quality bus services the expansion of vans was very limited.

Van services in the Metropolitan Region can be divided into 4 categories:

- operation within the municipality, where bus service is good in almost all districts;
- routes between the city centre and the “West Zone”, “Niteroi-São Gonçalo” and “Baixada Fluminense” regions – three groups of suburban districts within the municipality of Rio about 40-80 kms from the city centre.

Service characteristics

Vans services are provided by independent operators. Most of them belong to route associations as this is a requirement of the municipality to those willing to operate contract or special services. Some operators own more than one vehicle and rent them to other drivers on a daily rent. Most vehicles are owner-operated.

The average age of the fleet is about 3 years, very similar to that of conventional buses. Most of the vehicles are imported from Asia supported by a network of dealers offering commercial and servicing support. The vehicle acquisition is generally supported by commercial bank loans on a 4-year period basis.

Vans fares are higher than bus fares. The flat bus fare within the municipality is around USD 0.40; vans charge between 2 and 3 times this fare according to the distance travelled. In the Metropolitan Region where bus fares are not flat and are higher than those within the municipality, van services charge almost the same fares. Vans are not allowed to operate along conventional bus corridors. Both the municipality and the state transport authorities have a special regulation for vans when operating contracted out services.

A survey of van operators was carried out in the “Baixada Fluminense” corridor at the of 1998. The “Baixada Fluminense” comprises 9 municipalities and a total estimated population of 2.7 million inhabitants. The distance travelled between these municipalities and the city centre is on average around 40-80 km. Total travel time varies according to the period of the day but is never less than 50-60 minutes.

The survey showed that there were 950 operators, operating 32 different routes, and affiliated to a total of 19 route associations. Most of these route associations own or rent space in the city centre for terminals. Every day, of the total of 950 operators, almost 780 are operating their vehicles.

There are also about 10% additional operators on this corridor that do not belong to any route association. They operate only during peak periods of the day diverting to other services during inter-peak periods. Most vehicles in the route associations are owner-operated (67.5%); some are rented vehicles (24.5%) where operators pay a daily rent to the owner of the vehicle. Finally 8.5% of these vehicles are operated on behalf of the owner and

the operator gets a daily or monthly salary. Most vehicles (87.1%) were financed with bank loans.

Route associations have established general rules that must be followed for all affiliates. These rules establish vehicle maintenance standards, departure times from van terminals in the city centre and other general aspects related to the quality of services. During peak periods the service headway is never higher than 10-15 minutes. During inter-peak periods of the day, operators generally wait until 8 passengers have gathered to depart from terminals. In general services operated are semi-express with few or no stops between origin and destination. Some route associations employ controllers responsible for general information such as roads where traffic congestion is severe or areas where police enforcement is taking place (allowing them to deviate in both cases). Drivers are generally equipped with mobile phones or pagers.

The assessment of van services

A field survey of 253 users was carried out in the city in 1997 to characterise the van user and his assessment of the service provided.

Most users (71%) were working in commerce or service industries as was expected as most services activities are concentrated in the city centre. Almost all respondents (94.6%) were travelling on work trips. Most users (64%) travelled previously by bus. Only 6.7% stated travelling previously by car. Those travelling on non-regular or special buses were 16.4%. Most users travel by van on all working days (74.7%). This can be an indication that those travelling by van are frequent users of the service and possibly captive ones.

The main reasons to travel by van were: the speed of the service (24.0%), the comfort provided (14.2%) and the poor level of services found in other means of public transport systems. There were some negative perceptions of safety.

Buses & vans competition

Van services are currently paralleling bus routes in the municipality and also links between outer municipalities and the city centre. There is competition on the road, vans pick up passengers at bus stops.

Bus operators are trying to ban van services operation in Rio arguing that these services are not only illegal but also that this type of vehicle is not safe. Although official enforcement exists, it is not enough to deter vans operating on busy corridors.

The operators of the formal bus system are reacting to van competition by diversifying their services. In the early 90's only standard buses were operating on the main links between the city centre and suburban municipalities. Within the city of Rio only a few premium buses were available (inter-city type buses with air-conditioning) and also a reduced minibuses fleet was operating on some routes. Table II-4 shows the evolution of the fleet composition operating in the city of Rio for selected years. Figures presented are for 1993 before van services started operating and for 1997 and 1998 after van services expansion.

Fares on the premium services are double regular bus fares in the case of conventional buses with air-conditioning and three times in the case of minibuses. In the case of bus routes operating on the link between other municipalities and the city centre, premium services were also introduced.

Although bus operators claim that van services have abstracted more than 15% of their previous ridership, a realistic estimate based on surveys is 5% to 7%. Over the whole Metropolitan Region an estimated average of 6,200 vans carried 310,000 daily passengers.

| | 1993 | 1997 | 1998 |
|--|--------------|--------------|--------------|
| Conventional bus | 5,802 | 6,404 | 6,602 |
| Conventional bus with air-conditioning | --- | --- | 16 |
| Premium bus | 204 | 196 | 177 |
| Premium bus with air-conditioning | 81 | 168 | 169 |
| Minibus | 48 | 139 | 239 |
| Minibus with air-conditioning | --- | --- | 135 |
| Total | 6,135 | 6,907 | 7,338 |

Table II-4: Composition of the Bus Fleet 'Before and After' Vans, in Rio de Janeiro Municipality (selected years)

Source: Private Bus Operators Association.

Case Study 4.3 – The Organisation of the Angkot Trade in Bandung, Indonesia

Introduction

Bandung is the capital of West Java Province and Indonesia's third largest city.

The population of Bandung city is about 2.6 million, while the total population of the conurbation (comprising the city and its neighbouring communities) exceeds four million.

Bandung is a low-rise city, contained by hills. The metropolitan area covers 3,208 km².

DAMRI, the state-owned bus corporation (which operates services in the 14 largest cities of Indonesia) operates about 150 big buses in the Bandung metropolitan area.

However, the public transport system in Bandung and the surrounding area is dominated by *angkot*, 10-seat vans owned by individuals and rented to drivers on a daily basis. These are licensed in three classes depending on the district served.

A limit of 5,436 *angkot* licenses in the city is set by mayoral decree, but about 4,695 *angkots* actually operate. The *angkot* network comprises only 38 routes. The largest route has 427 *angkots* permitted, of which 325 are in operation. Fifty-three AKDP routes, deploying 6,175 vehicles, mostly 12-seaters, but some 16-18 seaters, operate between Bandung city and the surrounding towns. Two of these routes have over 1,000 licensed *angkots*⁴⁶.

| Mode | Within the City | | Suburban | | Inter-town | |
|----------------------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
| | No. of vehicles | No. of routes | No. of vehicles | No. of routes | No. of vehicles | No. of routes |
| Angkot Minibus 12-16 seats | 5,436 | 38 | 9,250 | 46 | 6,175 | 53 |
| Midibus 26 seats | 12 | 1 | * | * | * | * |
| Big Bus DAMRI | 97 | 7 | 0 | 0 | 56 | 4 |
| Total | | 47 | | 46 | | 58 |

Table II-5a: The Inventory of Public Transport Modes in Bandung Metro Area – Fixed Route Road Modes (* Data not available)

⁴⁶ These vehicles are generally referred to as '*angkot*' although they are licensed as AKDP, see also footnote 39.

| Mode | Within the City | Suburbs |
|-----------------|---------------------------|--------------------|
| Taxi | 914 | 283 |
| Pedal Rickshaws | 7,800 | 5,716 |
| Horse Buggy | 50 [#] | 5,747 |
| Motorcycle taxi | 5,000-10,000 [#] | 5,000 [#] |

Table II-5b: The Inventory of Public Transport Modes in Bandung Metro Area – Non-fixed Route Road Modes

[#] Estimated as no official records

The Angkot Cooperatives

Every owner of an *angkot* vehicle operating in kota Bandung must be a member of one of the three cooperatives, and each co-operative maintains an effective monopoly on access to the routes it controls. No vehicle may operate on route unless the vehicle owner or driver is a member and has paid membership fees. As Table II-6 shows, Kobanter dominates the city with 4,656 vehicles, 86% of fleet.

| Cooperative | No of Routes | No of Vehicles ⁺ | % Vehicles |
|-------------|--------------|-----------------------------|------------|
| Kobanter | 27 | 4,656 | 86 |
| Kobutri | 7 | 610 | 11 |
| Kopamas | 4 | 170 | 3 |
| Total | 38 | 5,436 | 100 |

Table II-6: The Distribution of Angkot Routes Between Cooperatives

⁺ Base on mayor decree

Kobanter⁴⁷ has 9,870 members, of whom 4,673 are owners. The remainder are among the 7,000 drivers. Drivers are grouped into route-units: 27 *angkot* units with 4,656 vehicles and 2 AKDP units with 24 vehicles. The number of *angkots* per route varies from 24 to 427.

Each route-unit is supervised by a KPU (*Koordinator Pengawas Unit*). The KPU's functions include monitoring and controlling the departure sequence, protecting the interests of the operators and collecting fees and charges. The KPUs maintain relationships with the regulatory authorities (DISHUB, Police) and act as intermediaries in case of traffic offences and accidents. It is reported that traffic penalties are often settled by KK by illicit payments to police and DISHUB. The KPUs are not a force for service improvement because their primary concerns are to collect fees exclude outsiders and to ensure that the incomes of the drivers on the route are maintained.

There is evidence of external interests being involved in Kobanter, including connections to the security forces and probably wider. The chairman of Kobanter is a businessman, with interests in *angkots*, but the vice-chairman is a senior army officer. At least ten KPUs are officers of HANSIP (the civil security force).

Each year an annual members meeting is held but only one representative for every 20 *angkots* is invited to attend. According to members interviewed, there has never been any distribution of profit to members. Income and expenditure is always shown to balance.

Kobanter derives a substantial income from the charges it levies on its members. Daily and monthly charges are levied, as well as 'compulsory savings' (*simpanan wajib*) and 'optional savings' (*simpanan sukarela*), which remain available to the member. Kobanter state that

⁴⁷ *Koperasi Bandung Tertib*

their daily charge is IDR 500. However, in interview surveys carried, drivers reported the amount of daily charges levied by Kobanter on all their 27 routes averaged about IDR 1,200 per day. This would produce annual revenue of about:

IDR (4,680 x 1,200 x 365) = IDR 2.05 billion. or USD 203,000.

There is also revenue from membership fees from the 9,870 members.

The second biggest city cooperative is Kobutri⁴⁸, which has 1,515 members and represents 928 vehicles. Kobutri has a similar organisational structure.

Kopamas⁴⁹ is the smallest of the three city cooperatives, controlling only 4 routes deploying 170 *angkots*. Kopamas has about 316 members, of which 150 are owners and the remainder drivers.

Cooperatives are less organised among suburban operators. The four main cooperatives control less than 30% of the *angkot* and AKDP routes, and the largest controls only 750 vehicles.

The Role of the Cooperative

The bigger cooperatives are essentially external bodies controlling the *angkot* industry. The biggest cooperatives are not democratic and there appears dissatisfaction among their members about their accountability, especially for the substantial funds collected. The Law on Cooperatives⁵⁰ specifies detailed provisions for the democratic management and accountability of cooperatives, but these procedures do not appear to be fully observed.

There is no legal basis for the cooperatives' control of routes since route licenses are awarded to the vehicle owners. They have been able to dominate the industry because government finds it necessary to use the cooperatives as intermediaries between the regulatory agencies and the route license-holders who number more than 5,000 in the city and more than 20,000 throughout the metropolitan area. It is clearly impossible for a government agency to control the activities of such huge numbers of license holders or coordinate them into a route structure and impose service obligations. By using the cooperatives as intermediaries, government has recognized and consolidated their proprietary rights over the routes and enhanced their power and influence. Operational control of the routes has thus effectively passed to the cooperatives.

The cooperatives themselves have become controlled by external groups such as the military, and they may also serve to formalise restrictive regulatory practices and to channel illicit payments.

Because of their route monopolies, cohesive organization and management structure, links to the military and political institutions and the large numbers of people they represent, the cooperatives have considerable power relative to the regulatory agencies. They are able to mobilize large groups to resist any development in urban transport that they perceive to be against their interests, such as the use of larger buses.

This unfavourable 'balance of power' between the regulatory agencies and the cooperatives means that government cannot impose changes or innovations, even where these are clearly in the interests of the travelling public and, in the longer term, of the operators themselves. Government must negotiate any change with the cooperatives.

The large cooperatives are a force for maintaining the status quo in the industry, not for service improvement. They stifle competition by restricting access to the routes they control. They impose joining fees, monthly and daily fees, adding to operating costs. Their interests lie in perpetuating their monopoly control and the income from their routes.

⁴⁸ *Koperasi Bina Usaha Transportasi Republik Indonesia*

⁴⁹ *Koperasi Angkutan Masyarakat*

⁵⁰ Law No. 25 of 1992 on Cooperatives

The protective stance of the industry is a major reason why public transport in Bandung remains in a low-cost low-quality equilibrium. It represents the biggest constraint on change and development. Government has allowed to cooperatives to dominate the industry and may also have an interest in preserving the status quo.

An important element of a reform strategy should be that the operators on each route should have responsibility for the development of that route within a framework of government regulation. This implies that services should no longer be controlled by the big cooperatives who may resist the loss control and revenue.

Case Study 4.4 – ‘Regulatory Overload’ – Bandung, Indonesia

As noted in the case study in Bandung, the number of minibuses operating within the metropolitan area was almost 21,000, comprising:

- 5,450 minibuses licensed to operate on 38 routes in the city;
- 9,250 similar vehicles licensed to operate on 46 suburban routes; and
- 6,175 licensed to operate 53 inter-town routes.

In addition, 13,500 *becak* (pedal rickshaws), more than 5,000 *delman* (horse-drawn buggies) were also licensed annually. *Ojeg* (motor-cycle taxis), estimated to total 100,000 vehicles, were unlicensed.

In view of its huge case-load, the regulatory authority intervenes minimally in operation. Regulation is limited to issuing and renewing annual route permits, collecting terminal fees along the routes and periodically adjusting fares. Fare increases are granted when pressures build up from the operators. Affordability due to low incomes in Bandung is a constraint on fares, and many *angkot* operators charge less than the authorised fare, others charge more. Provided the public does not complain too loudly, the regulator (DISHUB) does not take enforcement action.

DISHUB does not undertake network planning or monitoring supply against demand. The network is largely fixed and growth is an incremental process. When public pressure in a particular locality builds up for more capacity, DISHUB will normally issue more route permits for additional vehicles to operate the route. There are many constraints on creating new routes and this is seldom done; incumbent operators sharing common sections of the new route will protest the loss of traffic. Thus where a new area needs service, an existing route will be extended, rather than a new one created. This process has produced a network that comprises relatively few, but very long, routes which are highly entrenched. Because there are few routes, a high proportion of passengers must interchange to complete their journey, and pay two fares.

The extent of the rigidity of the network was confirmed by the fact that in the four years 1997-2001 no new *angkot* route was introduced in Bandung, and only one new suburban route.

However, some route development occurs by informal means. Most *angkot* and DAMRI routes do not consistently follow their official routes. Variations include:

- Diversions where all, or some of the vehicles divert from the approved route, or turn around ‘short’ before the official terminus;
- Splitting a route by inserting a mid-route interchange point, thus requiring passengers to change vehicles and pay a second fare.

DISHUB’s limited capability to regulate the many thousands of separately licensed vehicles means that they must rely on organisations of operators (usually constituted as cooperatives) as intermediaries in their dealings with the owners and drivers.

Case Study 4.5 – Origins and Management of Minibus Services in Hong Kong⁵¹

Origins of Public Light Buses

Hong Kong's public light buses had their origins in several types of informal paratransit services that developed during the 1960's against a background of a sparse and inadequate bus network, especially in the rural New Territories. 'NT Taxis' were 9-passenger vans introduced in 1960 to carry passengers between the rural areas and designated stands in urban Kowloon. 'Dual-purpose vans' were first licensed in 1961 and were permitted to charge for the carriage of goods, but not for accompanying passengers. The restrictions were not enforced and these vehicles soon established a network of passenger minibus services. Through the 1960's the gap between demand and the capacity of formal bus services widened and vans registered as private cars were added to the growing fleet of illegal minibuses.

In 1966-67 Hong Kong was subject to widespread politically-inspired civil disturbances, and prolonged strikes by bus workers. During the strikes legal restrictions on the use of vans and minibuses became unenforceable and the network of fixed-route minibus services became well established throughout the territory.

By 1968, over 4,000 minibuses, including NT Taxis and Dual-Purpose Vans and private vans were estimated to be carrying over half a million passengers a day, about one-quarter of the number carried by buses. They were by then an essential element of the transport system. In 1969 legislation was passed to legalise them in a new category of 'public light bus' (PLB) with a maximum of 14 seats. Initially 3,458 were licensed, and their numbers continued to grow until a legal limit of 4,350 was imposed in 1976. The limit has remained. The PLB route network followed the previously established network of illegal routes and soon became consolidated with central termini and stopping places.



Figure II-8: 16-seat Public Light Buses are Hong Kong's form of paratransit. They are not subject to regulation of routes or fares. PLBS developed spontaneously in the 1960's to fill a gap caused by a shortage of buses.

Karl Fjellstrom, 2001

⁵¹ Source: 'Keeping A City Moving: Urban Transport Management in Hong Kong. Ch 12, The Management of Taxi and Minibus Services' by Richard Meakin. Edited by Wang Liang Hiew and Anthony Yeh Gar On. Asian Productivity Organisation. 1993.

Characteristics of the PLB Trade

PLBs are subject to regulations covering roadworthiness and certain operating practices, but are free to set fares according to market conditions, to ply any route, and to stop on demand, except in areas restricted. The PLB trade is highly sensitive to changes in the public transport market and the route network has evolved progressively, despite the constraints imposed by a government policy of containment, under which PLBs are confined to the older areas by imposing bans on entry to new estates, new towns and most new highways, allowing them to be exclusively served by franchised buses.

Although PLBs are legally free to operate over any route, except where restricted, the trade has developed its own organisation and control, even to the extent of employing regulators at key stands. In some cases organisation, entry to lucrative routes is controlled, and enforced by intimidation.

Most of Hong Kong's PLBs are owned in small fleets, with few exceeding 50 vehicles, half are owned singly. Most PLBs are driven by their owners or rented to drivers on a half-day shift. Drivers have to generate sufficient income to cover vehicle rental, fuel and a daily wage, and this provides a direct incentive to maximise revenue.

Because PLB licences are limited by regulation to 4,350, a new entrant to the trade must purchase a licence from an existing owner at a premium which reflects its market value. The premia are substantial and are often purchased through a mortgage covering both the licence and the vehicle. The licence premium is liable to fluctuations which reflect the general investment climate more than conditions in the PLB market and is regarded as a speculative investment. The premium rose in value by about 30-times between 1977 and 1991 when it was valued at HKD 1.4 million (about USD 180,000). It continued to rise until early 1997 when it exceeded HKD 3 million (USD 385,000).

During the 1970's it was the negative effects of the market-responsiveness of PLBs that were emphasised by policy makers. In 1976 PLBs accounted for nearly one-third of all public transport trips and were heavily concentrated in the main urban corridors. They loitered for passengers at major intersections, stopped to pick up passengers without warning, drove aggressively and increased fares at peak times and in wet weather.

Initially government imposed restrictions on PLBs to limit the nuisance and obstruction they caused, but also to protect the traffic of the major bus companies, who, by the early 1990s were expanding and modernising their fleets. PLBs were prohibited from a number of busy areas and stopping restrictions were imposed over long sections of the main urban corridors. In addition they were prohibited from entering the new towns, many new housing estates and from passing through government tunnels as these were completed.

PLB operations were thus confined to established areas and corridors where they continued to flourish, competing effectively against low quality and overcrowded bus services. More drastic restrictions such as confining PLBs to designated zones were considered but not implemented.

As the mass transit railway (MTR) opened new lines between 1979 and 1985 the shortage of transport capacity in the densest urban corridors was progressively eliminated. The PLB trade responded to the powerful new rail competition by adopting more stable, competitive fares and by switching capacity from routes that duplicated the MTR to routes that avoided, 'short-cut' or fed the MTR. Even in the MTR corridors PLBs had the advantage of enabling passengers to avoid the long walk into and out of the stations as they operated at high frequency from many central points and stopped on demand along their routes. This response conformed the astuteness of the PLBs' collective market instincts, and patronage was fully maintained.

In 1988 the maximum seating capacity of PLBs and Green Minibuses (GMBs) was raised from 14 to 16.

The Green Minibus Scheme

The policy to control the activities of PLBs gave rise to the first 'green minibus' (GMB) routes⁵² in 1976. Operators were invited to apply for a licence to operate their vehicles on a fixed route, to a timetable, at fixed fares, all parameters being set by government's Transport Department, the regulator. In effect operators exchanged their freedom for scheduled operation. In return for accepting the service obligations they were usually given some protection from competition by PLBs and some assurance of viability. GMB routes generally operate suburban or feeder routes, serving areas where buses were uneconomic, or in some cases, where a demand existed for higher quality, higher frequency services than could be provided by buses.

Several routes were packaged together before being offered to bidders. Some packages contained an element of cross-subsidy between routes serving the same locality. Applicants were encouraged to form companies to operate GMB packages and to employ drivers rather than have them hire the vehicle and pay a daily rental. Competing bids were evaluated against objective criteria such as the financial resources of the applicant group, experience, facilities for maintenance and parking.

The scheme proved popular with PLB owners with 10% of the fleet converted to scheduled operation by 1982, 30% by 1990, and 58% by early 2003 when 341 GMB routes were in operation. A large number of applications was received for each route package advertised (typically 4 to 5 applicants per package) demonstrating PLB operators' confidence in the GMB scheme.

Recent developments

The increasing competition offered by franchised buses, which by the mid-1990s were moving quickly to all air-conditioned, modern vehicles (although frequencies were much lower than PLBs), led the PLBs to upgrade their vehicles to larger models (within the maximum 4-tonne GVW limit) and to reduce their average age by more frequent renewal.

By contrast, the GMBs were protected from competition which reduced their incentives to raise service quality. The vehicles used on GMB services tended to be older⁵³, (often previously used on PLB services) and they were slower in adopting air-conditioning.

Although their numbers and patronage have remained almost constant since 1976, PLBs (including GMBs) have accounted for a decreasing share of Hong Kong's public transport trips (from about 30% in 1976 to about 15% in 2003. In 2003 red PLBs carried 509,000 passengers per day and GMB carried 1,128,000 per day, total 1,637,000.

Conclusions

As with paratransit in many developing cities, Hong Kong's public light buses developed spontaneously to meet a demand for transport that was not being met by formal bus and rail services. Once established they became indispensable and the decision to legalise them was inevitable.

PLB policy changed progressively from one of restriction and prohibition of a mode that both competed with and obstructed bus services, into one that recognises that even with an overall sufficiency of public transport capacity, PLBs have successfully evolved to exploit a market niche for high quality, high accessibility, transport at competitive fares. The belated recognition of the value of PLBs' flexibility to respond to local or temporary market opportunities has confirmed their place in Hong Kong's hierarchy of public transport.

Hong Kong's programme of conversion of unregulated, individually licensed PLBs into regulated GMBs is a rare example of a successful consolidation of paratransit vehicles into

⁵² PLBs had been required to be painted in a red and yellow livery since their legalisation in 1969. PLBs which accepted franchises to operate fixed routes under governments supervision were required to paint their vehicles green and yellow.

⁵³ In October 1996 the average age of RMBs was 4.1 years, and GMBs 5.0 years.

route-based organisations capable of taking responsibility for the operation of a route in accordance with a schedule of service and fares set by the authority.

However, conditions that have contributed to the success of the programme have been:

- very high technical capability in the regulatory agency (Transport Department) in the design of commercially viable GMB routes;
- long term policy commitment to the GMB programme, over 20 years, with much professional staff resources devoted to planning and monitoring GMB routes;
- willingness by the department to adjust any routes that prove unviable;
- regular fare increases in line with costs, with flexible application according to route characteristics;
- a bidding mechanism for routes that is perceived to be fair and transparent; and
- increasing competition in the deregulated PLB sector as formal public transport (bus and urban rail) developed rapidly in the 1980's.

6.5 Case Studies of problems of regulating a fragmented bus industry

Case Study 5.1 – 'Regulatory Overload' – Sri Lanka

Sri Lanka is another example of a highly fragmented bus industry, again because the regulatory and operating environment is unattractive to large-scale investment. Sri Lanka has no paratransit industry using minibuses. Because no vehicle with less than 30 seats is permitted to be registered as a bus, individuals own full-size buses.

In Sri Lanka in 1986 there were approximately 11,000 privately owned buses owned by about 10,180 operators. 94% of the operators owned only one bus while only 1% of the operators owned more than two buses.

The fragmentation of the industry has not changed materially since then. Today there are approximately 16,500 Passenger Service Permits issued and 11,600 buses are operated on an average day. The largest private bus fleet has 110 buses. The following table shows the fleet size distribution in 2003 for routes which cross provincial boundaries (the only group of routes for which national data is available).

| Number of Buses Owned | Number of Owners | Percentage |
|-----------------------|------------------|------------|
| <5 | 1,196 | 94.10 |
| 5-9 | 46 | 3.62 |
| 10-19 | 27 | 2.12 |
| 20-50 | 1 | 0.08 |
| >50 | 1 | 0.08 |
| | 1,271 | 100.00 |

Table II-7: Bus Ownership by Number of Buses and Owners (Inter-provincial Services)

Source: National Transport Commission, Sri Lanka. 2003.

Limited data is available with respect to intra-provincial services in some provinces. Data from North Western Province (which includes Colombo, the capital city) shows that of 1,298 buses licensed in the province, 1,133 (87%) are owned individually, 88 (7%) are in fleets of two, 38 (3%) in fleets of three, 24 in fleets of four, and 15 in fleets of 5; there are no fleets with more than five buses in the province. Similarly, data from Mannar District in Northern

Province shows that of 126 buses licensed in the district, 117 (93%) are owned individually; three operators own 2 buses each and only one owns 3 buses.

6.6 Case Studies of Illicit Control

Case Study 6.1 – Illicit Control of Minibuses in Hong Kong

Minibuses developed spontaneously in Hong Kong in the 1960's in response to a shortage of bus capacity by the two franchised bus companies. They were legalised as 'Public Light Buses' (PLBs) in 1969, and the number of licences was frozen when the fleet numbered 4,350. Their routes and fares were not regulated. They developed a flexible though fairly stable route network, though fares would rise sharply at times of intense demand. Minibuses were the subject of extortion by criminal gangs before legalisation, and this has continued to the present day. Many of these gangs are affiliated to the powerful triad organisations.



Figure II-9: In Yau Ma Tei, the highest-density area of Hong Kong 16-seat public light buses continue to compete effectively against large high-capacity double deckers of the five franchised bus companies.

Karl Fjellstrom. 2001

During the crackdown on official corruption in the mid-1970's, several high profile prosecutions revealed the extent of payments to police, syndicated to very senior levels, for immunity from enforcement, and this was effectively ended. Control by gangs is far more difficult to detect and prosecute, and has continued.

PLBs' high speeds, tendency to accumulate at busy junctions and stopping on-demand made them popular with passengers, but the congestion they caused (and pressure from the bus companies) led to increasing restrictions on locations where they could operate and stop. Increasingly they depended on designated stands and picking-up points. These became the focus of illicit control. Almost all stands were 'occupied' by one gang or another, and territorial disputes were often resolved by fights.

In the late 1970s, government started a programme of franchising PLB routes. Routes were designed by Transport Department, often minor routes not warranting large buses or routes on narrow or steep roads, and often in areas banned to PLBs. Stands exclusive to one route or group of routes were offered. Fares and schedules were specified in tenders, and PLB

operators invited to submit bids. This required individual PLB owners to organise to submit the bid and manage the route. Partnerships and companies were formed.

Many PLB operators preferred the security of an exclusive franchised route, albeit with controlled schedules and fares, to the uncertainties of competing in an unregulated market. Although governments main objectives in franchising PLBs were to control the congestion they caused in busy corridors and to introduce reliable public transport on minor routes, other benefits were realised.

The franchised PLBs were soon found to be fairly immune from illicit control. There was little scope for the gangs to offer access to picking-up points nor, because operations were fully legalised by official schedules, immunity from enforcement. Another factor was that minibuses were operated by companies, not individuals.

About 60% of Hong Kong's 4,350 PLBs had been franchised by 2003.

Case Study 6.2 – Organizations Involved in Illicit Control in Bandung, Indonesia

The Cooperatives

The structure and functions of cooperatives controlling the *angkot* industry in Bandung are described in Case Study 4.3. To the extent that the cooperatives maintain monopolistic control over access to the *angkot* routes without any legal authority, levy charges on operators and are not fully accountable to their members for their actions, or their fees and revenues, there is an element of illicit control. One cooperative, Kobanter, dominates the industry, and is particularly powerful.

Preman

Preman is a general term for ‘gangster’. In the context of the *angkot* trade it refers to individuals or groups who extort fees from operators. They tend to be ‘territorial’, often based in termini and may control access and departure sequences. Their activities are often condoned by DISHUB officials stationed at the terminal. Some *preman* wait at the roadside and extort fees from passing *angkot* drivers, sometimes offering token items such as bottles of water.



Figure II-10: A ‘Preman’ reaches inside an Angkot minibus to take an illicit payment from the driver.

Richard Meakin

It is evident that the hundreds of unlicensed *angkots* operating in Bandung are also controlled by *preman*, who may have links to government enforcement agencies.

Calo

Calo are touts who induce passengers into vehicles at the terminals or stopping places en route. They sometimes ride on the vehicle. They extract a fee from the driver, usually about IDR 300-500, depending on the number of passengers. They may also order the queuing sequence of *angkot* at busy locations.

One of the cooperatives deters extortion by *preman* and *calo* by hiring guards at busy *angkot* locations.

Amounts of Illicit Payments

The fees which must be paid by *angkot* drivers, and which form a significant part of their daily operating expenses, fall into three categories:

- TPR (*Tanda Pembayaran Retribusi*): official retribution from Pemda (local government) for using a government terminal;
- SWDP (*Sumbangan Wajib Dana Pembinaan*): fees charged by the cooperative to its members;
- *Calo/Preman* fees for touting passengers and arranging vehicle departure sequence;
- Others: including fees for using public land for parking.

The charges reported by *angkot* operators paid to the cooperatives fell mostly in the range of IDR 1,000-5,000 (USD 0.11-0.55) but were considerably higher than those reported by the cooperative officials. This may reflect the fact that the 'route heads' appointed by the cooperatives have sufficient power to impose additional charges.

The amount of daily payments to gangsters (*preman* and *calo*) vary widely between routes. On most routes payments fall within a range of IDR 1,000-10,000 (USD 0.11-1.1) but on some routes exceeded IDR 20,000 (USD 2.2) per day.

Case Study 6.3 – Illicit Control of Bus Terminals in Sri Lanka⁵⁴

Private bus operators in Sri Lanka report widespread extortion of 'departure fees' from bus crews at major terminals. The collectors are commonly referred to as 'runners' who exploit the vulnerability of individual bus operators by threatening violence against the crew or damage to the bus which might cause repair costs and loss of daily earnings disproportionate to the amount of the illicit fee. Also, on departure from the terminal the conductor of each bus has a stock of cash since he has collected fares.

Buses of the state-owned bus companies are not required to pay the fees, even though private buses departing from the same terminal are charged. This immunity may reflect that damage to a government-owned bus is not perceived to cause a loss to any individual. No damage to a state-owned bus has been reported.

The amount of departure fee is reported to be approximately one adult fare for the route, or flat fee of LKR 20 (USD 0.20). This yields substantial amount of money at a busy terminal.

Extortion by 'runners' has been a problem ever since private buses were re-introduced in 1979. In 1996 NTC commissioned a small-scale study⁵⁵ to investigate the activities of 'runners', their status, the amounts collected and their relationship with official bodies. The study was based on interviews, conducted in December 1996 and January 1997, with private bus owners, bus crews, stand officials and the 'runners' themselves at the bus stands in Pettah and several suburban locations.

⁵⁴ Note: 100 LKR (Sri Lanka Rupee) = approximately USD 1

⁵⁵ *Survey on Self-Employed Bus Runners in Sri Lanka* by M W Jayasundera, Snr Lecturer, Dept of Sociology and Anthropology University of Sri Jayawardenapura. 9 July 1997

The interviews revealed three categories of 'runners':

1. appointed by the provincial Councils as 'timekeepers' (formerly self-appointed);
2. appointed by the private bus owners, usually to assist their own buses;
3. self-appointed, who did not cooperate with timekeepers or bus stand staff.

The last group was the main focus of the study.

The study found that self-employed 'runners' were active in most large bus terminals. They were generally of low education and poor; some were drug addicts; some engaged in illegal touting of drugs, alcohol or prostitution; some were unemployed or casual conductors and drivers; and some were helped to become 'runners' by thugs or local politicians.

The main role of the 'runners' was to tout for passengers; other roles were to assist passengers through the queues and loading luggage, to despatch buses on time, and to run errands for timekeepers or bus crews. Extorting money from conductors was mentioned by only one bus crew, although most crews said that the 'runners' provided daily services for which they were paid.

'Runners' often work in groups, perhaps to increase their 'presence'. In Galle, nine were reported to have formed a group to assist loading of one route, working two hours each. The numbers of 'runners' at the terminals observed varied between one and eight (on the Kandy-Colombo stand); most stands had from three to five 'runners'.

Only one group⁵⁶ specifically admitted taking a LKR 10 departure fee from each bus on a particular route. The proceeds were shared with the timekeeper. Others received LKR 100 for their assistance in touting the route and assisting boarding, although it was not clear how this was paid. A survey of 'runners' earnings found that 80% earned between LKR 50 and 200 per day. Only 2.5% reported earning more than LKR 400.

About half of the bus crews and timekeepers welcomed the services provided by the 'runners'. However, most bus owners and bus stand staff felt that the integration of private and peopled bus schedules and more officially appointed terminal staff would obviate the need for self-employed 'runners'.

The study found little evidence of an organised hierarchy of 'runners', nor of external control, 'runners' acting as 'collectors' for other agencies, or complicity with police. However, several 'runners' said they had to pay off local thugs, PTA staff and timekeepers each day.

Interviews with bus operators and police in late 2003 are at variance with the findings of the 1997 study. It appears that the extortion of departure fees has become more widespread and more formalised since then. Few, if any services are provided by the 'runners'. Their role in 'despatching buses' is now largely redundant following the more widespread use of timekeepers by the PTAs and the gradual introduction of integrated timetables with the state-owned bus companies.

Several private sector bus operators have stated that payments to 'runners' are made by every bus on departure from the larger terminals, at the rate of about one passenger fare for the trip. In Panadura, south Colombo, the private bus company reported that each bus leaving the terminal paid LKR 20 on departure. This was confirmed by a statement to the Panadura Urban Council reported in the press⁵⁷ in January 2004. Fees are levied at all principal terminals, but not at intermediate stopping places. At the outer terminal fees are only levied on buses for which it is the principal terminal. The association estimates that the six 'runners' at Panadura collect LKR 7,000 per day in fees. They fear assaults if they refuse payment.

⁵⁶ Controlling the Ja Ela-Colombo route

⁵⁷ The Vice-Chairman of the Panadura Urban Council said that "thugs and men (*sic*) control private transport and forcibly take kappan from drivers in the private bus stand". 'UC Must Take Over Private Bus Stand at Panadura'. Daily News. January 12th 2004.

The association has complained to the provincial regulatory authority (PTA) and to the police, but no effective action has been taken. The association does not know whether the 'runners' are collecting for other agencies, but they allege that the 'runners' have links to politicians as the same individuals can be seen posting election banners.

The head of traffic police said that the issue of extortion at terminals had been brought to the attention of the President of Sri Lanka who had ordered the Director General of Police to take enforcement action. He asserted that 'runners' were organised by the private bus operators, and estimated that up to LKR 50,000 per day was collected at the major terminals such as Pettah. The cash is collected at night by 'unknown parties'.

In view of the large sums of money now being collected it is likely that some of these funds are being used to afford protection for 'runners' from enforcement action. Cooperation between the PTA bus stand staff and the 'runners' was already established in 1996, but now complicity with other agencies is more likely.

The PTA officer in charge of Ratnapura bus terminal said that the PTA timekeepers despatched buses and claimed that, although there were no 'runners' in the terminal, they 'were around'. It is possible that they do the calling of buses from the waiting areas to the bus stand when their turn is due. However, private bus operators in Ratnapura said that fees were collected routinely. They claimed that the PTA timekeepers staff did not openly collect fees as they were subject to prosecution as public servants. Instead, 'runners' did the collection and passed proceeds to the PTA staff who gave them daily targets. The Ratnapura operators also claimed that by payment of fees, operators could be allowed to stay longer in the loading bay, after their due departure time and thus gain extra passengers and revenue. Payments might also influence the allocation of a standby bus to a slot for which the allocated bus had failed.

6.7 Case Studies of Consolidating Paratransit Operators

Case Study 7.1 – Hong Kong's Program of Enfranchising Minibuses

Hong Kong has pursued a successful program of enfranchising its minibuses – offering operators an exclusive route, free of competition from other minibuses, and a viable fare-scale in return for maintaining a service as specified by the authority. However, the program took place in the context of a policy of 'containment' of unregulated minibus operations, which included denial of access to all new housing estates, an increasing proportion of urban corridors subject to no-stopping restrictions for minibuses and increasingly intense competition for business by the progressive extensions to the mass transit railway and a rapid growth in the capacity and quality of bus services. Also, the authority had a high capability to introduce and enforce the restrictions on minibuses, including the embargo of future issue of licences.

Case Study 7.2 – Rio De Janeiro Van Cooperative

Until mid-90s, and with very few exceptions, public transport in Brazilian cities was dominated by privately operated buses under local protective, anti-competitive regulation. From 1996 on, however, this scene began to change by the emergence of van operators who challenged both the economic and political power of bus cartels and the barriers to entry imposed by public authorities.

In general, van operators were supported by the general public, especially captive bus users who were interested in more service provision coming from new suppliers. Although there was some opposition to vans by users, mainly due to their irregular services and aggressive driving, there was widespread public support for the vans. This was reflected in their incorporation into the regulatory framework in many Brazilian cities. In other cities, local administrations chose to accept the presence of vans without attempting to impose regulation. In other cities, however, vans were deterred or banned from the streets.

SMTU (Secretary Municipal de Transportes Urbanos) regulates all public transit and taxi services within the city of Rio. Services which cross the city boundary into other municipalities are regulated by the state of Rio de Janeiro. There were approximately 50 private bus companies in Rio with around 6,000 buses, and around 50 van cooperatives. SMTU is in charge of inspecting vehicles and operating licenses and collecting operating taxes from operators. Tax loads for coops, as they are seen as groups of individuals, were said to be less than for private companies. Other agencies within the city government handle individual driver licensing and vehicle registration, while SMTU merely handles the aspects of vehicle operations and inspections as it relates to public transit service.

The van cooperative, Cooper Rio da Prata, (CRDP) is a typical van cooperative, operating in the Bangu district of Rio, a low-income area where street crime is a problem. For years CRDP operated illegally, and the coop represented members in the struggle with the city government for official recognition and regulation. Since 2001, the services have been legalized and are now regulated by SMTU.

CRDP has around 600 members with 450 legalized and regulated vehicles (mostly Volkswagen Combi 12-seat vans) and 100 more in the process of legalization. It runs 17 local routes within Bangu, and one long-distance route to downtown Rio.

The coop offers a means for operators to be organized into an efficient route network, avoiding problems of aggressive curbside competition which detract from service quality and safety.

The coop's functions include organizing routes, stops and terminals, negotiating with other coops with common routes to rationalize routes, helping members with traffic fines, legal issues, vehicle inspections and regulatory requirements. The coop arranges bulk purchases of spare parts, tires, insurance, vehicle purchases, maintenance and repair work, and runs a 24-hour towing service. There is an information service for users and a toll-free line for complaints. Users registered with the coop receive discounts on fares with an ID card to use when boarding.

Additionally, many personal services are offered to members and their families, such as medical and dental services, insurance and legal services.

The average driver-member in the cooperative earns about 1,300 dollars per month, with coop fees running around 300 dollars per month. The coop operates on a break-even basis.

Case Study 7.3 – Route Associations in Thailand

The formation of a route association in Hat Yai, Thailand is regarded as a successful model.

Almost 80% of Thailand's estimated 60,000 buses are operated by single vehicle owners.

Transport cooperatives were first formed in Thailand in 1975 by the forced amalgamation of the many, mostly illegal, small vehicles and tuk-tuks. It was thought that enforcement would become easier, but in fact, the power and wealth of the cooperatives increased with more members, and that power was generally exercised against the interests of members and route management. There were about 400 small vehicle cooperatives ranging in size from 400 to 1,000 members. Cooperatives are usually associated with unruly operations and major enforcement problems (PPK, 1988).

A pilot fixed-route managed by an association was established in Hat Yai, under a bus reform study⁵⁸ implemented jointly by the regulator and consultants.

Prior to the project there were no fixed route buses operating in Hat Yai. The city's public transport system comprised 2,500 non-fixed route, six-seater tuk-tuks. There was an oversupply of tuk-tuks because ownership was attractive to middle income groups who rent their vehicles to drivers who have few other alternative employment options.

⁵⁸ The Inter-city and Rural Bus Study. PPK Consultants, Australia. 1991

A new 22 km long fixed route connecting the inter-city bus terminal on one side of the city to the airport on the other side was recommended on a pilot basis for the proposed association.

Converted pick-ups were used which seated 16 persons comfortably, with a crush load of 26, rather than tuk-tuks. The licence was held in the name of one of the cooperatives but by agreement is operated jointly. The initiating owners and drivers developed the management methods. In order to attract passengers, the flat fare was set below the prevailing tuk-tuk fare. Despite strong objections by other tuk-tuk operators, the route started in mid September, 1991 with nine vehicles. mini-buses.

After 8 months patronage had increased to 6,800 persons per day with, on average, full seated loads. 26 vehicles were deployed, average age below two years. The service was estimated to be operating profitably.

The cooperatives imposed rules covering rostering of drivers and vehicles, punctuality, running times, driving manner, prohibition of overtaking, stopping places, backed up with a system of fines. Dispatchers monitored adherence to the timetable.

The strong route management in Hat Yai appears to have resulted in part from the adversity which the original vehicle operators faced. The route management methods are largely the application of common sense to the development of an equitable sharing of workload and revenue amongst the owners and drivers. The management methods also gave high priority to the development of a reliable and convenient service for the public since the success of the route was critical. Leadership from amongst the original operators was also essential to development of the systems employed.

The following recommendations were derived from the case study:

- The size of a cooperative should be limited to 300 vehicles to be manageable. This suggests areas of moderate or low demand, such as the outer ends of routes where buses tend to turn short of the terminus. In these situations few vehicles are usually involved and the concept is therefore likely to be able to be implemented and sustained.
- Initial routes should be those where there is disorderly operation. Route licensing should be accompanied by conditions requiring higher standards of vehicle, driver conduct and service quality.
- Bus drivers are usually employees or hiring the vehicle in some way. It is essential that route licence holders are responsible and accountable for the actions of affiliates. Also both must be responsible for driver behaviour. Therefore, driver remuneration mechanisms, incentives and penalties should be designed to encourage orderly driving. Also LTD's enforcement and driver licensing activities need to deal with this.
- To avoid conflict and aid enforcement, means should be developed to share trips and income equitably (i.e. in accordance with effort). An operational mechanism is preferred to administrative means since it permits controlled competition based on vehicle quality, cleanliness, courtesy of staff etc. Timetables and rosters should be prepared and terminal operations should be controlled by dispatchers.
- Joint operating and eventually joint licence arrangements should permit more than one cooperative being permitted to operate a route or a group of routes. This will encourage coordination but would also permit competition in respect of fares and quality aspects.

6.8 Case Studies of consolidating the individual Bus Sector

Case Study 8.1 – Sri Lanka's Two Attempts to Consolidate the Private Bus Industry

Sri Lanka has made two unsuccessful attempts to consolidate the individual private bus industry.

In Sri Lanka in 1986 there were approximately 11,000 privately owned buses owned by about 10,180 operators. 94% of the operators owned only one bus while only 1% of the operators owned more than two buses. The typical problems of disruptive competition, irregular uncoordinated services and unwillingness to run at unremunerative times and locations prompted government to take action.

Government attempted to improve the performance of the private operators by requiring that all operators serving a route join a route association. In theory these associations were to be governed democratically and members would agree on, and enforce a coordinated timetable. In practice however most associations came to be dominated by small cliques of operators who ran the route for their own benefit and maintained control through physical intimidation of other members and bribery of local officials. As a result, the government disbanded the associations at the end of the 1980's.

In 1996 there was a resurgence of widespread official and public dissatisfaction with the safety, regularity, and reliability of the 16,000 buses in individual ownership. In 1996 the bus licensing regulations⁵⁹ were amended to impose a requirement that, to be eligible for route permits, private sector bus operators must be consolidated into entities owning and operating at least 50 buses. Five years advance notice was given, and the new regulations were due to become effective in February 2003. As the deadline approached, it became apparent that only a few groups of operators had formed companies which 'owned and operated' the minimum of 50 buses. Such consolidation as did take place was the formation of a number of "companies limited by guarantee", which in effect were associations of bus owners, with individual owners retaining legal ownership of their buses. This retention of ownership by individuals did not satisfy the purpose of the regulation. Only one company had been formed which actually owned more than 50 buses.

However, the new regulation had the effect of precluding the authority from renewing all the permits held by single bus owners. On 18 February 2003, shortly before it was due to take effect, the order was revoked.

Case Study 8.2 – Route Cooperatives in Mauritius

The stage bus industry operates under Road Service Licences issued by the National Transport Authority on the basis of one licence per bus. The stage carriage bus industry comprises three sectors:

1. the state-owned National Transport Corporation (27% of the fleet);
2. the four private companies (United Bus Services, Triolet Bus Service, Rose-Hill Transport, Mauritian Bus Transport) (29% of the fleet);
3. individual owners (IOs) owning 763 buses in fleets from one to eighteen buses each (44% of the fleet).

The 'individual owners' sector is highly fragmented. In 1999 only 25 of the 660 owners had more than one bus. Five owners have more than five buses. One owner has 18 buses. The proportion of owner-drivers has fallen from about 75% in the late 1970's to less than 10% in 2000. Most individual bus owners employ drivers and conductors on a salary. Since tickets are universal (and required by law) the crews are able to account to the owners for their receipts.

The regulatory problems of co-coordinating a large number of individual operators on each route became apparent as soon as they were re-introduced in the early 1980s. As [Table II-8](#) shows, the number of individual bus licences doubled during the 1980s and reached its current level of about 760 in 1994. Although some routes are operated by a mixture of company and individual buses, most IO buses are allocated to routes comprising only IO

⁵⁹ The National Transport Commission Act 1991

buses. On these exclusive IO routes the number of buses licensed substantially exceeds the number required to operate the route.

| | 1980 | 1984 | 1986 | 1988 | 1992 | 1994 | 1996 | 1999 |
|----------------------|------|------|------|------|------|------|------|------|
| Fleet | 354 | 374 | 378 | 451 | 699 | 768 | 758 | 763 |
| No. of Owners | n/a | 240 | 260 | 380 | 575 | 633 | 658 | 660 |

Table II-8: Growth of the Individually-Owned Fleet in Mauritius

Source: 'Grouping Operators into Regional Associations'. The Report of a Working Group to Review the Organisation of Individual Bus Operators. Min of Works. Mauritius 1992 and NTA

Although there has been little consolidation of ownership of IO buses, owners have affiliated to form cooperatives. Of the 763 individually owned buses, 647 (85%) are members of eight district cooperatives with affiliated buses ranging from 30 to 169.

The cooperatives' functions are limited to representing the interests of the individual bus owners to government and operational control at termini. They compile and enforce a roster on each route whereby individual operators rotate around the official departure schedule set by NTA. This gives each operator equal access to the periods of high density and low density traffic, and equal queuing time.

The cooperatives maintain offices and employ some staff, typically stand dispatchers, ticket inspectors and office staff. Costs are covered by monthly fees. Some owners default on fees, which results in late payment of wages to staff. Owners not paying fees are denied their departure slot.

NTA, the regulatory body, is critical of the co-operatives for not developing co-ordination and support functions, and for failing to correct service deficiencies, such as:

- not complying with the timetables, especially the operation of uneconomic routes and trips;
- some reluctance to operate express trips;
- carrying excess passengers;
- exceeding the scheduled running time during off-peak periods;
- waiting at bus stops for passengers;
- stand regulators do not always report for duty;
- excess dead mileage.

Many of these deficiencies reflect the strong incentive on the operators to maximise daily revenue for each vehicle, rather than for the longer-term revenue of the whole route. Although the cooperative provides a contact point with NTA for matters affecting the whole route, individual owners are accountable for misconduct or offences by his driver or conductor.

With some 760 IOs licensed it is clearly impossible for NTA to effectively enforce schedules.

Government has proposed that the cooperatives should perform a much wider role in the coordination of the IO sector, including the following functions:

- to organise services and facilities along the routes;
- to acquire, own, operate, purchase, hire and sell vehicles;
- to establish service and repair shops;
- to operate stands or stops;
- to arrange insurance;

- to own, purchase, erect, manage, repair buildings for the bus services;
- to enter into agreements with government or other authority for supply of services;
- to undertake welfare services for members and families;
- other self-help or mutual services.

In July 1992 a committee set up by the Ministry of Works to review the organisation of IOs recommended that the cooperatives should be reconstituted as eight regional associations and that all IOs be required to join one. The associations would be responsible for compiling and enforcing bus schedules, and for applying to NTA for changes to schedules and routes.

In the longer term it was proposed that further consolidation would take place with the cooperative owning the buses, holding the route licence and being responsible for management and satisfactory operation of the service. In return for the transfer of their assets to the cooperative, owners would receive shares in the new company which would be registered under the Companies Act.

Such a consolidation would substantially reduce the regulatory effort required by NTA to impose control and coordination and would have provided a basis for systematic network planning.

The proposals were resisted by the bus owners for the following reasons:

- Owners prefer to own a physical asset rather than a share, the value of which they have little control. Many buses are purchased with bank loans. Given the history of corporate failures in the industry, its uncertain future and government's failure to adopt policies supportive of the industry, the risk of a share losing its value is perceived to be unacceptably high.
- Road Service Licences confer the right to participate in a route with a limited number of others. RSLs have a premium transfer value which can be realised. On a busy and profitable route the premium value can approach MUR 1 million. On a low-density route it may be as low as MUR 50,000. Owners frequently mortgage their houses to raise loans to buy the licences and it represents a valuable family asset. The merging of individual buses into a company or cooperative under a single route licence would mean the individual owner would lose control of his asset. Since the individual would no longer have the discretion to sell and transfer the bus and its licence, to another operator, the transfer value of the licence might fall substantially.

Case Study 8.3 – Agreement not to Compete: Tuk-Tuks in Phuket, Thailand

Phuket is a province of Southern Thailand and major international tourist destination. The provincial capital is situated on the east coast, while the main tourist areas lie along the beaches on the west coast, about 20 km from the city.

Most developed areas of Thailand have a mix of public transport. Big bus services on regular timetables connect the towns and cities along the main roads. In the rural areas light trucks converted locally to carry passengers (*song taew* – literally ‘two rows’ of seats) operate fixed-route services carrying passengers at fixed, regulated fares. These vehicles vary in size from 6 to about 30 passengers capacity. Non-fixed route modes include small vans and motorcycles which operate as taxis.

Phuket receives one million tourists per year. Most stay in hotels in the main resort town of Patong or at one of the string of beaches on the west coast.

Private motorcycles have a very high share of trips by local residents, but there are two distinct markets for public transport:

1. the demand from tourists to travel between the beach resorts on the west coast, especially to and from the main resort town of Patong, with a lower demand between the beach resorts to and from Phuket City;

2. the need of Thai residents to commute to work, between the city and the tourist areas.

While regular bus services connect Phuket City with the west coast resorts, no fixed-route bus or songtael services operate on the main tourist routes between the beaches. This traffic has been claimed by the 'tuk-tuk' operators.

Tuk-tuks are small minibuses converted to carry up to six passengers. There are about 800 licensed in Phuket, which is greatly in excess, perhaps two or three times, the number needed to meet demand. Therefore each vehicle may only operate three or four paid trips per day. In the low season, many tuk-tuks cease operation, and the remainder have very low demand.

Tuk-tuks do not operate any fixed routes even though many of the tourist destinations lie along a single 15 km corridor. Their mode of operation is to wait outside hotels and places frequented by tourists and tout for hires. They operate as taxis, and will accept only single hires. They never engage in separate-fare operation even though this is the normal mode of such vehicles in Thailand. They charge flat fixed fares, in increments of THB 50 (USD 1.20) roughly related to distance. Fare scales are agreed between the tuk-tuk associations and are not published or displayed, nor agreed by the provincial regulatory authority. Fares are rigidly applied and no negotiation is possible. Tuk-tuk charges are at least ten times the tariff rate which prevails on the fixed-route bus and *song teaw* services in Phuket. Tuk-tuks' high fares, aggressive touting for passengers and reckless driving are persistent causes of complaint from tourists.



Figure II-11: Phuket, Thailand. Unregulated Tuk-tuks (left of photo) claim a monopoly of tourist traffic between the popular beaches, and have prevented the expansion of fixed-route bus services (right of photo) by militant action.

Karl Fiellstrom. 2001

Because of the excess of supply of tuk-tuks in relation to demand, the trade adopts elaborate arrangements to allocate revenue earning opportunities. Access to the centre of the tourist entertainment centre at night where captive demand is highest requires approval of the local controller, but it is not known who controls this lucrative key location.

At the beaches tuk-tuks have established stands at hotel entrances, and intervals of two or three hundred metres. Picking-up rights at these locations are exclusive to the six to ten tuk-tuks resident there. Tuk-tuks from other stands may drop off, but not pick up, passengers in the exclusive area. Any attempt to pick up will be met by aggression. Therefore, a tuk-tuk having discharged a passenger may only pick-up a new passenger in an unclaimed zone, but since most trips begin or end at hotels which are all 'claimed zones' this is unlikely and a tuk-tuk will probably have to return to its home base and wait in the queue.

Because tuk-tuks are hired for only 3 to 5 short trips per day, must wait several hours between hires. The stands have therefore become encampments, with bamboo huts, tables, chairs, facilities for cooking food and electric lighting provided by tapping electricity from street lights.

The ineffectiveness of the local regulator, the Phuket Provincial Transportation Office, in the face of this well-entrenched cartel is evident from the following ‘Question and Answer’ published in the local newspaper⁶⁰:

Question

Why is there no *songtaew* bus running between Karon and Patong?

Answer

“In 1994, we established a public transport route linking Patong and Karon. After just three days, however, the driver was pulled from his vehicle and badly beaten by competitors.

We would still like to have an investor operate a *songtaew* along that route, but since 1994 nobody has contacted us about it.

They are probably worried about having similar problems and losing their investment capital. Public transport in Phuket faces many problems of this nature.”

Teerayuth Prasertphol, Deputy Director, Phuket Provincial Transportation Office. May 10, 2004



Figure II-12: Measures that the *Phuket Gazette* thought might be necessary to protect a bus service operating between the tourist beaches, traffic that tuk-tuks claim as their own.

⁶⁰ The Phuket Gazette, Monday 10 May 2004.

MODULE III: A Planning and Regulatory Framework Capable of Achieving the Policy Objectives

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Introduction

The four foundations of effective public transport management, which form the four Modules of this course are:

1. a coherent policy, and implementation strategies;
2. a structure of the public transport industry that is amenable to competition or regulatory control;
3. a regulatory framework that provides a legal basis to impose the right mix of obligations and incentives by which policy objectives may be achieved;
4. regulatory institutions that have sufficient capability and independence to undertake basic network planning, to administer regulation and guide the development of the sector.

Previous modules have described two of the key foundations for effective regulation of public transport: a coherent policy and an industry structure amenable to competition or regulation.

This module describes the means by which policy objectives may be realised. There are broadly two approaches:

- In a regulated system, the authority prepares operational plans which are then implemented by operators who respond to directives by the authority and to market incentives.
- In a deregulated environment, operators are free to respond to market forces, so the authority may not undertake service planning, but will monitor passenger demand and the supply of services and may intervene where the market does not provide services on routes, or at times, which are regarded as essential.

1 Planning

This section describes the impact of industry structure on the planning process, then the three basic elements of planning:

1. inputs;
2. process;
3. outputs.

1.1 Industry Structure

Bus route and service planning need not be sophisticated or require large resources, but it should be progressive, systematic and realistic. Many transport agencies in developing countries do not undertake even a simple planning process because the basic skills are not available and they may anticipate severe constraints in imposing changes on the operators.

Where the industry comprises a few large-scale operators, especially if they have district franchises or 'zones of influence' and the regulatory framework confers responsibility to provide an adequate service within those zones, some responsibility for service planning may be given to the operators.

Where the industry is fragmented, consisting of many small-scale operators, especially if multiple operators share each route, then it is not feasible for the operators to prepare plans. In this case, the authority must prepare plans specifying the routes, minimum frequencies, hours of operation and possibly fares. A mechanism is needed to create incentives for operators to cooperate to open new routes and change existing routes, or there must be a means of requiring them to implement changes. As discussed later, this is very difficult to implement in practice.

In a mixed system of small and large operators, government might undertake the route planning for the small-scale sector, while the large operators, perhaps including a state-owned bus operator, undertake their own planning and submit their proposals to the authority for approval. The authority will then vet plans submitted by the big operators to ensure that overall objectives are met and to resolve any conflicts.

The Planning Horizon

Bus service planning is a cyclical, incremental process. Stages in the planning cycle are shown in [Figure III-10](#). The cycle may be repeated every year where institutional capability allows or where the transport system is undergoing rapid change, or every two years where the system is more stable and institutional capability is limited. In a country with limited professional skills and a large number of stakeholders, a major re-organisation of the urban transport system may not be feasible, so incremental changes are expedient.



Figure III-1: Buses in developing cities are often poorly maintained. Photo from Surabaya, Indonesia.

GTZ SUTP, 2001

The horizon for planning should be:

- two to three years for changes such as extending services to a new development area which requires new infrastructure such as terminals and depots. It is important that the need for public transport infrastructure is recognised, and provision made at a very early stage in the land use planning process. The lead time for acquiring land and constructing a new bus depot may be two years or more.
- two years for network changes which require the acquisition and financing of significant numbers of large buses, or where a tendering process is involved. The delivery time for new buses can be more than one year.
- a one year or six-month planning horizon is sufficient where the network is small, with many small-scale operators, operating mass-produced small vehicles.

The annual plan should be published in draft form. Consultation with users and stakeholders must be part of the cycle.

1.2 Planning Inputs

The broad purpose of planning is to identify how far the needs of public transport users and potential users are being met, and to close any gap between what's provided and what's needed. Thus there are two elements:

- assessing what services are provided;
- deciding what services are needed to meet demand, or to meet policy objectives.

Inputs to the planning process are:

- policy objectives;
- the status and performance of the existing transport system, as measured by a wide variety of parameters, many derived from the monitoring programme and feedback from users and stakeholders;
- changes to the operating infrastructure (new roads, terminals, traffic management schemes, changes to traffic speeds, bus priority measures);
- market factors (forecasts of total public transport demand, population redistribution, new housing, commercial, retail, educational or industrial areas, forecast car and motorcycle ownership rates, cost of fuel and registration fees, parking controls and charges, changes in the capacity or fares of competing modes, legal or illegal);
- income levels – a rapidly growing economy will enable an increasing proportion of people to acquire private vehicles if the public transport system does not meet rising aspirations of comfort and convenience. The transport market begins to differentiate demand for different levels of tariff and service quality at an early stage;
- the legal and institutional environment.

Since planning is a continuous, cyclical process, data on the status and performance of the transport system must be monitored continuously. Data will include quantitative performance indicators as well as indicators measuring the extent to which demand, in terms of quantity and service quality, is being satisfied. The data required is described below.

1.2.1 Performance and standards of Service Indicators

The resources employed in bus services should be put to the most productive and efficient use. For this purpose there is a need to evaluate the operational performance of bus services and the standard of service being provided to users. Carefully chosen performance indicators can highlight the deficiencies of bus services and indicate where improvements are needed.

Used as a monitoring system, performance indicators will detect changes in operating trends and provide the means for evaluating improvements and changes. Monitoring should be based on data that can be relatively easily obtained without relying too much on data submitted by operators. Field surveys are needed to obtain some of the data. The following key operating performance indicators are recommended⁶¹:

1.2.1.1 Passenger Volumes

A basic indicator of productivity is the number of passengers carried in relation to the capacity of the system. This is expressed by the average number of passengers per operating bus per day. The indicator can be used at the network, operator or route level. A reasonably well-managed bus company with dense all-day demand should achieve up to 1,000 passengers per bus per day for a single-deck bus with a crush capacity of 80. In 2003,

⁶¹ Some of these parameters are taken from World Bank Technical Paper No.68 'Bus Services -Raising Standards and Lowering Costs.

Hong Kong's two largest bus operators, KMB and Citybus, carried 780 and 700 passengers per day per bus. Hong Kong's fixed-route franchised 16-seat minibuses carry about 500 passengers per day. In Bali in 1999 the 9-seat *angkots* carried about 70 passengers per vehicle per day.

Other measures of productivity are:

- passenger boardings per journey per vehicle;
- number of round trips made by each vehicle per day.

1.2.1.2 Fleet Utilisation

The proportion of a bus fleet that can be put into service each day indicates the effectiveness of bus procurement, maintenance, and staff availability. A well-run bus company will achieve a fleet utilisation of 80-85 per cent. In many developing cities buses are owned by individuals or small groups, and many are driven by their owners. Because of lack of monitoring and political pressures, the number of route licenses is often very high in relation to the passenger demand, and unlicensed vehicles may also be operating. As a consequence of over-capacity vehicles must queue in terminals to gain a full load⁶².

1.2.1.3 Vehicle Kilometres

Another indicator of the productivity of a bus fleet is the total distance travelled by buses in service, usually expressed in average kilometres per operating bus per day. A reasonably run bus service should achieve around 210-260 vehicle-kilometres per bus per day. Hong Kong's largest bus operator, Kowloon Motor Bus operated 240 km daily per bus in 2002. In Sri Lanka the private bus fleet averaged only 135km per bus day between 1996 and 2003 due to the excessive number of buses licensed.



Figure III-2: Kandy, Sri Lanka. The excess of private buses licensed in Sri Lanka means that each bus, on average, operates only 135kms per day; waiting buses also cause congestion in the terminals

Richard Meakin

⁶² The time spent waiting in terminals has a significant impact on vehicle productivity. In Denpasar, Bali in 1999 it was found that most minibuses (*angkot*) managed only 60-80 kms on the road each day, about four round trips. A typical *angkot* vehicle in Denpasar spent only about 5 hours, 21% of the day, operating on the road and another 5 hours at the terminal waiting in a departure queue. Source: *BUIP Public Transport Study. Final Report. Dorsch Consult 1999.*

Route lengths and the number of round trips per vehicle per day should also be monitored. Generally, long routes are more vulnerable to disruption by delays due to traffic congestion. They also present scheduling constraints.

1.2.1.4 Breakdowns in Service

The proportion of buses that break down in service is an indicator of vehicle age and type, maintenance and driving standards. A reasonably well-maintained fleet would expect to have breakdowns at a rate of no more than 5 percent of buses in operation each day. KMB in Hong Kong, which has an average fleet age of 7.4 years and an excellent preventive maintenance system, reported in 2003 that mechanical failure occurred only once per 2,759 bus trips.

1.2.1.5 Fuel Consumption

Fuel consumption depends on the size and load of vehicles, fuel and engine type and the gradients and traffic conditions on the route. Maintenance and driving standards have a considerable influence as well. Fuel consumption of a well-run system should be about 20-25 litres per 100 kilometres for minibuses. A comparison of fuel consumption of buses in five European cities⁶³ in 2003 reported consumption of between 29 and 45 litres of diesel per 100 kilometres for large single-deck buses.

1.2.1.6 Staff Ratios

The average numbers of operating, administrative and maintenance staff per bus is an important indicator of efficiency at the company level. Less than four per bus is considered efficient. Due allowance must be made for whether conductors are carried, whether there are one or two operating shifts per day and any activities contracted out, such as security, maintenance or cleaning.

1.2.1.7 Accidents

The accident rate provides an indication of the standard of driving and maintenance, but is greatly influenced by traffic conditions, in particular the volume of pedestrians. Comparisons should therefore be made with other vehicle types operating in the same area. In a well-run bus company operating under average conditions, accidents are likely to be in the range of 1.5-3.0 per 100,000 bus kilometres. KMB in Hong Kong reported 0.27 accidents involving injury or death per million veh-kms in 2003. In many countries there is no reliable accident reporting, analysis and publication mechanism so it is very difficult to estimate the rate without special surveys.

1.2.1.8 Dead Kilometres

Dead, or off-service, kilometres are incurred when a bus is being operated without revenue passengers. These trips are typically when the bus is travelling between a terminal and a depot to and from overnight parking. In systems comprising individual minibuses vehicles may be parked near owners' and drivers' homes, and the vehicle may be used for family transport, so it is difficult to distinguish off-service journeys.

1.2.1.9 Operating Cost

The costs of bus services are mainly dependent on local labour and fuel costs, but are greatly influenced by the efficiency of operation and management and by traffic and road conditions. The total cost of bus services (operating costs, depreciation and interest) in mixed traffic and bus-only lanes should be about US¢ 2 per passenger kilometre for owner-operated services.

⁶³ Bucharest, Berlin, Budapest, Prague, Warsaw

In Sri Lanka in 2003 it was estimated that the operating cost of private sector full-sized urban buses were about LKR 47 (USD 0.46) per km., including depreciation.



Figure III-3: Colombo, Sri Lanka: in a low-cost environment operating costs of a full-size bus can be below 50 cents per km

Richard Meakin

The selection of the most appropriate vehicle type and capacity is an important aspect of public transport planning and this type of analysis should be applied at the route level in order to optimise costs. In order to do this it is necessary to review and monitor:

- route lengths;
- vehicle types and operating characteristics;
- number of round trips made by each vehicle per day;
- passenger per journey per vehicle.

1.2.1.10 Operating Ratio

Revenues should cover costs and produce a sufficient surplus to provide for investment and growth. The operating ratio is defined as total revenue divided by operating costs including depreciation, and should be around 1.05-1.08.

In cities with a large proportion of individual or small operators the usual system is for the driver to rent the vehicle on a daily basis. The owner receives a fixed and regular income that provides a return on his investment. The driver then needs to maximise the number of passengers carried in order to cover the vehicle rental, fuel costs and to provide an income. Under this system drivers have an incentive to drive fast and overload to maximize revenue. Also, drivers tend to be reluctant to operate at times and locations where demand is low. Because neither the owner nor the driver has any responsibility for the overall regularity of the service, there are severe problems of maintaining the safety and quality of services. The daily rental system has developed as a simple working arrangement because it requires little

management or accountability⁶⁴. The owner cannot easily assess his true operating ratio as total revenue is not known.



Figure III-4: Dhaka, Bangladesh. State-owned BRTC rents its buses to drivers on a daily basis

Richard Iles

1.2.2 Quality of Service Indicators

1.2.2.1 Introduction

Acceptable levels of service differ considerably from one country to another and are greatly influenced by income levels, the value placed on time, geographic and climatic conditions, availability of alternative modes, traditional standards, public attitudes and ethnic characteristics⁶⁵.

However, market research on transport services carried out worldwide repeatedly shows that public transport users consider reliability to be the most important quality of a transport service, followed by service frequency and journey speed. These are key to keeping the overall 'generalised cost'⁶⁶ of travel down. While government policies tend to focus on keeping fares low, availability and quality of service seem to be viewed as more important by users.

Although there is no set of standards that can be universally applied to the quality of bus services, a number of attributes can be measured.

⁶⁴ The Bangladesh Road Transport Corporation in Dhaka has resorted to renting its single and double-deck buses to drivers (many of whom were not employees) on a daily or longer-term basis in an effort to reduce the management problems of revenue leakage and difficult employee relations.

⁶⁵ The results of an interview survey of *angkot* (small cramped 12-seat minibuses) passengers in Bandung indicated a relatively low level of satisfaction with the service comfort. However, when asked whether they preferred to ride in a regular bus, about 70% responded that they had no preference (33%) or preferred the *angkot* vehicle (37%). This result may reflect the fact that public transport users in Indonesia do not associate bigger buses with a better service. The only big buses in Bandung are those operated by the state-owned bus operator DAMRI. DAMRI buses are poorly managed and maintained, unreliable and chronically overloaded, resulting in very low levels of comfort and convenience.

⁶⁶ Generalised cost estimates the total value of money and time expended on a trip, including the following: walk access time, waiting time, fare (converted to minutes using a value of time), in-vehicle time, walk time to final destination. Actual travel time is weighted. Typically, walking and waiting time is perceived to be unattractive and is factored by about 2 relative to in-vehicle time. Boarding and interchange penalties are used to represent the inconvenience of an indirect journey. Additional waiting penalties at boarding nodes or an in-vehicle time factor on congested services can be used to represent congestion.



Figure III-5: Transport users in Bandung prefer microbuses because big buses are associated with low service quality and overloading

Karl Fjellstrom, 2001

1.2.2.2 Waiting Time

The time passengers have to wait for buses is a major factor in the overall quality of services. In developing countries the average waiting time should be in the region of 5-10 minutes, with a maximum wait of 10-20 minutes. The lower end of these ranges would apply to fairly short journeys with high frequency services and the upper limit would apply to long journeys and low frequency services.



Figure III-6: Strasbourg, France. Knowing when the next tram or bus will arrive reduces the perceived waiting time

Klaus Banse, 2001

The substitution of loosely organized paratransit services by a coordinated service, even without additional vehicles, will tend to make headways more regular and reduce average

waiting time, as well as eliminating the extremely long waiting times that occur occasionally in paratransit services.

Waiting time does not need to be measured directly and can be assessed by monitoring:

- vehicle headways by service throughout the day to estimate average wait times;
- vehicle loads and passenger demand along the route to identify over-capacity situations resulting in long waits.

1.2.2.3 Walking Distance to Bus Routes

The distance that passengers have to walk to and from bus stops are indications of the network coverage provided by bus services. In reasonably well-served urban areas passengers should expect to be able to catch a bus within 300-500 metres of their home or workplace. Distances in excess of 500 metres may be acceptable in low-density areas but the maximum walking distance should not exceed one kilometre.

In metropolitan areas of UK it was reported⁶⁷ that 92 per cent of households lived within 6 minutes walk (500 metres) of a bus stop in 1998.

1.2.2.4 Journey Time

Passengers should not be expected to spend more than two to three hours each day travelling to and from work (door to door) in the largest urban area, and considerably less in a relatively small city. The average bus speed should not drop below 10 km/hr in dense urban areas with mixed traffic and in medium to low-density areas journey speeds of around 25 km/hr should be achieved. In Bangkok in 1995 average morning peak journey times by main mode were:

- bus: 64 minutes;
- private car: 55 minutes;
- motor-cycle: 34 minutes.⁶⁸

1.2.2.5 Interchanges

The need to interchange between routes or between modes adds to the time spent waiting and to the inconvenience experienced by passengers. It also adds to passengers' direct costs as a fare may have to be paid for each mode or service boarded. In a large city many commuters might be expected to interchange once but less than 10% of passengers should be required to interchange more than once. It is important to review and introduce changes to the route structure in order to reduce the number of interchanges.

The need to interchange is perceived by passengers as a penalty over and above the actual time changing mode or route, even in the best public transport systems. In practice it will be impossible to eliminate interchange, but all the major desire lines should be directly satisfied without need to interchange.

Recent research⁶⁹ on passengers' attitudes to interchange show a high degree of consistency. The main finding is that passengers dislike interchanging between services, and the need to interchange is a deterrent to public transport use.

⁶⁷ "The Lesson from Deregulation in Great Britain: why smaller public transport subsidy is better" by Francesco Ramella, PhD. 7th International Conference on Competition and Ownership in Land Passenger Transport, June 2001

⁶⁸ The Urban Transport Data and Modelling Study 1995, quoted by TP3 p2-5.

⁶⁹ For more detail about the findings of UK research on passengers' attitudes to interchange see Development Department Research Programme Research Findings No. 99, *Interchange and Travel Choice* Institute for Transport Studies, Leeds University & Transport Research Institute, Napier University <http://www.scotland.gov.uk/cru/resfinds/dr99-00.asp>

Passengers' negative attitudes to interchanging derive from:

- uncertainty about the connection, how to make the connection, and how long the wait for the connecting service will be;
- the mental effort required to plan a journey of two or more modes;
- the physical effort required to walk between the transport modes, which is most negative for passengers with luggage or children, and older people;
- uncertainty over the availability of adequate information about making the connection, and ability to access and comprehend that information;
- the environment for waiting: aspects of comfort, exposure to noise, fumes or the weather, perceived risks to personal security. Being able to spend the time productively (such as by shopping) reduces the negative perception of waiting time.

Commuters travelling to and from work are substantially less tolerant of travelling time and waiting time and unreliable connections than those on leisure trips, even though they are more likely to be familiar with the interchange process.

Interchanging on-street is perceived more negatively than in a bus or rail station.

Rail-to-rail interchange is perceived to be less arduous than interchange to or from buses.

Cost, in terms of fare, is not perceived as a major factor, though the need to buy a second ticket adds to the negative aspects of time and uncertainty.

1.2.2.6 Travel Expenditure

While reliability is consistently scored as the most important quality of a transport service, travel expenditure is perceived to be very important in the choice of mode by low-income groups. Perceived high fares leads many to choose to walk. The affordability of a bus fare is dependent on the income level of the users. In developing countries a reasonable level of household expenditure on bus travel has been recommended not to exceed 10 percent of household income.

The average bus fare per journey will be increased by the proportion of trips where one or more interchanges, and the payment of two or more fares, is necessary. Discounted 'through fare' facilities, or free transfers are only available in sophisticated formal, integrated transport systems. The average rate of interchanges (expressed as boardings per trip) will depend on the number of routes in the network and the extent to which the links match the pattern of passenger trips. Route re-structuring to match demand, the improvement of services and competition can help to stabilise or even reduce fare costs.

1.3 The Planning Process

The key measure of the effectiveness of a bus network is the extent to which it meets the community's travel needs. An efficiently planned route network underpins the financial performance of the sector as a whole and is critical to a competitive tendering/franchising system. Systematic network planning drives the overall cost effectiveness of the network.

In many developing cities the pattern of movement is changing rapidly as new locations for employment and settlement develop. Matching vehicle types to demand levels while maintaining attractive frequencies is essential to improve competitiveness.

Although knowledge of the system and experience may provide the basis of a crude planning process, and is better than no planning at all. However, in a system bigger than a small town, only a detailed analysis can produce the optimum route network, levels of service and capacity of vehicles to meet demand. Generally, the greater the resources and technology committed to data collection and analysis, the more cost-effective the resultant network will be.

| Activity | Pre-project | Months 1-3 | Months 4-6 | Months 7-9 | Months 10-12 | Months 13-15 | Months 16-18 |
|--|-------------|------------|------------|------------|--------------|--------------|--------------|
| 1. Pre-Planning Analysis | | | | | | | |
| 1.1 Background and situational analysis | ■ | | | | | | |
| 1.2 Stakeholder analysis | ■ | | | | | | |
| 1.3 Origin / destination study | ■ | | | | | | |
| 1.4 Overview of mass transit options | ■ | | | | | | |
| 2. BRT System Structure | | | | | | | |
| 2.1 Statement of vision | | ■ | | | | | |
| 2.2 Workplan and timeline | | ■ | | ■ | | ■ | |
| 2.3 Regulatory and legal issues | | ■ | ■ | | | | |
| 2.4 Administrative and business structures | | ■ | ■ | | ■ | | |
| 2.5 Tariff structure | | | ■ | | | | |
| 2.6 Cost analysis | | | ■ | ■ | | | |
| 3. Communications, Customer Service and Marketing | | | | | | | |
| 3.1 Public participation processes | | | ■ | | | ■ | ■ |
| 3.2 Outreach with existing transport operators | | | ■ | ■ | ■ | ■ | ■ |
| 3.3 Public education plan | | ■ | | | ■ | | ■ |
| 3.4 Customer service plan | | | ■ | ■ | | | |
| 3.5 Security plan | | | | ■ | | | |
| 3.6 Marketing plan | | | ■ | ■ | | | |
| 4. Engineering and Design | | | | | | | |
| 4.1 Corridor location | | | ■ | ■ | | | |
| 4.2 Routing options | | | | ■ | | | |
| 4.3 Road engineering | | | | ■ | ■ | | |
| 4.4 Station and terminal design | | | | ■ | ■ | | |
| 4.5 Bus depot design | | | | | ■ | | |
| 4.6 Landscape design and plans | | | | | ■ | | |
| 5. Technology and Equipment | | | | | | | |
| 5.1 Fare collection and fare verification systems | | | | | ■ | ■ | |
| 5.2 Control centre plan | | | | | ■ | | |
| 5.3 Intelligent transport systems | | | | | ■ | ■ | |
| 5.4 Bus technology | | | | ■ | ■ | ■ | |
| 5.5 Aesthetics | | | | | ■ | ■ | |
| 5.6 Interior design of bus | | | | | ■ | ■ | |
| 5.7 Equipment procurement process | | | | | | ■ | ■ |
| 6. Modal Integration | | | | | | | |
| 6.1 Modal integration plan | | | | | | ■ | ■ |
| 6.2 Travel demand management | | | | | | ■ | ■ |
| 6.3 Integration with land-use planning | | | | | | ■ | ■ |
| 7. Plans for Implementation | | | | | | | |
| 7.1 Financing plan | | | ■ | | ■ | | ■ |
| 7.2 Staffing plan | | | | | | | ■ |
| 7.3 Contracting plan | | | | | | | ■ |
| 7.4 System maintenance plan | | | | | | | ■ |
| 7.5 Monitoring and evaluation plan | | | | | | | ■ |

Figure III-7: An illustrative timeline for a bus rapid transit project.



Figure III-8: Newspaper report about qualification mission for technical inspection personnel of the Department of Motor Traffic (DMT), Colombo

Detailed passenger origin/destination data is necessary for network planning. The large volume of data and complex calculations means that the only practical means to analyse trip data and evaluate alternative network strategies is to use one of the many computer-based route network analysis software packages. The software identifies major desire lines and forecasts passenger volumes which enables the most appropriate service type and vehicle type to be identified.

The underlying financial performance can be estimated using this analytical process. It is also possible to examine alternative fare strategies using this same database by using appropriate fare elasticities. Accurate estimates of the demand and commercial viability of a route are essential to the process of designing routes to be awarded by competitive tender. They are also necessary for the development of the tender criteria: for example whether, for a given demand, a bid that specifies a high frequency service with small vehicles should be preferred to a bid offering a low frequency service with large vehicles.

To get a true measure of the demand pattern it is necessary to undertake household surveys. Limiting surveys to the users of the existing transport network excludes those not using the service. Rather than conduct a citywide household survey – with the scale of work causing logistical difficulties – it may be possible to target the newer suburban and commercial areas for selective detailed surveys.

The data from home interviews will be supplemented by other surveys.

Regular *cordon counts* are useful. The value of a single cordon count is limited as it is a single 'snapshot' but multiple counts generate time-series data which are very useful for monitoring the impact of newly introduced network changes. The value of the data increases

if the cordon count sites are made at the maximum loading points along the corridor. However, in order to capture more routes it may be necessary to select sites that are not the maximum loading points. Cordon counts or other related surveys simply monitor performance and are not substitutes for origin/destination data.

In-vehicle surveys may indicate the level of interchange and overall network effectiveness. Boarding and alighting counts with surveyors logging passengers' entry and exit movements along a route give a loading profile over the whole length of the route.

Attitudinal surveys of passengers have value in assessing overall network performance. Limited surveys can be used to monitor local network changes.

Electronic ticketing systems offer the potential to monitor passenger volumes on a daily basis. Ongoing 'surveys' of this nature are invaluable and allows seasonality patterns to be tracked in detail.

1.4 Acquiring Planning Capability

Few government agencies or operators in developing cities have the capability to undertake systematic network planning. Typically, initiatives for route changes arise from customer complaints, through political channels or from the operators themselves. Network gaps may be filled incrementally by a route extension or, less commonly, by a new route. The city transport authority will approach an operator, perhaps the state-owned bus operator or one of the organizations controlling paratransit services. The basis on which the operator is selected is usually unclear and certain operators may be treated more favourably than others.

A continuous network planning process of the highest professional standard is required in the larger cities in order that the needs of the citizens are matched with appropriate transport services.

The cost of engaging foreign consultants to undertake the network planning study is insignificant compared to the cost to a city of an inefficient route network. In time it is essential that the skills to undertake a detailed network review are acquired locally. The acquisition of this expertise can be accelerated by local participants learning from 'hands on' practical exposure while the analysis is being undertaken under the guidance of a foreign practitioner. As local expertise increases, it may be used to maximum effect if it is concentrated in a 'centre of excellence' such as a 'think tank', a consultancy, or a university institute and may then be available to many cities on a consultancy basis.

Unfortunately, many network studies have been conducted, but the benefits were never realized because of the constraints on implementation often deriving from an inadequate regulatory framework, low institutional capability and vested interests in the *status quo*.

1.5 Planning Outputs



Figure III-9: Hanoi's expanding large bus fleet has been one of the factors leading to large ridership gains.

Walter Molt, 2002

The output of the planning process will be a service development plan, which should be updated every one or at most, two years. The plan will include the following components:

- a statement of how far demand is being met;
- a summary of proposed new routes and changes to existing services: the network, capacity, service quality, and fares, by mode, by operator, or by area and by route. Proposed changes within the one-year horizon will be specific, with a date. Changes beyond one year should be in outline, by 3-month or 6-month periods;
- a statement of the financial performance of different sectors in the industry, with an indication of the timing and scale of any future fare increases forecast to be necessary.

The widest consultation of the service development plan should be sought. The public, local interest groups, political organisations and the public transport operators should all participate in the annual planning process and be encouraged to submit proposals for new routes or changes to existing routes.

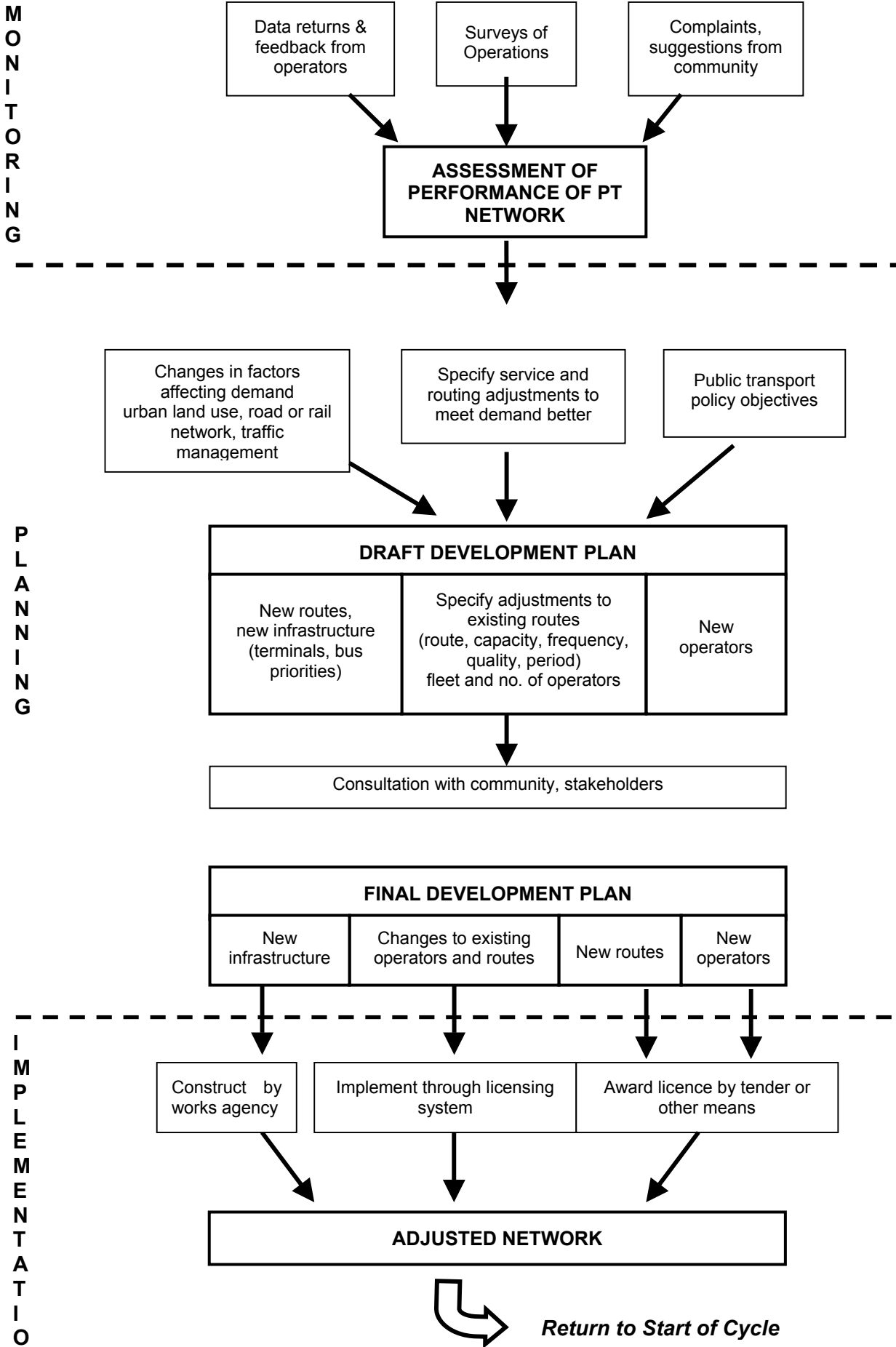


Figure III-10: The Planning Cycle

2 Regulation

2.1 Introduction

2.1.1 Definitions

The following definitions are used:

Regulatory measures are specific directives, restrictions or prohibitions imposed by legislation or by the authority.

The regulatory framework is the broader concept of the full range of incentives, freedoms and regulatory measures where the state/public authority plays a central role.

The regulatory context includes not only the framework of rules and measures implemented by the public authority, but the operating environment which contribute to regulate the system behaviour (e.g. markets, operators' associations, non-governmental organisations etc.)

2.1.2 Benefits of Competition

In recent years it has been widely recognised that the incentives provided by competition are more effective in promoting efficiency and demand-responsiveness in transport services than directives or direct provision of services by state agencies. This general principle is subject to some reservations:

A recent study⁷⁰ concluded that:

- Competition can be a powerful force for improvement but will only bring the large benefits if appropriately, not necessarily heavily, regulated.
- Regulation is not without risks – it is expensive and if applied inappropriately can stifle innovation in the supply of services and competition.
- There is no optimum regulatory regime. None is perfect. The most appropriate strategy should be selected and adjusted to local conditions. Factors in this choice include:
 - geographic, demographic and socio-economic characteristics;
 - public transport policy and pricing objectives;
 - institutional capacity;
 - the industry structure;
 - the types and modes of transport in the area.

2.2 Typology of Regulation

A wide variety of market structures and associated regulatory regimes exists in the bus sector, ranging from public or private monopolies to open markets⁷¹. The DfID study⁷² developed the classification in the left column of Table III-1.

⁷⁰ *Review of Urban Public Transport Competition Final Report*, Halcrow Fox for Department for International Development, UK. May 2000.

⁷¹ It is recognised that different regimes can exist in the same location for different modes (e.g. long-term franchises or public monopoly for rail-based mode, with more competitive, open market for bus/paratransit). Also, there may be an unofficial or unregulated market for paratransit in parallel to the formal network.

This classification combines the three concepts of:

1. regulatory strategy;
2. market type;
3. access to the market and means of procurement.

| Classification | Degree of Competition |
|---|------------------------|
| Monopoly | No competition |
| Management contracting Gross cost service contracting Net cost service contracting Franchising Concessions Quantity licensing Quality licensing | Controlled Competition |
| Open market | Open Competition |

Table III-1: Classification of Markets and Competition

For the purpose reviewing options in this Module a simplified three-way classification (shown in the right column of [Table III-1](#) is used, based on the degree of competition: no competition; controlled competition; open competition.

2.2.1 No competition

Closed market. Responsibility for providing transport services is vested in a single operating undertaking either a private company⁷³ or more commonly a public sector agency which plans and directly operates the services⁷⁴. Many of the characteristics of monopolies are shared by oligopolies. The monopoly model was very common prior to the 1980's.

Monopoly is both an industry structure and a state of no competition. The DfID study concluded that:

'Public monopolies are, almost always, less efficient than competitive regimes. This results from a combination of political interference, poorly incentivised management, the power of organised labour and social and other obligations. Not all these are at work in all public monopolies and their extent varies but, almost without exception, they are present in sufficient degree to result in a significant efficiency deficiency compared with a well-chosen alternative competitive regime. Public monopolies however have the advantage of closer authority control over services and fares. This can make integration and attention to social and other wider community needs easier to achieve. But even this requires a coherence of purpose and action within the public sector that is all too often missing. In the case studies and literature research we have not found any examples where a pure public monopoly offers a superior alternative to the best-designed competitive arrangement.'

However, a monopoly of bus transport provision is not a monopoly of urban passenger transport provision. There will be competition between buses and other public transport modes (rail passenger ferry) and, as described in Module 2 Industry Structure, if a monopoly fails to deliver adequate services, it creates an opportunity for informal paratransit operators to enter the market. Once established, paratransit offers very effective competition against a complacent public sector operator (see [Case Study 1.1](#) in Module 2 – Road Transport

⁷² *Review of Urban Public Transport Competition Final Report*, Halcrow Fox Ltd., for Department for International Development of the UK. May 2000.

⁷³ e.g. Singapore Bus Services in Singapore 1973-1984

⁷⁴ e.g. London Transport pre-1985, Bangkok, many cities in Europe and the USA, many Chinese cities prior to the first bus joint ventures in the 1990's, most CIS cities.

Corporations in India). Case Study 4.2 on competition between buses and vans in Rio de Janeiro, and Case Study 4.5 on the origins of minibuses in Hong Kong illustrate that paratransit will also find market niches where a private operator fails to fully satisfy demand. Once established, paratransit is very difficult to control or limit.

Most importantly, there will also be competition between public transport and non-motorised modes (walk and bicycle) and motorised private modes, particularly motorcycle⁷⁵ and private car. The DfID study concluded that internal competition between public transport providers was more effective in promoting service improvements than competition with private modes.

2.2.2 Controlled Competition

Competition may be controlled in two ways:

- for the market: an operator is awarded an exclusive right to provide services. Competition is generated for the award of the exclusive right.
- in the market: operators compete for passengers, complying with certain rules of competition.

There are many cases where competition occurs both for the market and in the market, for example where a limited number of operators are awarded operating rights and subsequently compete for passengers.

In either case, a competent authority is required to control the competition: in the first case to manage the competitive process for award of the exclusive or non-exclusive operating right and in the second case to set the rules governing competition.

Developed Cities

In most developed cities, controlled competition is for the market, i.e. the competition is for the right to operate. This is because urban transport in developed cities is almost always heavily subsidised and the competition for the market is determined in favour of the operator requiring the lowest amount of subsidy to provide the fixed level of service specified by the authority. Once the principle of each mode recovering its costs from fares has been abandoned in favour of integration, the way is open for pricing of services using economic rather than financial criteria.

This strategy has been adopted, with varying degrees of sophistication, by many cities in developed countries e.g. cities of the EU including London, Dublin, Copenhagen, Stockholm, Helsinki; also cities in Australia and New Zealand and the USA.

The administration of a fully integrated system and a regime of controlled competition demands quite high professional capability and a sound legal basis. High standards of transparency, integrity and fairness are necessary if operators are to have confidence in the award process.

Developing Cities

In the cities of the developed world, transport planning and regulatory capacity is strong but competitive forces are rather weak. In the cities of the developing world the opposite applies. Indeed, the successful implementation of a strategy of controlled competition is almost a defining characteristic of a developed city.

⁷⁵ Small motorcycles in developing countries offer a high level of service (no waiting time, high door-to-door travel speed) and low cost that is very difficult to match with any form of public transport. In Bali, Indonesia in 1999 the modal split for motorised trips was motorcycle 76%, car 20% and bus 4%. In Hanoi Vietnam in 2003, buses carried less than 10% of trips, while motorcycles' share was about 80%. The key policy challenges in these cities is to transfer trips from motorcycles to public transport and slow the rate at which motorcycle users upgrade to private cars.

Relatively few developing cities have introduced competition for the market. Some attempts have been made, with mixed results due to problems in the design or execution of the tender process, and in the subsequent supervision of the contracts⁷⁶. Even so, effective competition in the market is also uncommon in developing countries because of lack of sophistication in the regulatory framework and low-capability institutions. As was explained in Module 2 'Industry Structure' there are many constraints on producing effective competition in the market, as operators tend to organise themselves to deter the entry of newcomers, or even incursion by other modes, into their routes and territory. The response of the regulatory authority in such cases is often to defer to the route organisations, using them as intermediaries. Attempts to challenge the power of monopolistic operators' associations are rare, and can provoke determined resistance.

2.2.3 Open Market (Deregulation)

An open market is established where any qualified operator who meets specified organisational and safety criteria is free to operate any service at his discretion. The most well-documented example is in the UK cities outside London. An assessment of the impacts of deregulation in UK is at [Case Study 3.4](#).

It is difficult to identify examples of deregulated bus industries in developing countries.

2.3 The Role of the Authority

The role played by the supervisory or regulatory authority will vary between the three models, (no competition; controlled competition and open competition) but an effective body is necessary for any of the models to be successful.

Under the 'no competition' model a supervisory body is required to ensure that the operator meets certain general standards of service coverage, performance and quality. However, in the case of a private monopoly the authority may have no effective recourse if the standards are not met since the incumbent operator will be difficult to replace in the short term and will often blame his shortcomings on deficiencies in the regulatory or operating environment. In the absence of a comparison, the authority will tend to accept these uncritically. This may discourage effective planning by the authority.



Figure III-11: The example of Hong Kong demonstrate that integrated transport policies and programmes can be successfully implemented by government departments

Karl Fjellstrom, 2001

⁷⁶ See cases: Brazil, Pakistan, Uzbekistan.

In the case of a public sector monopoly operator the supervisory body is likely to be 'under the same roof' as the operator (usually a department of city government) and not independent. There may also be a supervisory board.

A monopoly has weak incentives to control costs and the supervisory agency may have the task of presenting demands to the government to fund ever-increasing operating deficits. Government itself may contribute to these deficits, for example by promoting over-staffing. Government may be unwilling to increase fares to the level of cost recovery for political reasons. This is a 'slippery slope' down which many government monopoly bus undertakings have slid. The decline may reach extreme levels⁷⁷ before the imperative for reform is recognised.

Under controlled competition 'for the market' the authority will be responsible for the planning and development of the whole public transport service, including all the modes, perhaps down to the level of operating timetables.

The authority's tasks will include:

- planning of transport infrastructure and technical systems (such as information and ticketing systems);
- defining each route in the network and specifying the service parameters;
- procuring services through tendering and contracting, and the management of those contracts;
- resolving coordination issues between operators;
- monitoring the operator's compliance of each route contract;
- monitoring the overall network against demand;
- fare-setting.

For these tasks, a comprehensive transport database needs to be established and maintained.

The authority will also be the government's main advisor on public transport policy. It will recommend service standards including capacity and quality, environmental standards, fares, vehicles and labour conditions.

Under an open market the authority's main responsibilities will be to ensure that competition remains effective, and to maintain and enforce minimum safety and environmental standards for operators and buses. The role of the authority will not include comprehensive planning of the network and services – the operators in the market will do this. A system of registering routes and buses deployed will enable the authority to monitor the network. The authority may have responsibility for procuring any services that the market is unwilling to provide. This will be done through tendering and contracting.

2.4 Factors Defining Regulatory Regimes in Developing and Developed Cities

There is a clear divide between developing cities and developed cities and in respect of the basic characteristics of their public transport systems. These determine their regulatory frameworks.

⁷⁷ The state-owned Punjab Road Transport Corporation in Pakistan reached a point in early 1997 where only 27 buses of its fleet of 845 was fit to operate, but it had more than 10,000 staff on its payroll. The staff were retrenched with World Bank assistance at a cost of PKR 2 billion.

The defining features of public transport in developing cities are:

- there is no subsidy, except that public sector undertakings may be subsidised by payment of their deficits *ex post*⁷⁸. Private sector modes typically cover their full costs from fares; there are relatively few examples of developing cities where bus systems are subsidised. There are several reasons:
 - most developing cities rely heavily on low-quality paratransit systems. Low costs enable cost recovery despite the affordability constraints of users;
 - the administration of subsidies requires sophisticated administrative mechanisms to ensure they are allocated efficiently and agencies are accountable. Developing city governments often lack this level of capability;
 - subsidies are most easily applied to large corporate transport undertakings which have accountable and responsible management, whereas the individual sector dominates in many developing cities;
 - developing city governments often lack sufficient funds to subsidise transport, because there are higher priorities for the use of public funds, including basic services such as health, housing and education.
- service quality and reliability is often low, constrained by passengers' affordability of fares;
- there is relatively little integration of routes, modes or fares;
- paratransit modes fill gaps in the quality range, network coverage or capacity of formal modes;
- the regulatory framework does not impose service obligations on operators. This is because regulatory authorities often lack the capability to plan networks and the ability to enforce service obligations. Regulation tends to be permissive – a vehicle is licensed to operate on a route and the main incentive to operate the vehicles is the operator's need to generate revenue. There is no sanction for failing to operate. Route and capacity changes tend to be incremental, and usually in response to pressure from the public or the operators;
- despite the presence of multiple operators, competition in the market is generally not effective because of restrictive regulatory measures by government and restrictive practices by associations of informal operators which restrict access to routes and terminals. Where competition does exist in paratransit, it tends not to create incentives for service improvement. Creating competition in the market or for the market, requires an effective planning and regulatory capability, at least to impose some service obligations and develop minimum timetables. Where public sector operators are present, they tend to have commercial advantages and there are often regulations that protect them from competition⁷⁹;
- low institutional capability limits the scope of regulatory functions and creates difficulties in imposing regulatory measures on the informal sector; regulation is often limited to issuing permits and collecting fees.

The characteristics of transport systems in developed cities are:

- transport is subsidised; its quality is not constrained by fares;
- the cost of public transport is high, commensurate with its high quality which is necessary to achieve the objectives of diverting trips from private vehicles, providing

⁷⁸ i.e. their deficits are paid from public funds.

⁷⁹ For example, BMTA in Bangkok, DAMRI in the fifteen largest Indonesian cities, and State Road Transport Corporations in Indian cities all have some exclusive rights by law.

equality of mobility to disadvantaged members of society while meeting high environmental standards.

- there is a high degree of integration between routes, modes and fares;
- there is an absence of informal paratransit modes;
- operators are subject to service obligations;
- there is an effective transport authority;
- there may be a public sector monopoly operator.

Characteristics of a highly developed transport system may also be identified:

- transport is highly subsidised, and there are procedures to ensure that the best value for funds expended on subsidy is obtained;
- routes and fares of all modes are integrated and a common tariff and/or common ticket system is adopted. Either the authority collects and retains revenue or an arrangement for distributing revenue between operators is in place;
- the transport authority has a highly sophisticated capability for planning, service procurement and monitoring and is directed by a supervisory board whose powers and duties are defined by statute.

The highly developed system can be recognised as the model envisaged in the European Union draft regulation described in the next chapter.

Given these characteristics, it is possible to classify cities by the stage of development of their transport systems, and also to identify the stage at which a transport system has made the transition from one category to the next.

Stages in the Singapore's Transition to a Developed Public Transport System

Singapore's public transport system was characterised as a 'developing' system in the 1970's with a monopoly bus operator Singapore Bus Services SBS providing poor services, supplemented in peak hours by school and contract buses under a 'supplementary scheme', analogous to paratransit. Regulation was by the Ministry of Communications.

In 1987 the first mass rapid transit (MRT) rail line opened and, to facilitate integration a statutory Public Transport Council (PTC) was established with responsibility for authorizing bus routes and fares for buses, taxis and MRT. In 1989 Transport Link Ltd. was established, with investment capital contributed equally by SMRT, SBS, and TIBS to undertake integrated bus route planning and manage the common ticketing system. These developments put Singapore in the 'developed' city transport system category. Exceptionally however, public transport was not directly subsidised, except in respect of infrastructure costs.

Integration continued with the establishment of the Singapore Land Transport Authority in 1995, the rationalisation of bus routes to complement the successive extensions to the MRT and light rail network (which comprised 95 stations by 2003) and the universal 'Ez-link' smart-card fare collection system introduced in 2002. These aim to enable seamless journeys through the network.

Uniquely for a highly developed urban system, transport subsidy in Singapore remains confined to capital and infrastructure costs⁸⁰, albeit that the amount of subsidy is huge given the construction of 128 kms of metro and light rail in the last twenty years. Operating costs are covered by fares.

The 'duopoly' in provision of bus services (by SBS and Trans-Island Bus Services) was reaffirmed by the 1996 transport policy paper on the grounds of stability and the potential for supporting unprofitable bus routes by internal cross-subsidy. The government claims the two bus operators compete 'in terms of efficiency, cost-effectiveness and service levels', and states that Singapore will not move towards more intensive competition in the bus market, nor competition for the market⁸¹.

Box III-1: Stages in Singapore's Transition to a Developed Public Transport System

2.5 Implementing Controlled Competition

There are two sets of issues in the design of a strategy of controlled competition:

- the regulatory strategy;
- access to the market: the means of procurement.

2.5.1 Regulatory Strategy

Public transport in most European, North American, Australasian and former communist cities has been operated by public sector monopolies. There is now a strong trend towards controlled competition in the form of contracting out the supply of transport services to multiple suppliers, with the contracts conferring an exclusive right for a term of years. The trend has been reinforced by the draft EU regulation described later.

Relatively few developing cities have adopted competitively bid contracts, though several South American countries have made initiatives.

⁸⁰ which includes tunnels, viaducts, stations, signalling system and the first set of trains on new lines.

⁸¹ *A World Class Transport System*. White Paper. Singapore Land Transport Authority 1996.

Forms of Contracts

A variety of contracting strategies is available including:

- management contract, where the authority owns the assets;
- service contracts: 'net cost' or 'gross cost'.

Service Contracts - Gross Cost or Net Cost

Under a 'gross cost' contract, all the revenue accrues to the authority, so the revenue risk falls on the authority. The operator has to consider only the cost of providing the contracted service, which can usually be estimated with some accuracy.

If contracts are 'net cost', (i.e. the operators base their bids on the expected revenue for the route, plus the amount of subsidy, if any, required to fully cover their costs), bids will include a premium to take account of the risk that the forecast revenue will not be achieved in practice. In London tenders, where passenger demand for the routes was well established, it was noted⁸² that costs to the tendering authority were about 10% per bus km cheaper for gross contracts than for net contracts.

In a city such as Hanoi, Vietnam, which does not have an extensive network of bus routes, basic data such as potential passenger demand in particular corridors and elasticity of demand in relation to fares have to be estimated from empirical data. The accuracy of such predictions depends on the quality of input data and it could be expected that bidders would add a risk premium for 'net cost' contracts of about 20-30%.



Figure III-12: Hanoi, Vietnam. Hanoi's policy is to transfer trips from motorcycles to buses. The state-owned operator has greatly expanded its fleet but there is little data on demand

Richard Meakin

Thus, gross cost contracts are cheaper for the authority in an environment where reliable demand data is not available.

Net cost route contracts offer the potential for competition in the market, though price competition will be reduced where integrated fares and ticketing are adopted.

Gross cost contracts involve a risk to the authority that the operator does not transfer, or account for all revenue to the authority. However, where a large proportion of revenue is

⁸² Source: *The London Bus Tendering Regime – Principles and Practice*. Toner JP. 7th International Conference on Competition and Ownership in Land Passenger Transport. June 2001.

received off-bus directly by the authority (for example, by sale of stored value tickets, passes, monthly tickets, tickets by machines at stops and retail outlets) this risk reduces.

In deciding whether to adopt net cost or gross cost contracts, the cost of leakage of the proportion of fares paid in cash on a gross cost contract must be weighed against the additional revenue risk premium which a bidder might add to a net cost contract. In London, a mix of gross and net contracts was used for different route packages. A full description of the London Bus Tendering Scheme is at [Annex III-2](#).

Quality Contracts

A frequent criticism of gross cost contracts is that the operator has no incentive to attract additional passengers by service enhancements because his income is independent of revenue. Even in net cost contracts the incentive to attract additional passengers is weak. To overcome this disincentive, quality contracts have been adopted in a few countries (Norway, Australia, New Zealand).

A quality contract is a form of incentive contract, which aims to obtain the best possible service for users at a given subsidy level. Such contracts use well-defined and clearly predictable performance measures to achieve a more customer-orientated services, better long-term service planning and better integrated regional networks.

Quality contracts are flexible and, unlike competitive tendering, do not need fixed durations. Quality contracts tend to strengthen market incentives and reduce contract negotiation costs as long as the need to re-negotiate contracts is relatively infrequent. In addition, the public transport authorities can use tendering as a threat to discipline the operator if the specified service level is not achieved.

Quality contracts should be based upon quality measures that can be quantified, such as:

- number of stops per sq km;
- frequency;
- travel time;
- interchange frequency;
- reliability and adherence to schedule.

Under the contract, the operator is required to collect data from users on their judgements of service quality which is used to measure customers' perceptions of performance. The most important parameters will be travel time, information about the service at the stops and on the vehicle, fare level and the discount structure.

A trial of quality contracts was carried out in Hordaland County, Norway between 2000 and 2003⁸³. The evaluation showed that operators responded to the incentives, and that users reported significant improvements in service quality.

Patronage Incentive Contracts

An alternative method to overcome the disincentive to attract additional riders under a gross cost contract is the use of a patronage incentive contract under which the operator receives additional payment for attracting extra passengers. Patronage incentives are only feasible when demand has stabilised and incremental increases in ridership can be measured.

⁸³ Reported in 'Experiences with Quality Contracts in Public Transport in Norway'. D M Berge, S Bråthen, O Hauge and F Ohr. 8th International Conference on Competition and Ownership in Land Passenger Transport. 2003.

Route or Area Contracts

A contract may govern the operation of a single route; or it may confer an exclusive right to provide all services in an area of the city, subject to limited rights of access by other operators for operational convenience. The authority may 'bundle' single route contracts to create a *de facto* exclusive area franchise. Some of the key advantages of an area contract may only be realized if the operator has an incentive to increase bus patronage, i.e. the contract is on a fully commercial, or a net cost basis.

A major advantage of a single contract covering an area is that it enables a transfer of responsibility for planning and designing the route network from the authority to the operator, considerably reducing the authority's workload. Further, an area operator (especially operating under a net cost contract, or on a fully commercial, unsubsidised basis) is likely to be sensitive to demand and thus more likely to produce a service well-fitted to demand than the plans produced by the authority under a system of multiple route contracts.

Large area operators may benefit from some economies of scale and greater operational efficiency, for example by inter-working buses on several routes, incurring lower 'dead mileage' between the depot and terminals and by implementing route and fare integration. An area operator may also be held accountable for any service deficiencies in its area. Where a payment is required, a higher bid may be expected for area contracts than for multiple route contracts, thereby producing more revenue for the authority. Also, because multiple route contracts will generate more competition in the market, creating a revenue risk for operators under net cost contracts, this revenue uncertainty is likely to translate into a 'risk premium' in bids and higher contract costs to the authority.

Partly because of the increased resources required for an area contract, and partly because of the emphasis on developing an area market and building patronage, area contracts will normally have longer durations than route contracts (e.g. 7-10 years compared with 4-7 years). This will reduce both the frequency and the number of tenders compared with multiple route contracts.

Although competition in the market may be limited to zones where area contracts overlap, or where incursion in to a contract area zone is permitted, these may be structured to promote competition.

There are also some disadvantages of area contracts. Dependence on an area operator may be high. The practical problems of replacing an area operator will be greater than a route operator due to the large size of the initial investment, and the advantages of the incumbent operator. There is a risk of disruption to services in the event that an area operator is changed⁸⁴.

Table III-2 summarises issues and options in the design of bus franchise contracts.

⁸⁴ When Hong Kong replaced China Motor Bus with New World First Bus in 1998, CMB was required to sell part of its fleet, and transfer the lease of two depots to the incoming operator. One of the tender criteria was that bidders should have a robust plan for the transition.

| Franchise Scheme | Usual Practice with Small-Scale Bus Franchises |
|--|---|
| Basis for determining number of operators | Principles of 'regulatability': <ul style="list-style-type: none"> ▪ multiple licences for each route difficult to regulate; ▪ 'one licence, one route' enables service obligation to be imposed; ▪ in a big city, routes should be franchised in areas or packages to promote efficiency; ▪ small package size means easier replacement of operator and enables shorter contract duration. |
| The basis of the operating right | Options: <ul style="list-style-type: none"> ▪ a departure slot or daily 'running number'; ▪ a route; ▪ a group of routes or a local network; ▪ an area. |
| Design principles of areas / route groups | Separate to confer responsibility service obligation, or overlapping to promote competition |
| Service planning roles and responsibilities between the operator and the authority | Route franchises normally require network planning by the authority. Area franchise may impose responsibility for network planning on franchisee. |
| Service specification by government | Government may specify: <ul style="list-style-type: none"> ▪ all service parameters (route, number, type and quality of vehicles, maximum fare, operating period, frequency); ▪ no service parameters (if individual route permits); ▪ maximum and minimum service parameters; ▪ minimum service parameters only. Franchisee may have some freedom to exceed service parameters. |
| Contract duration | <ul style="list-style-type: none"> ▪ 3 years for minibus; ▪ up to 10 years for big buses; ▪ up to 20 years if requires infrastructure investment and development. |
| Exclusive or non-exclusive rights | Franchises may confer exclusive right to the route, terminals, or stopping places; Exclusive route and area franchises normally include service obligations; Competition may still occur on common route sections; Exclusive area franchises must allow some incursion for operational reasons. |
| Criteria for subsidies | Subsidy may be warranted by wider economic and social objectives, especially where reducing car use is an objective, but there are strong arguments for setting fares at cost-recovery level where possible; A subsidised system involves greater administrative complexity and accountability; Subsidies should be targeted to needy users, not applied by default. |

Table III-2: Franchise Scheme Design – A Summary of Issues and Options

| | |
|--|---|
| Treatment of 'incumbent' operators | Individual operators may oppose reforms, they should be invited to consolidate into route organisations and apply for franchise. |
| Policy re provision of buses | Buses normally provided by franchisee except where management contract. |
| Policy re provision of depots | Depots involve major investment, long construction time, and problems of land availability: require long franchise tenure, at least ten years. If depots provided by government, franchise tenure may be shorter, easier replacement of operator. |
| Policy re provision of route infrastructure | Shelters may be provided by government, franchisee or third party agency. If operators share facilities on short franchises, government should own infrastructure. |
| Criteria for tendering / contract award | Selection criteria will vary with government objectives. Options: <ul style="list-style-type: none"> ▪ quality of service; ▪ level of fares; ▪ amount of payment or subsidy; ▪ level of investment. |
| Criteria and procedures for extension or renewal | If subsidised contract, re-tender on expiry. If not subsidised, renewal subject to compliance and satisfactory performance. |
| Payments for franchise | Payment amounts to a charge on users, so normally no payment is required. Proceeds of payment may be used for cross-subsidy from profitable to unprofitable routes. |
| Performance monitoring by authority | Degree of monitoring depends on extent of service obligations. Where competition is muted, monitoring is more important and penalties form important part of operators incentives. Franchise should include obligation to submit operating data to authority. Authority should conduct monitoring program. |
| Sanctions | Procedures to be fair, with due notice and opportunity to make representations. Penalties to be cumulative, with minor infringements incurring points towards fines and loss of exclusivity. Ultimate sanction for serious, repeated offences may be early termination of contract. Performance bond may be appropriate at start-up. |

Table III-2: Franchise Scheme Design – A Summary of Issues and Options (continued)

Additional provisions for Subsidised Operations

| | |
|-----------------------------|---|
| Revenue risk | With operator (net cost contract) With authority (net cost contract) |
| Mitigation of revenue risk | Adjustment of contract for changes in input costs |
| Criteria for contract award | Normally the objective is to obtain the best value for subsidy funds so the bid which meets quality standards and offers the lowest subsidy will win. |

Table III-2: Franchise Scheme Design – A Summary of Issues and Options (continued)

The EU Policy on Controlled Competition

Controlled competition is the ‘middle ground’ between monopoly and an open market. The tendering of exclusive rights to routes or networks of routes, for a limited period of time exposes operators to market forces, while enabling them to develop a market for their services, thereby encouraging investment.

Many public transport systems in developed countries are contracted to multiple operators, who provide service according to specifications set by government agencies. Contracting of bus services is already widely practised in Europe, the US, Australia New Zealand and elsewhere. Public service requirements, such as affordability, accessibility, network integration and common fares and ticketing can be met. Usually, a transit authority in city government plans the services to be operated, undertakes the marketing and promotion of services and ensures that services are fully integrated.

The European Commission has adopted the view that the application of controlled competition in a way which gives transport operators some freedom to respond to market conditions, produces lower operating costs while generating incentives for service quality improvements and still enabling public service requirements, such as affordability, accessibility and network integration, to be met. Service quality is regarded as particularly important as a high proportion of bus users in the EU have the option of private car use.

The following [Table III-3](#) is presented by the EC to support its proposed regulation. The data is derived from an analysis of public transport trends in 30 large EU cities during the 1990’s. It compares the effect on ridership and cost-recovery from fares, of the three main regulatory strategies described above:

- no competition;
- deregulation, as in UK outside London;
- controlled competition– tendering out exclusive rights.

Tendering out exclusive rights (‘controlled competition’) has led to both an increasing number of passengers and higher cost recovery from fares.

| Regulatory Strategy | Annual change in passenger trips | Annual change in proportion of operating costs covered by fares |
|---|---|--|
| Cities with no competition in public transport | - 0.7% | + 0.3% |
| Cities using deregulation without significant role by authorities | - 3.1% | + 0.3% |
| Cities using controlled competition | + 1.8% | + 1.7% |

Table III-3: The Effect of Different Regulatory Strategies on Public Transport Performance

Source: The amended proposal for a Regulation of the European Parliament and of the Council on action by Member States concerning public service requirements and the award of public service contracts in passenger transport by rail, road and inland waterways)

In the light of these conclusions, a EU regulation has been drafted under discussion for several years to introduce more market forces in the provision of public transport services through public service contracts. These contracts will confer an exclusive right for a limited period of time and a limited service area and should be awarded in open competition.

The key elements of the draft EU regulation are as follows:

- requires authorities to secure adequate, demand-responsive transport services that are of high quality and reasonably priced, providing integration, continuity, safety and available to all groups in society;
- specifies conditions under which authorities may compensate transport operators for the cost of fulfilling public service requirements and under which they may grant exclusive rights for the operation of public passenger transport;
- obliges the use of public service contracts if payment of financial compensation for the cost of complying with public service requirements, or the award of exclusive rights, is involved;
- prescribes that contracts shall be awarded by competitive tender by fair, open and non-discriminatory procedure and will last no longer than eight years⁸⁵ for bus services;
- public service contracts may be awarded directly if they have an estimated average annual value of less than €1 million, and if all public service requirements are incorporated, an estimated average annual value of less than € 3 million;
- authorities may decide not to award a public service contract to any operator that already has or would, as a consequence, have more than a quarter of the value of the relevant passenger transport market.

Under the EU principle of subsidiarity⁸⁶ it will be left to individual countries, depending on national objectives, to determine the way the principles should be implemented and the roles and responsibilities of the authorities and operators. The proposed regulation will not

⁸⁵ The original draft regulation proposed a maximum of 5 years which was widely regarded as too short.

⁸⁶ This principle states that regulations should be administered at the lowest practical administrative level.

preclude any of the three broad strategy options described above, but it will be influential in determining the strategy.

2.5.2 The Means of Procurement

Competition for the market usually involves the authority specifying the services and supporting organisation and infrastructure to be provided, then inviting potential operators to make proposals against those specifications. The bidder offering the bid that best meets the selection criteria wins the tender.

An outline of tender procedure is shown in Figure III-13. The procedure is in two parts:

1. pre-qualification: only bids meeting the minimum requirements will proceed to evaluation;
2. evaluation of the bid.

The pre-qualification stage is to determine that a bidder meets the minimum requirements to operate a bus service safely, efficiently and reliably. Criteria will include the bidders corporate experience in transport, number of qualified staff and financial resources in relation to the scale and complexity of the operation. If the bidder satisfies the minimum standard for each parameter he will pre-qualify and the bid will proceed to the evaluation stage.

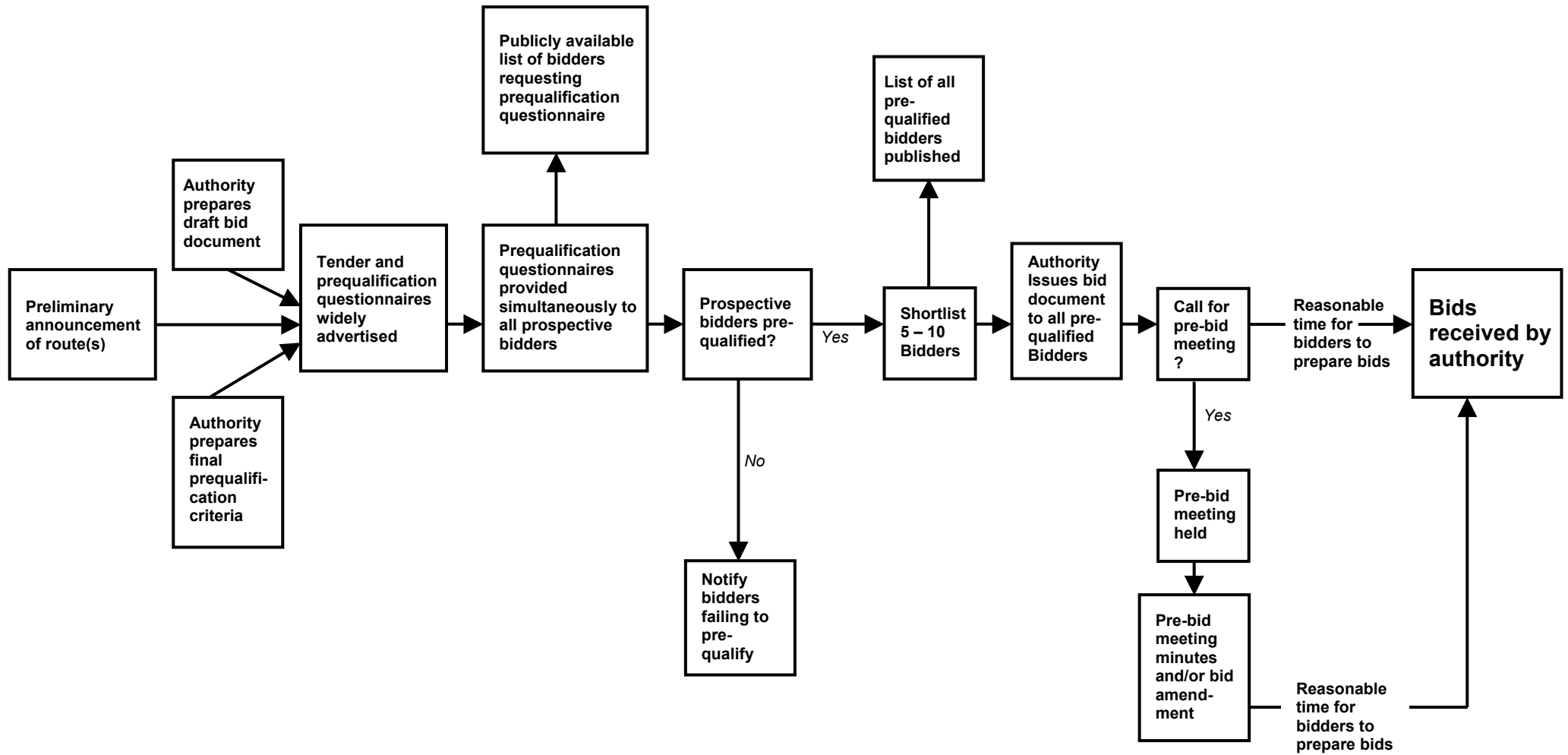


Figure III-13: The Tender Process

Developed Cities – Getting Best Value for Money

It was observed in para 3.4 that a characteristic of public transport systems in developed cities is that they are subsidised and it is usually a policy objective to get the best value for the funds expended on subsidy. This means that the selection criterion can be a simple and easily quantifiable one: the bid which offers to operate the services required for the lowest amount of subsidy. This is the basis of the draft EU regulation.

An alternative criterion for value for money would be the bid which offers the most service (measured by vehicle kms or seat kms, or by network coverage and frequency) for a fixed amount of subsidy.

Developing Cities – Getting the Best Operator

In developing cities, there is unlikely to be a subsidy. If financial criteria are to be used, two options are possible with reference to a specified network:

- the bid offering the highest payment to the authority;
- the bid offering the lowest fare.

The payment of a premium to the authority amounts to a charge on public transport users which may not be consistent with maximising public transport use nor of ensuring social mobility.

In many cases the policy objective may be to select the operator most likely to operate a reliable and efficient service. The regulatory authority will not normally have a comprehensive database nor high planning capability, so specifying the services to be provided may best be left to the operator.

The central problem in setting tender criteria is that the factors that indicate the likelihood of an operator providing an efficient and reliable service (organisation, corporate experience, experience and qualifications of key staff, financial resources) are not readily quantifiable.

The use of qualitative criteria such as these for tenders has been shown to be problematic as comprehension and scores awarded have varied widely between different evaluators.

The criteria used for a tender for bus services in Bahrain in 2002 are listed below. Only bids satisfying the pre-qualification criteria that indicated their capability to operate an efficient service proceeded to evaluation. The evaluated criteria were weighted heavily towards the level of fare (weighting 80%), with three qualitative criteria carrying a total weighting of only 20%. The intention was that fare level would be the decisive factor.

| Criteria | MaximumS core | Proposals core |
|---|--------------------------|---------------------------|
| Technical | | |
| Qualifications/Experience of Firm and Key Personnel | | |
| corporate experience | 5 | |
| key personnel to be involved in operation | 5 | |
| Subtotal: | 10 | |
| Business Plan for First Year of Operation | | |
| appropriateness and innovation | 3 | |
| quality and professionalism | 3 | |
| Subtotal: | 6 | |
| Initial Service Proposals | | |
| appropriateness and innovation | 2 | |
| quality and professionalism | 2 | |
| Subtotal: | 4 | |
| Financial | | |
| Fare factor (K) | 80 | |
| Total Score: | 100 | |

Table III-4: Criteria Used for a Tender for Bus Services in Bahrain in 2002

Where the fare is fixed and a financial payment to the authority is not required, the difficulties in evaluating bids are greater as the most easily quantified criterion, the amount of fare, is removed. The main criterion should be that the winning bidder is the most likely to provide a safe, reliable, efficient and demand-responsive service. Factors that indicate this likelihood are the experience, qualifications and financial resources available to operate the service. These are essentially qualitative and it is recommended that they be applied as 'pass/fail' pre-qualification criteria.

Access to more professional or financial resources than necessary to operate the service should not confer an advantage on a bidder.

Similarly, a bid that offers more service (capacity and frequency) than specified in the route specification (provided that the route specification is based on a reliable estimate of demand) should not gain an advantage in evaluation. Excess capacity will increase operating costs and may affect the sustainability of the service, contrary to the interests of users. Further, the authority will find it difficult to penalise the operator if he subsequently withdraws excess capacity.

It is important that the authority sets the route specification at a realistic level in relation to demand and revenue. This emphasises the importance of professional capability in the authority, although such capability is scarce in developing countries. In the absence of professional resources it is better to keep the tender criteria as simple, basic and quantifiable as possible.

An analysis of a tender exercise in Uzbekistan in 2000⁸⁷ found that:

- the appointment of lay persons to a tender committee created a degree of independence, but their lack of knowledge of bus operating practices was a disadvantage in evaluating and scoring bids. It was recommended that scores should be calculated by expert professionals and checked and verified by the lay committee;
- the marking scheme, specifying the criteria and a scale of scores, must be carefully defined in advance of the tender. The scope for scorers to exercise subjective judgment should be minimised;
- the inclusion of residual qualitative factors such as 'additional proposals' in the bids gave rise to many problems in scoring. The subjective judgment of the relevance of a particular additional factor and the weight to be given to it was highly variable;
- bids that do not meet the route specification required by the 'Invitation to Submit Expressions of Interest' (EOI) must be rejected. In case there are no qualified bids the EOI should be amended and re-issued and a new tender held.

A problem faced by many developing countries is the shortage of professional expertise. Also, expertise tends to be concentrated in the formal transport sector (for example in the state-owned undertaking) although the informal sector often dominates.

This is a source of bias where the state-owned undertaking, or its successor, is a bidder in the tenders

Pakistan Bus Tenders

An initiative in 1999 to hold a tender to re-introduce big buses into Pakistan's cities was a qualified success. It proved impossible to design and assemble the routes in batches and consider competing bids together. In the event, offers came in over a period of nearly two years, and operators chose their routes and established their operations on a 'first come, first-served basis'. Because the most lucrative routes were chosen first, the initial operators were very profitable and new operators were attracted to submit proposals. Problems will occur later, as bidders will be reluctant to extend services to the lower-demand routes.

Box III-2: Pakistan Bus Tenders

2.6 Components of the Regulatory Framework

The regulatory framework will give the authority the necessary powers to implement policies and strategic plans for the development of public transport, and it will implicitly set the limits of that regulatory power. It will also define the rights, obligations and freedoms of the operators.

⁸⁷ For a description of the problems faced in the Uzbekistan tenders see *'Designing Competition in Urban Bus Passenger Transport: Lessons from Uzbekistan'* TWU-41 by Kenneth M. Gwilliam, Richard T. Meakin, Ajay Kumar. Transport Division World Bank April 2000.

A regulatory framework comprises various legal instruments:

- legislation (a statute, law, or decree) which may have supranational, national, provincial, metropolitan, or municipal effect);
- regulations made under legislation which formalise technical regulations and operating standards;
- administrative procedures which become subject to legal standards of fairness and objectivity;
- licences and franchises;
- bye-laws.

The structure and content of these components is illustrated in [Annex 1](#).

It is essential that the system of licensing public transport vehicles and services has a sound legal basis. There are several reasons:

- the powers and duties of the regulator are defined, as are the obligations and freedoms of the operator;
- legal drafting will set out regulatory principles and procedures with precision;
- the process of legal enactment involves a public process which usually includes full consultation and debate;
- either party (the regulator or the operator) may invoke the law, and has an avenue to request remedial action if the other party is in default or acts improperly;
- if operating rights are well defined in law, it limits the risks borne by operators, increases confidence and assists operators to borrow from the formal banking system thereby encouraging higher levels of investment in the industry.

2.6.1 Statutes, Laws and Decrees

Statutes may apply to a country, a state, or a province. Enactment requires a long procedure of drafting and consultation leading to passage through the legislative body. Statutes should contain only the main principles of regulation; more detailed provisions that are likely to be revised periodically should be contained in regulations which are made with less procedural formality.

Route Specification and Tender Procedure in London

In the London route tendering scheme, the route is specified with the following details:

- route to be followed;
- frequency of operation;
- vehicle type;
- quality standards, etc.;
- indicative revenue generation (net cost contracts).

The tender evaluation procedure and criteria are as follows:

- All tenderers receive the same information and have the same response date;
- Bids must comply with specification but may offer alternatives with advantages to customers/LBL, e.g. alternative vehicles, different contract durations, enhanced quality standards etc.;
- Procurement staff may contact bidders to clarify areas of uncertainty;
- Evaluation is by a Procurement Department, using skilled technical and commercial staff;
- The tender result is approved by a Tender Evaluation Committee, including the MD, London Buses;
- Evaluation criteria are: quality, safety and cost (value for money);
 - Post-tender negotiations may take place;
 - Unsuccessful bidders are offered a tender debrief, giving reasons.

Box III-3: Route Specification and Tender Procedure in London

In some countries (for example, Sri Lanka, Pakistan and Indonesia) responsibility for regulating transport (other than national networks such as railway and air services) is devolved to the provincial governments. Services that cross provincial boundaries may be regulated by a national agency. The list of functions to be devolved to the provinces may be enshrined in the constitution (Indonesia and Sri Lanka). In such cases each province will enact a separate transport statute and regulations. This ensures provincial governments have full jurisdiction over transport within their province, but it creates different regulatory procedures in different provinces, while inter-provincial services (which may carry some intra-provincial passengers) may be different again. This is the current situation in both Indonesia and Sri Lanka. Another problem is that the necessity to create a separate transport planning and regulatory agency in each province creates a demand for skilled professionals which may not be available.

In some 'city-states' (Hong Kong, Singapore, Kuwait, Bahrain) a single tier of government exists which simplifies the administration of all functions, including the planning and regulation of transport.

Typically, the following items will be enshrined in statutes or other legislation:

- the constitution and powers of the regulatory authority;
- procedures for the award of operating rights (by permit, licence or franchise);
- criteria for eligibility to hold a permit, licence or franchise;
- conditions that may be applied to operating rights;

- appeals against decisions of the regulatory authority;
- basic standards of construction, equipment and maintenance of public service vehicles.

2.6.2 Regulations

Matters of a more technical nature may be contained in regulations which are made and revised by Ministers without the full legislative procedure of a statute. This facilitates frequent revisions enabling regulations to be kept up to date with changes of technology or operating practices. Regulations take the form of ministerial decrees in some countries (Indonesia).

2.6.3 Technical Guidelines and Standards

Purely technical matters such as vehicle specifications, a fare escalation formula and tender procedures may be contained in a technical guideline or a standard. These are usually drafted by the professional staff of the regulatory department and are not legislation. Standards may be imposed on the operator by the conditions of the licence or franchise agreement.

An example of a technical guideline from an Indonesian administrative regulation⁸⁸ of 1996 showing the hierarchy of city bus routes. The guideline has little effect as there is virtually no private investment in big buses in cities outside Jakarta, and almost all urban transport is provided by individually-owned minibuses (categorised as *angkot*, *angdes* and *AKDP* according to whether they operate within the city, between the city and the suburbs, or across a provincial boundary).

| Route Classification | Type of Services | Type of Vehicle | Capacity (pass/day/veh) |
|----------------------------|------------------|----------------------|-------------------------|
| Main Routes | Fast | Double decker bus | 1,500-1,800 |
| | Slow | Large bus | 1,000-1,200 |
| | | Medium bus | 500-600 |
| Branch Routes | Fast | Large bus | 1,000-1,200 |
| | Slow | Medium bus | 500-600 |
| | | Small bus | 300-400 |
| Small Branch / Twig Routes | Slow | Medium bus | 500-600 |
| | | Small bus | 300-400 |
| | | Public passenger car | 250-300 |
| Direct Routes | Fast | Large bus | 1,000-1,200 |
| | | Medium bus | 500-600 |
| | | Small bus | 300-400 |

Table III-5: Route capacities

⁸⁸ No. 274/HK.105/DRJD/1996

2.6.3.1 Bye-laws

Bye-laws are drafted by the operators to govern the conduct of passengers. They will have legal effect if the operators are empowered by a statute or regulations to make bye-laws. Bye-laws also allow some minor matters to be removed from the legislation.

Bye-laws are only feasible for a substantial operator.

2.6.4 Regulatory Procedures Manual

A Regulatory Procedures Manual may serve five purposes:

- where an authority has little experience of regulation it is prudent to compile, with technical assistance, a comprehensive set of procedures that are consistent with policy objectives, before the new regulatory arrangements start;
- to ensure that the authority discharges the full range of its obligations as well as exercising its powers;
- to create precedents and ensure continuity of regulatory practice over time, as staff change;
- for use as a training aid;
- to provide a reference for operators of how regulatory powers should be exercised.

A manual is less authoritative and easier to change, or depart from, than statutory provisions or a franchise agreement. It will need to be amended periodically in the light of experience and changes in the operational and policy environment.

2.6.5 Maintaining Laws and Regulations

Keeping laws and regulations up to date to reflect changes of policy and practice is quite onerous for the government. There may be shortages of professional staff in the fields of transport planning and regulation and legal drafting. Often, long queues of legislation are awaiting enactment and transport matters may be of low priority. It may take several years for transport legislation to reach the enactment stage, and a change of government may send it to the back of the queue again.

In many developing countries the revision and updating of laws and regulations is not undertaken routinely, and legal provisions become obsolete. In some cases the conditions imposed by a route permit or franchise have no legal basis. The regulators may rely on the operators being unaware of the content of the law. Indeed, informal individual operators are likely to have little awareness of their rights or of channels of redress and would be unlikely to launch a legal challenge against the authority. They are more likely to take direct, collective action in the form of strikes or street protests.

Many developing countries have inherited the legislative provisions from their colonial period. The style of British transport legislation of the 1930s is recognisable as the basis for current licensing legislation in many developing countries of the British Commonwealth. They have amended laws incrementally as the former large private companies and state-owned transport corporations have disappeared and have been replaced by small-scale and paratransit operators. Few developing countries have created totally new transport legislation. The old legislation often has clauses to protect the railways or the state bus undertaking from competition and a licensing basis of 'one-vehicle, one-licence' rather than a route licence.

The concept of 'controlled competition' is relatively recent and legislation usually does not impose a duty on government to award or renew operating rights by a competitive procedure.

A failure by government to update legislation contributes to the risks borne by operators. Enforcement officials may use the sporadic enforcement of archaic legislation as a means of harassing or extorting operators. Obsolete provisions also lower general respect for the law.

It is advisable not to insert provisions into the franchise agreement that are already contained in the legislation because inconsistencies and confusion are likely to arise. Where there is any inconsistency between the franchise and the legislation, the latter will prevail.

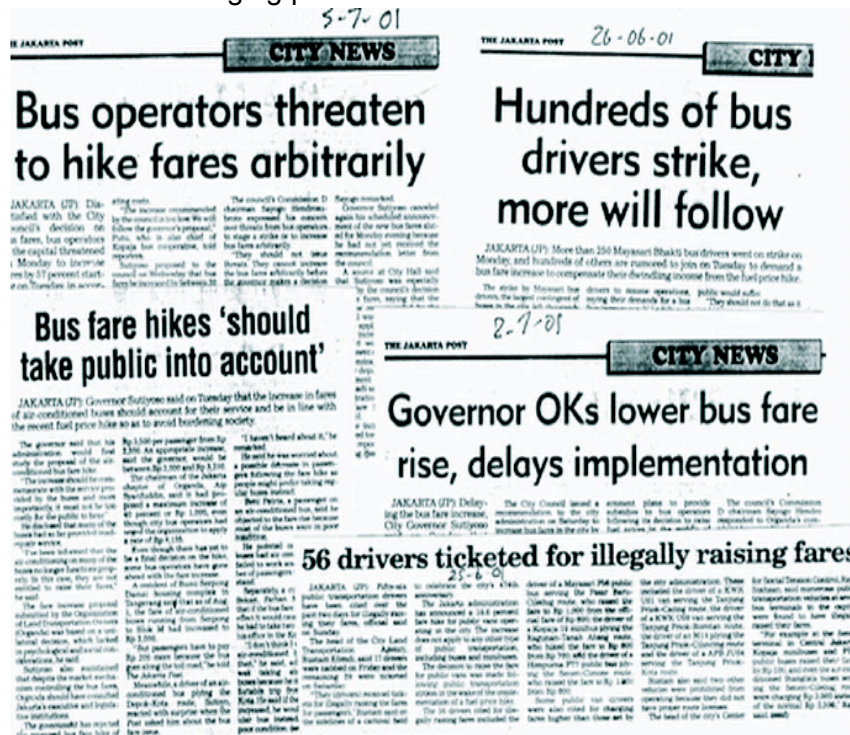
2.7 Fare Regulation

2.7.1 Fare Policy

Control of fares is the most politically sensitive issue in the passenger transport sector and, when poorly designed or applied, can be the most damaging to its development. Nevertheless, the exclusive right to operate a particular transport service amounts to the creation of a local monopoly, and so some form of control is necessary to protect passengers.

Public transport policy must address the issue of whether the full cost of providing a bus service should be recovered from passengers' fares or whether any general subsidy, or subsidy of particular groups of users, should be provided. As noted above, the provision of subsidy is a distinguishing factor between developed and developing urban bus systems. In a developed city, the authority is responsible for the difference between revenue and operating costs and the authority is responsible for the financial consequences of its decision on fares. In an unsubsidised system, the financial consequences of fare decisions falls on the operator.

Fare regulation is an integral component of a regulated passenger transport regime, but fares are often set for political or social objectives rather than to ensure the commercial viability of the operator(s). In such a case fares may be set uniformly across the network irrespective of the viability of individual services. This implies a degree of cross-subsidy within the network, where the passengers on high-demand corridors effectively support those in peripheral areas. This can be seen as being socially equitable, and supportive of the objective of discouraging private car use.



Regulatory risk and fare-setting

Is an increase in fares to cover increased operating costs a right or a privilege? The lack of a formal mechanism for monitoring operating costs and reviewing fares is evident from this mid-2001 controversy in Jakarta, Indonesia (picture, above). Operators resorted to strikes and raising fares without approval to pressure government to resolve the issue. Government responded by reducing, and delaying the increase, but had no objective basis on which to base its decision.

Uncertainty about government's ability to raise fares is a fundamental aspect of 'regulatory risk' and an important element in the minimum-cost, minimum-organisation, minimum-quality 'vicious cycle' (Figure 9).

Figure III-14: Regulatory risk and fare setting

Where fares are set below the full cost of operation (including asset replacement and a reasonable return on capital), then the system either becomes starved of investment or dependent on external subsidy. In the former case, an unregulated system will usually develop to fill the void, and charge market-related fares that negate the purpose of the original controls. In the latter case, the operators lose their efficiency incentive (as any financial losses resulting are covered by subsidy), and the amount of deficit increases until it becomes unsustainable.

In a regime of controlled competition, fare control is usually, but not always, applied. Where fare controls are in place, the tender award criteria will include the highest bid made (or the lowest subsidy required) for the right to operate the specified service. Where there are no fare controls, the award criteria may be the lowest level of fares proposed for the service.

One of the advantages of a controlled competition regime is that the impacts on subsidy levels of fares control and service specification are immediately apparent in the tender process, rather than being subsumed within the general financial support given to the operator. This assists in the allocation of resources by network planners.

In a fully deregulated regime, there are no fare controls. In practice though, the authority may still try to manipulate fares either directly or indirectly. The latter is sometimes achieved by the support of a formal service provider, perhaps a public sector operator, who then applies a downward pressure on fares in a competitive market.

Where fares are set too low, operators will find a way of subverting these in order to survive. Thus, for example, when a fare ceiling is set, operators may cut short their routes to the extent that the fare is then sufficient to cover their costs. This has the adverse consequence of forcing passengers to make extra interchanges, and that effect may be exacerbated by fare structures that are flat or have a degree of taper.

2.7.2 Fare-Setting Mechanisms

The use of a politicised procedure to set fares often results in fares being constrained below the level of full cost recovery. Such a process exposes the operators to major risks, and the result is usually a deterioration and reduction of services, which is not compatible with the interests of the poor.

There are several schemes whereby objective criteria are used to trigger fare increases, though none is without disadvantages, and all require some collection of data and some analytical capability within the authority:

1. actual costs incurred projected forward plus a 'reasonable management fee';
2. a formula based on movements in the indices of input costs for bus operation;
3. a fixed rate of return on assets invested;
4. a fixed rate of return on turnover.

Since most developing cities have a mass of small operators or a mix of medium and small operators, and each operator is likely to have a different cost and revenue structure, application of a uniform fare adjustment mechanism may result in either a different fare scale, or a different rate of return for each operator. The former is preferred because, of the bases for indexing fares listed above, only (4) gives an operator any incentive to improve cost-efficiency. Small disparities in fares between operators are acceptable and will promote competition where a choice of operators is available. Provisions are needed in the regulatory framework to ensure that fare competition does not result in operators lowering costs by compromising basic service standards or safety.

Where an authority lacks analytical capability, it is a policy option to remove controls on fares. However, it is necessary to maintain a competitive environment to prevent operators

forming cartels to fix fares where the market can bear it. The dilemma is, that the authority requires effective capability to create a competitive environment, and if it has that capability it should be able to control fares.

In many cities there are legal provisions specifying administrative procedures for processing fare increase applications⁸⁹, but often no criteria are specified. Legislation rarely provides that an operator has a right to charge fares that enable full cost recovery. In these circumstances it is inevitable that fare controls are exercised with reference to political considerations. Bus fares are a very sensitive issue in developing cities with a high proportion of low-income users. Politicians tend to put government in the role of 'protecting' the public against fare increases, but government often has no market data or cost benchmarks and negotiates from an uninformed position. This results in three-sided conflict between public, government and the operators which can easily become a focus of popular discontent. In such situations it may be prudent for government to relinquish its obligation to set fares, and adopt objective criteria. Severe restraints on fares often result in declining levels of service and safety which impact negatively on the urban poor, including limiting their access to employment opportunities. Market research consistently shows that reliability is the most important quality in a bus service, and that is more important than the level of fares for most users.

The risk that government will not have the political authority to raise fares to cover increases in operating costs must be borne by the operators. This results in reluctance to invest and a rapid deterioration of the service.

In Pakistan paratransit minibuses were held to very low levels for many years. The operators responded to low fares by adopting a 'minimum cost, minimum quality, minimum capacity' response. Vehicles were 1 tonne delivery vans imported, used, from Japan⁹⁰. They were derelict and severely overloaded. The network was sparse.

A similar fare restraint policy has been maintained in Indonesia, with a similar response from the operators, except that, because the enforcement mechanism was weak, operators charged fares higher than those authorized, and users accepted the fares charged. Therefore the regulators did not intervene⁹¹. Fares were still low because they were constrained by market conditions – low affordability and low-cost competition from motorcycles. As long as there was no public protest, regulators took no action to enforce the legal fares.

It is recommended that the operators' entitlement to recover costs from fares should be clearly defined in the regulatory framework:

- operators should be legally entitled to charge fares that enable full cost recovery – either by legislation or as a condition of their licence or franchise;

⁸⁹ Legislation in Pakistan (s. 45 of the Motor Vehicles Ordinance 1965) provides that the provincial Secretary Transport may fix the maximum or minimum fares for buses by notification in the Gazette. He is required to hear objections, consult the Provincial Transport Authority and the Regional Transport Authority and record his reasons in writing. The following procedures are specified to determine fares: 1) operators apply to Secretary Transport to increase the maximum fare scale 2) the Secretary conducts a financial analysis taking into account estimated costs and revenue 3) the application is published and objections invited, 4) objections are heard 5) the Secretary makes a decision, recording his reasons. No criteria are specified for increasing fares and operators have no entitlement to fare levels that enable them to recover costs.

⁹⁰ It was widely stated by transport operators in Lahore that whilst minibuses operations could cover their costs from revenue at a very low equilibrium of service quality and fares, it was impossible to recover the financing and operating costs of a locally-built standard bus (cost PKR 2,800,000 = USD 61,000) at current fares. The government's 'minimum fares' policy satisfied neither the public need for safe adequate, affordable transport nor the operators' need for a reasonable financial return sufficient to cover operating and maintenance costs as well as provision for vehicle replacement.

⁹¹ The same situation prevailed in Dhaka, Bangladesh in 2002. Official fares had not been increased since 1997, despite increases in the price of fuel and imported components. Operators had raised fares unilaterally to a level double the official rate, but since there had been no outcry from users, no enforcement action was taken. Now government faces a difficult dilemma: whether to make the actual fares official, and risk a political resistance, or whether to do nothing and erode the credibility of the regulator.

- fare increase applications should be resolved by objective criteria, and removed from the political arena; or
- where sufficient competition exists, fares should be deregulated.

3 Examples of Fare-Setting Mechanisms in Developing Countries

Several case studies illustrate different approaches to the control of bus fares.

Case Study 3.1 – Sri Lanka: Bus Fares Formula

Sri Lanka is an interesting case study because it shows a cyclical progression of policy, including regulatory policy on bus fares. It was recognised that the restraint of fares for socio-political reasons over many decades up to the 1990's had been instrumental in causing a decline in the quality of bus services and acted as a deterrent to investment by the corporate sector. Individual operators were able to survive by overloading, operating only a single-shift, operating only at times and routes where revenue was viable and accepting very low returns. All the loss-making routes and trips were operated by the subsidised public sector, first by the Central Transport Board, later by the cluster bus companies which were 90% publicly owned.

As a reaction to this unsatisfactory situation, a decision was made in 2000 to base bus fares on an index of bus input costs, with base-line of 2001. While the formula was not applied strictly, it provided strong influence on the date and scale of revisions.

Figure III-15 illustrates fare scale adjustments since 1988. In 1990 fares were increased by 48%; the first fare adjustment since 1983. The next increase, by 14%, was not until 1996. Bus fares were adjusted annually after 1998. Increases after 2001 were based on the fare formula. Fares were increased by 82.4% between 1998 and 2004; an average annual rate of increase of about 12.8%.

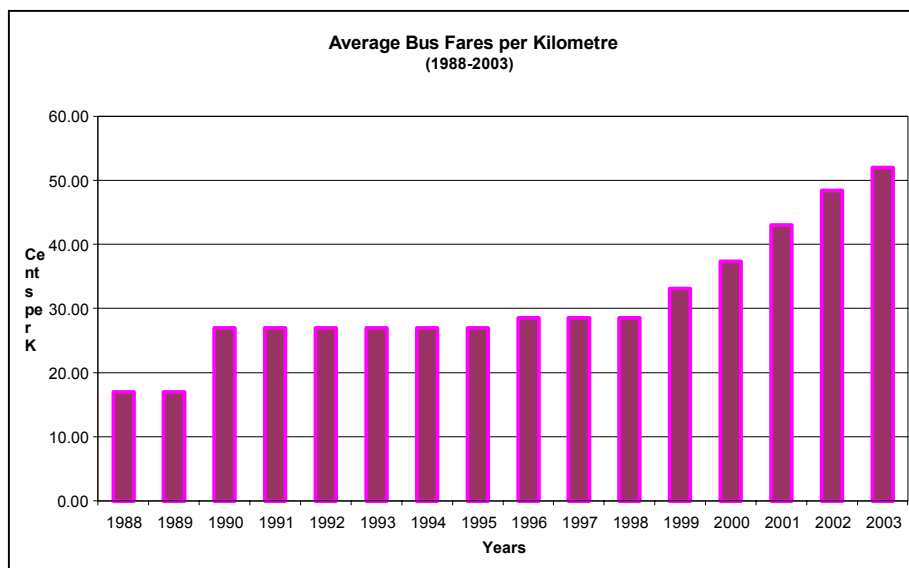


Figure III-15: Bus Fare Increases in Sri Lanka 1988-2003

Source: National Transport Commission (NTC), Sri Lanka.

However, fare adjustments did not consistently follow the formula. On July 1, 2002 the formula indicated that a 15% increase was warranted, but the increase was granted only to the private sector. On August 1, 2002, private bus fares were reduced by 2% to reflect a drop in fuel prices, but this was not based on the formula. On July 1, 2003 an increase of 8.5% was granted, but again the public sector was not permitted to raise its fares. Finally, on October 1, 2003 the public sector was granted an increase of 15% creating an anomaly that some bus fares on public sector buses were lower than those on private buses.

At the time of writing (June 2004) bus costs have recently risen sharply due to rapid rise in the fuel price, following the price of oil in the international market. This will test governments resolve to adhere to the fare index. Clearly, affordability is a major issue. Unfortunately, schemes that would have mitigated the full impact of fuel prices on the poorer sections of the community, such as to subsidise socially necessary but unprofitable bus routes through tendered contracts and to promote the wider use of locally organised village bus services, have not been maintained. To encourage investment in the bus industry the government must maintain the fare formula, apply it strictly and take other actions to reduce the effect of fare increases on the poor.

| Cost Item | % of Total Operating Cost | Source of Cost Data |
|----------------------|----------------------------------|---|
| Fuel Cost (Diesel) | 27 | Market Price |
| Crew Cost | 22 | Wage Rate @ CCPI |
| Service & Lubricants | 3 | Oil @ Market Price, Filter @ USD, |
| Tires & Tubes | 8 | Service @CCPI Market Price (CEAT(New), |
| Repairs | 12 | DAG (Rebuilt), Parts @ USD, Labour @ CCPI |
| Daily Overheads | 0 | Market Prices |
| Monthly Overheads | 6 | Market Prices |
| Annual Overheads | 2 | Market Prices |
| Depreciation of Bus | 10 | Value of Bus @ Market Price |
| Financing of Bus | 9 | Treasury Bill Rate + Prime Lending Rate |
| Provision for Risk | 1 | Fixed % |
| Total | 100 | |

Table III-6: Components of the Sri Lanka Bus Fare Escalation Index

Source: Fares Policy For Bus Transport In Sri Lanka. Amal S. Kumara. University of Moratuwa, Sri Lanka. Unpublished.

The Sri Lanka case illustrates the difficulties in applying a fare escalation formula, but its advantages, in encouraging investment in the bus industry will only be apparent once the industry has confidence that the formula will be maintained. This could be achieved by including the right of a reasonably efficient operator to cover costs as a condition of the route licence or franchise. Meanwhile, as the press cutting below illustrates, fare control is a politically highly sensitive aspect of regulation. Maintaining a consistent policy ultimately depends on political will.

Bus Magnates Demand Pound of Flesh

by Anton Nonis

Lanka Private Bus Owners Association (LPBOA) gets set for a tussle with the Transport Ministry to push up private bus fares from July 1, LPBOA President, Gemunu Wijeratne told the 'Sunday Observer'.

Wijeratne said that the annual fare increase was a national policy which was authorised by the previous regime and has to be adhered to by the present government.

"We have held discussions with the owners of buses and about 90 per cent of them want the fares to be increased," Wijeratne said. He went on to say that the prices of a number of items in the 12-point scheme had increased inclusive of the cost of tyres, tubes, spare parts, etc.

However, Transport Minister, Felix Perera, was adamant that he would not allow any fare hike. The services are extremely in poor, with shortcomings.

Overcrowding in the buses is rampant and the buses stop at bus halts and idle delaying the journey thus inconveniencing passengers. "Warnings have fallen on deaf ears," the Minister said.

Asked what action they have in mind, Wijeratne said "We have another one week to decide on".

Box III-4: Bus Magnates Demand Pound of Flesh

Sri Lanka Sunday Observer 20 June 2004

A fuller description of bus fare policy in Sri Lanka is at [Case Study 3.6](#).

Case Study 3.2 – The Hong Kong Scheme for Fares Escalation

Sri Lanka maintained its formula-based fares escalation scheme for only two years before it was compromised under political pressure. Hong Kong maintained its 'formula' (maximum profit based on 15 or 16% of assets employed) for almost 20 years before it was superseded by a 'basket of factors':

"in determining the scale of fares, the government takes into account changes in operating costs and revenue since the last increase, forecasts of future costs, revenue and return, and the need to provide the operator with a reasonable rate of return. The value of average net fixed assets is used as the basis for measuring the operator's rate of return and reference is made to the rates of return in the previous ten years.

Public acceptability and affordability are also taken into account, reference is made to changes in the composite consumer price index".

The 'basket' approach gives no weightings to the factors, and does not preclude the consideration of other factors. Some of the factors are highly qualitative and the basket approach' leaves political discretion largely unfettered.

The political input is provided by the appointed Transport Advisory Committee which considers fare increase applications from the bus operators and makes a recommendation to the highest administrative authority in Hong Kong, the Chief Executive in Council, as to whether an increase should be granted and the amount of that increase. In the context of Hong Kong however, the bus operators are confident that, in the current political and economic climate, which is generally 'pro-business', their profits are unlikely to be compromised.

Case Study 3.3 – Singapore Bus Fares Policy

The similarities between the elements of transport policy in Hong Kong and Singapore have been noted previously, although the Singapore system relies more on integration, and less

on competition, for its efficiency. The policies of the two cities on fare escalation are also similar.

The Singapore White Paper⁹² states that its financing policy for transport must continue to be based on the concept of partnership:

“The government provides the transport infrastructure, commuters pay for the operating costs, while operators extract efficiency dividends within the service standard and fare structure approved by the Public Transport Council (PTC). This basis is sound as commuters who demand higher levels of service must be prepared to pay more. Fares have to be realistic and revised periodically to take account of cost increases. These will be necessary despite our best efforts to extract operational efficiencies.

Furthermore, the public’s willingness to pay for the service is an important indication that they value the service and that they believe that it provides more comfortable modes of travel, raises their quality of life or increases property values. It also shows that it is worthwhile for the companies to provide the service”.

The Singapore White Paper mentions that fares must be affordable to all Singaporeans and that it is the duty of the appointed Public Transport Council (PTC) to look after the public’s interests.

“Fare increases must be properly justified to the PTC. The PTC will continue to balance commuters’ interests with service standards and system viability by following these principles:

- fare adjustments should be justified in small steps, rather than large and irregular steps;
- the increases should not be effected across the board, but should be implemented in sectors where there are service improvements and other changes; and
- the fare revision will result in what the PTC considers to be an acceptable rate of return to the operators.

These principles are consistent with the recommendations of the Cost Review Committee”.

The policy rejects fares based on changes in costs ‘because otherwise inefficiencies will just be translated into higher fares’.



Figure III-16: Bus Fares in Singapore are based on ‘the Concept of Partnership’

Karl Fjellstrom, 2002

⁹² *A World Class Transport System – The White Paper on Transport Policy.* Singapore Land Transport Authority. Jan 1996. www.lta.gov.sg

As in Hong Kong, the two Singapore bus operators take comfort that for many decades government has followed a consistent policy which has recognized the key role that commercially viable public transport plays in the development of the city, its quality of life and the discouragement of private car use. This gives them adequate security and confidence to invest.

3.1.1 Examples of Fare-Setting Mechanisms in Developed Countries

In developed cities the balance between the proportion of costs to be recovered from fares and from subsidy is purely a political decision since the financial consequences are met from public funds. Tendered contracts on a gross-cost basis are the most common form of engaging operators, and will soon become standard procedure in the EU. Adjusting the balance between fare revenue and subsidy becomes relatively simple under such a regime as the operator is not affected by changes in fares because revenue accrues to the authority.

France

In France, the right of all citizens to be able to travel between any two points in transport area perimeter (PTU) by public transport was established in 1982 by the decentralisation (LOTI) law. The universal accessibility of public transport implies a policy of low fares. A specific tax, the *Versement Transport* (VT), is levied from all companies inside the PTU. The ratio of passenger revenue to operating cost is 35% for Paris, and 32.5% average for others cities. Except for Paris, central government contribution is marginal⁹³.

London, UK

In UK, Transport for London (TfL) is the integrated body responsible for managing transport services in London. TfL is directed by a management board, chaired by the Mayor, whose members are appointed by the Mayor and 'chosen for their understanding of transport matters'. In 2000 the office of Mayor became subject to election. The following year the Mayor's Transport Strategy for London was published.

The role of TfL is to implement the Mayor's Transport Strategy. The strategy proposes a real decrease in fares for bus and underground services, arguing that⁹⁴:

"The share of funding for public transport operations borne by passengers in London is very high by international standards. In 2000/01, nearly 100 per cent of the direct operating costs of London's bus services was funded from fares and from the boroughs through concessionary fare compensation. On the Underground, revenue from fares exceeded day-to-day operating costs by 30 per cent".

A priority of the Strategy is to simplify and hold down fares, as resources permit, whilst recognising the contribution fares revenue can make to improving services. The purpose of this is to help encourage a shift to public transport, complementing the proposed central London congestion charging scheme and guiding increases in demand towards the less crowded parts of the system.

This reflects a recognition of the wider economic, social and environmental benefits of affordable public transport to underpin successful, wealth generating world cities.

The Strategy proposes a three-year commitment to freeze bus fares and hold Underground fares to the level of inflation as part of an integrated approach to tackling congestion, by making public transport more attractive.

The approach to public transport fares over the next three years (2001-2004) will include a bus fare freeze and capping of Underground fares in real terms. Further selective fare initiatives and reductions will be considered, as resources permit".

⁹³ Quoted from *Local Public Transport Organisation in France*. Presentation to the Seventh International Conference on Competition and Ownership in Land Passenger Transport., Molde, Norway – June 2001 by Benoît THOMÉ, CERTU (France)

⁹⁴ The Mayor's Transport Strategy for London, para 4B4

The Strategy includes the following comparison of cost recovery ratios in New York, Paris⁹⁵ and London. (Note that the cost recovery ratio for Paris differs widely from another source quoted above)

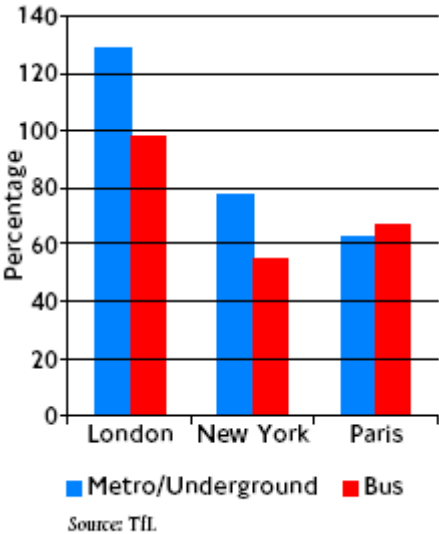


Figure III-17: World City Fares Income as a Percentage of Operating Costs

Bus fares were frozen as proposed by the Strategy. In a press release⁹⁶ in January 2002 the Mayor claimed the early success of the strategy:

“Since my election in May 2000, I have held tube fares constant in real terms, and reduced bus fares constant in real terms. As a result bus rider-ship has risen substantially – with passenger use up 6 per cent overall, the highest level since 1975, and night bus use up 16 per cent. I hope that this year’s fare changes will continue this trend.”

Case Study 3.4 – Changes in Local Public Transport in UK Since Deregulation⁹⁷

Extracted from: “The Lesson from Deregulation in Great Britain: why smaller public transport subsidy is better”

by Francesco Ramella, PhD. 7th International Conference on Competition and Ownership in Land Passenger Transport, June 2001

3.1.2 Service Frequency and Accessibility

Between 1970 and 1985/86 local bus service supply outside London decreased by 22%; since deregulation it has increased by 24%.

Accessibility to bus services has changed little over the last fifteen years. In metropolitan areas 92 per cent of households lived within 6 minutes walk of a bus stop in 1996/98, slightly more than in 1985/86. A similar change has taken place in urban areas. In rural areas the proportion has increased from 74 per cent to 77% (Table III-7).

⁹⁵ Note that the cost recovery ratio for Paris differs widely from another source quoted above.
⁹⁶ Press Release. *Mayor Announces Second Year of Bus Fare Freeze*, TfL, 5 Jan 2002
⁹⁷ Extracted from: “The Lesson from Deregulation in Great Britain: why smaller public transport subsidy is better” by Francesco Ramella, PhD. 7th International Conference on Competition and Ownership in Land Passenger Transport, June 2001

Since deregulation, frequency of bus services has increased: the percentage of households with at least one service every 15 minutes was equal to 28 in 1985/86 and to 34 in 1993/95 while the proportion of households with less than one service every sixty minutes fell in the same period from 14 to 10 ([Table III-8](#)).

| | Time in minutes 1985/86 | | | | Time in minutes 1996/98 | | | |
|-------------------------------|-------------------------|------|-------|------------|-------------------------|------|-------|------------|
| | 6 or less | 7-13 | 14-26 | 27 or more | 6 or less | 7-13 | 14-26 | 27 or more |
| Metropolitan built-up areas | 91 | 8 | 1 | - | 92 | 8 | 1 | - |
| Large urban over 250K | 90 | 8 | 2 | - | 90 | 9 | 1 | - |
| Medium urban over 25K to 250K | 90 | 8 | 1 | - | 91 | 7 | 2 | - |
| Small urban 3K to 25K | 81 | 13 | 3 | 2 | 82 | 11 | 4 | 2 |
| Rural | 74 | 13 | 7 | 6 | 77 | 11 | 6 | 6 |

Table III-7: Walking Time to Nearest Bus Stop By Area Type: 1985/86 to 1996/98 (percentage of households)

Source: DETR, 1999a

| | 1985/86 | 1993/95 |
|---|---------|---------|
| Less frequent than one every 60 minutes | 14 | 10 |
| At least one every 60 minutes | 20 | 17 |
| At least one every 30 minutes | 39 | 39 |
| At least one every 15 minutes | 28 | 34 |

Table III-8: Frequency of Local Bus Service: 1985/86 to 1993/95 (percentage of households)

Source: Own calculations with data from DETR, 1998

Subsidies for concessionary fares have remained unchanged in the English metropolitan areas and have slightly decreased in the rest of Great Britain (-13%). 97 per cent of local authorities have a concessionary fare scheme for elderly people and 48 per cent run a scheme for students. Discount fare schemes are also widely run on a commercial basis.

Previous data shows that the deregulated system satisfies the mobility needs of people who cannot afford private travel (captive users).

The increase of service frequencies, with decreasing total costs and subsidies, indicates the empirical weakness of the argument for subsidization of public transport in order to achieve user economies of scale and confirm the theory of "leakage" from subsidy to cost⁹⁸.

3.1.3 Cost, Revenue and Subsidy of Urban Buses in Europe

Between 1970 and 1983 the cost per bus km in Great Britain outside London had increased by 25% whilst the cost per passenger journey had increased by 60%.

⁹⁸ The operating environment facing the operator is such that the incentive to minimise costs is lower than it would be in the absence of a subsidy, and as a result services are provided at above the minimum cost (Tisato, 1995).

Since 1985/86, the following trends have emerged: cost per bus km has been halved while the cost per passenger journey has remained unchanged. Similar trends have been registered after deregulation in metropolitan areas and in the rest of the Britain outside London.

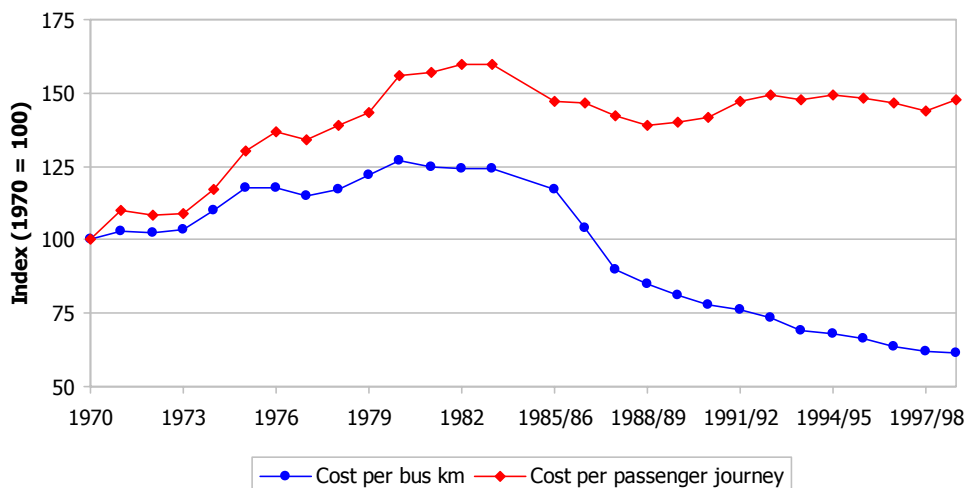


Figure III-18: Local Bus Services in Great Britain outside London: Operating Cost (adjusted for general inflation) indices

Source: Own calculations with data from DETR, 1999a

A comparison of costs, receipts and subsidies of bus services in British metropolitan areas (Birmingham, Manchester, Liverpool, Sheffield, Leeds and Newcastle) and those of some selected European countries (France, Germany and Italy) has been carried out.

For Germany and France a sample of medium/large urban areas (data from European Commission, 1998) has been taken into account, while for Italy, data used for comparison are referred to all urban areas.

The following indicators have been calculated ([Table III-9](#))

- Cost per bus km;
- Cost per passenger km;
- Passenger receipts (excluding fare reimbursement) per passenger km;
- Subsidy (+indebtedness) per bus km;
- Subsidy (+ indebtedness) per passenger km.

The year of reference is 1999 for Great Britain and 1995 for Germany, France and Italy; figures are reported in Euro obtained through purchasing power parity exchange rates.

| | Germany | Italy | France | Great Britain |
|---|---------|-------|--------|---------------|
| Cost per bus km | 3,950 | 3,403 | 2,800 | 973 |
| Cost per passenger km | 241 | 220 | 200 | 114 |
| Passenger receipts per passenger km | 80 | 59 | 51 | 93 |
| Subsidy (+ indebtedness) per bus km | 2,376 | 2,321 | 1,950 | 441 |
| Subsidy (+ indebtedness) per passenger km | 145 | 150 | 139 | 52 |

Table III-9: Urban bus services in Europe: main economic indicators [mECU 1995]

Source: Own calculations with data from DETR, 1999b; European Commission, 1998; Ministero dei Trasporti e della Navigazione, 1998a

Cost per bus km is four times higher in Germany than in Great Britain; cost per bus km in French and Italian urban areas is 188% and 255% higher respectively than in Great Britain. On average, cost per passenger km in Germany, France and Italy is twice as high as the Britain figure.

Receipts per passenger km in Britain are 16% higher than in Germany and nearly 70% higher than in Italy and France.

Subsidy (+ indebtedness) per bus km in continental Europe is about five times higher than in Britain and subsidy (+ indebtedness) per passenger km is about three times higher.

3.1.4 Trends in Public Transport Patronage

In British metropolitan areas, since deregulation, there has been a strong decline in bus services patronage: between 1986 and 1998 the number of passenger journeys decreased by 40%.

A similar change occurred in Italy where the number of passenger km of the bus services in the urban areas decreased by 32% between 1987 and 1996.

In Germany (all local public transport services) and France (all services in urban areas with more than 100.000 citizens, excluding Paris) patronage during the last decade has remained unchanged (Figure III-19).

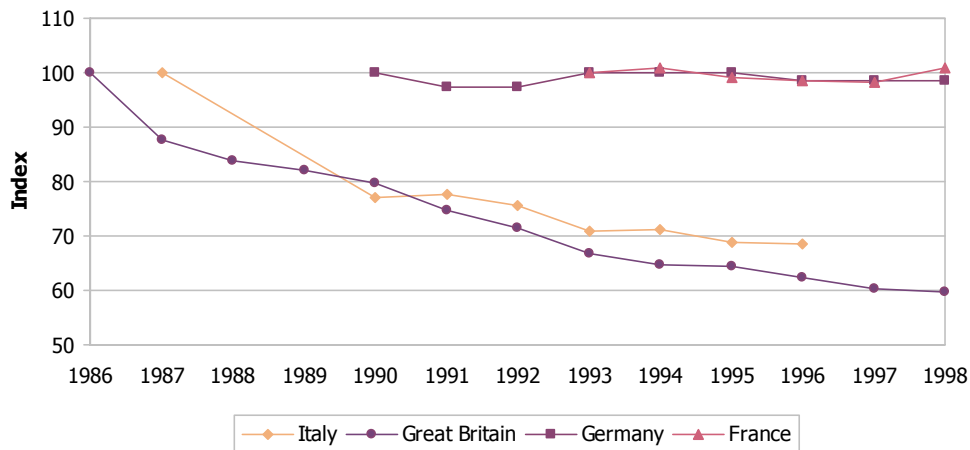


Figure III-19: Urban* Bus Services in Europe: Patronage

Source: Own calculations with data from DETR, 1999b; European Commission, 1998; Ministero dei Trasporti e della Navigazione, 1998a; Ministero dei Trasporti e della Navigazione, 1998a (*Note: data for Germany are referred to the whole local public transport sector)

3.1.5 Conclusions

This case study has examined whether the present level of subsidization of urban public transport in some selected European countries could be deemed worthwhile on the ground of the theoretical arguments that have been put forward in the past in favour of this kind of policy.

With reference to the case of Great Britain, where public transport has been deregulated since 1986, it has been found that:

- Efficiency (cost per vehicle km) of public transport in British metropolitan areas is on average 3.5 times higher than in Germany, France and Italy;
- Effectiveness (cost per passenger km) is about twofold in British metropolitan areas;
- Subsidization per passenger km is three times lower in British metropolitan areas.

Taking into account figures referring to Italy it has been calculated that private car users in the urban areas pay for the environmental cost that they create, but not for congestion and only partially for accidents. There is no reason to subsidise public transport in order to achieve higher efficiency in terms of environment damage.

Congestion: In British urban areas the modal shift from public transport to private cars has brought about an increase in the average speed of motorised journeys. On the other hand even large investments in public transport do not lead to an appreciable decrease in journeys by private cars.

The empirical evidence shows that subsidization of public transport seems to be worthwhile only on social grounds and that the aim of satisfying the mobility needs of people without access to a car can be fulfilled with much lower levels of subsidization than the present ones in Germany, France and Italy.

Case Study 3.5 – Fare-Setting Policy and Practice in Sri Lanka

3.1.6 Fare Policy

Where all, or part of the bus industry is in private ownership, as in Sri Lanka, bus fares must be set at levels that allow bus operators to fully recover their costs, less any subsidies, including financing charges and provision for renewal of assets. This principle was accepted

by government in 1998⁹⁹ and applied in 2001¹⁰⁰. Where fares for any group, or fares in general, are constrained below the level of cost recovery, bus operators should be compensated for the difference between revenue and costs.

Government policy regarding bus fares was not consistently applied over the past 30 years. Previous policy was described as “*ad hoc*, haphazard, based on historic pre-nationalisation fares¹⁰¹.”

In December 2000 a committee was appointed¹⁰² to develop a fare policy and specifically to “design an appropriate cost and fare index to implement a fare policy for bus passenger transport services.” The Committee recommended that fares should be adjusted annually on July 1 in accordance with a fare escalation formula based on an index of twelve input cost components, calculated for ten different route types and weighted by bus allocations.

The Committee also recommended that the Minister’s authority should only be sought when the indicated increase exceeded 10%.

It was implicit in the policy that a single, basic distance-based fare scale would apply to all ‘normal’ category bus services throughout Sri Lanka. Fares for premium service categories such as luxury, semi-luxury, and express would be increased by a fixed multiple of 1.5 or 2 times the normal fare.

3.1.7 Fare Adjustments

In 1990 fares were increased by 48%, the first fare adjustment since 1983. Fares increased by 82.4% since 1998; an average annual rate of increase of about 12.8%.

However, more recent fare adjustments did not consistently follow the formula. After the Committee reported in August 2001, two fare increases were approved. On July 1, 2002 the formula indicated that a 15% increase was warranted, but the increase was granted only to the private sector. On August 1, 2002, private bus fares were reduced by 2% to reflect a drop in fuel prices, but this was not based on the formula. On July 1, 2003 an increase of 8.5% was granted, but again the public sector was not permitted to raise its fares. Finally, on October 1, 2003 the public sector was granted an increase of 15% creating an anomaly that some bus fares on public sector buses are lower than those on private buses.

3.1.8 Comparative Analysis of Fare Levels

Fare Levels in Constant Terms

The rationale of the fares formula was that bus fares should keep pace with changes in input costs. These partly reflected the general level of consumer prices in the economy, although the bus industry relies quite heavily on imported goods and materials. There was little scope for reducing costs through improved productivity as most operators were governed by fixed timetables.

Analysis of bus fares between 1958 and 1976 indicated that average bus fares per kilometre exceeded operating cost per place kilometre (i.e. seats plus 25% standees). Thereafter, costs steadily exceeded average fares¹⁰³ for the 90% state-owned Regional Bus Companies (RBCs).

⁹⁹ *Report on Bus Transport Policy*. Minister of Transport and Highways 1998.

¹⁰⁰ *Formulation of a Fares Policy for Public Transport Services*; Final Report of the Committee on Fares Policy; Ministry of Transport, August 2001.

¹⁰¹ Report of the Committee Appointed by the Minister of Transport and Highways on Bus Transport Policy. December 10, 1998. Page v, para 7.

¹⁰² Committee on Fares Policy, Ministry of Transport 2001.

¹⁰³ Kumarage, Amal S.; *A Review of Household Income and Public Transport Services and Fares in the Colombo Metropolitan Region*, Final Report; World Bank, Colombo, December 2000.

The consumer price index reflects the inflation of living costs, and is used as a reference for wage increases. It therefore has an impact on the affordability of bus fares. The CPI increased by 227% between the index year (1990 = 100) and 2003 while bus fares increased by only 93% during the same period (from 26.93 cents in 1990 to 52.00 cents in 2003). This reflected a decrease in bus fares in relative terms.

The following Table III-10 outlines the bus fare rate increases and fare levels expressed in current and constant Sri Lankan cents per kilometre for the period 1990 to 2003.

| Year | Percent Increase | New Current Fare LKR cents | ADB CPI Index | New Constant Fare LKR cents |
|------|------------------|----------------------------|---------------|-----------------------------|
| 1990 | 47.5% | 26.93 | 100.0 | 26.93 |
| 1996 | 13.7% | 28.51 | 189.0 | 14.25 |
| 1999 | 16.1% | 33.07 | 237.2 | 11.35 |
| 2000 | 13.0% | 37.40 | 240.9 | 11.18 |
| 2001 | 15.0% | 43.01 | 269.7 est. | 9.99 |
| 2002 | 13.0% | 48.47 | 297.3 est. | 9.06 |
| 2003 | 7.3% | 52.00 | 327.0 est. | 8.23 |

Table III-10: Revisions in Average Bus Fares Cents per Kilometre (1990-2003)

Sources: NTC, Asian Development Bank, Central Bank of Sri Lanka, Wilbur Smith Associates.

Adjusted for inflation, bus fares were highest in the early 1980s when Government was trying to make the bus industry profitable enough to attract private bus operators. In 1990, the average fare of 26.93 cents per km was only half that of the early 1980s¹⁰⁴. Bus fares declined in real terms after 1990.



Figure III-20: In Sri Lanka buses of the state-owned companies (yellow bus, left side of photo) operate the same routes as private buses (right side of photo) at slightly lower fares

Richard Meakin

¹⁰⁴ Gomez-Ibanez, Jose A. and Derek C. Bok; *Sri Lanka Transport: The Bus Industry*, Case Study; John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts, 1997.

As noted earlier, fares for the public sector Regional Bus Companies (RBCs) were about 6.5% lower than the private sector buses. In addition, the RBCs were required to offer concessionary fares to schoolchildren and students, and disabled veterans of the armed forces have a lifetime free pass. Private operators were not required to accept concessionary fares, though some did so voluntarily.

This disparity in fare levels, and the concessionary obligations of the public sector RBCs contributed to their increasing deficits and affected competitive behaviour of both sectors of the bus industry. Meanwhile, the decline in bus fares in real terms was part of the reason why increasing bus fares did not translate into higher quality service for passengers¹⁰⁵.

Allowable Fares and Affordability

The *Sri Lanka Transport Sector Strategy Study* (World Bank, 1997) suggested that poverty reduction should be a major objective of transport policy. Keeping fares low enhances the mobility of the poor and increases their access to employment and social opportunities. But, keeping fares low increases the average loading of buses and decreases the quality of service for everyone.

The public transport fares policy in 2004 recommended that the allowable fare be determined annually with reference to average wage level increases, the consumer price index, average commuting distances to work of unskilled workers and their disposable incomes. The National Development Council (NDC) report on Transport Pricing and Policy (1998) suggested a reference to the second lowest decile of the population in terms of examining disposable incomes when setting an allowable fare.

One way of assessing the general affordability of bus fares is to examine the relative fare levels in other Asian cities when compared to a percentage of per capita Gross National Product (GNP).

Per capita GNP in Sri Lanka is higher than India, Pakistan and Indonesia, but lower than Malaysia and Thailand¹⁰⁶.

| City | 2003 Fare USD | 2003 Fare in Constant USD | Per Capita GNP*USD | Affordability Index |
|--------------|---------------|---------------------------|--------------------|---------------------|
| Bangkok | 0.09 | 0.06 | 1,802 | .005 % |
| Calcutta | 0.11 | 0.08 | 467 | .023 % |
| Colombo | 0.06 | 0.04 | 823 | .007 % |
| Karachi | 0.07 | 0.05 | 392 | .018 % |
| Kuala Lumpur | 0.31 | 0.22 | 3,391 | .009 % |
| Mumbai | 0.13 | 0.09 | 467 | .027 % |

Table III-11: Bus Fares Compared to per Capita GNP in Asian Cities

Source: Central Bank of Sri Lanka, Wilbur Smith Associates.
(Note: * Per capita GNP is based on year 2001 data.)

Table III-11 shows that only Bangkok had more affordable regular (i.e. non-premium) bus fares than Sri Lanka. The countries that were poorer than Sri Lanka had bus fares that were higher and less affordable to the poorer people.

¹⁰⁵ Kumarage, Amal S.; *Fares Policy for Bus Transport in Sri Lanka*; University of Moratuwa; undated paper.

¹⁰⁶ The bus fares are in current and constant US dollars based on 2003 fares. GNP per capita is based on 2001 data. Despite this difference in comparison years, the ratios of fares to per capita GNP are useful indicators of affordability.

It appeared that bus fares in Sri Lanka could be raised to the same relative affordability index of the other Asian cities examined.

3.1.9 Fare Structure

Principles

While the actual fare levels will dictate the total amount of revenue generated, the fare structure will affect the ridership and social policy goals.

Fare structures fall into two basic categories:

- Flat: riders pay the same fare, regardless of trip length, time of day, speed, or quality of service; and
- Differentiated: fares vary according to length of trip, etc.

It was the government's policy that a single fare scale, differentiated by distance and quality of service, should apply to all bus routes in Sri Lanka. This had not yet been achieved by 2003 as the fares for the RBCs were about 6.5% lower than for private buses.

The Tapered Fare Scale

The structure of the fare scale caused some types of routes and services to be more profitable than others: generally, long distance riders paid less per kilometre than short distance riders. Bus fares began with a boarding fee of LKR 3.00 and then increase with distance, measured in "stages". which varied in length from 1.5 to 5 kilometres on different routes. The 2002 and current (in 2003) bus fare for each stage is outlined in [Table III-12](#).

| Stage | 2002 Fare | Current Fare | | Stage | 2002 Fare | Current Fare | |
|-------|-----------|--------------|-------|--------|-----------|--------------|--------|
| | | Private | RBCs | | | Private | RBCs |
| 1 | 3.00 | 3.00 | 3.00 | 9 | 11.50 | 12.50 | 12.00 |
| 2 | 4.00 | 4.50 | 4.00 | 10 | 12.50 | 13.00 | 13.00 |
| 3 | 6.00 | 6.00 | 6.00 | 11 | 13.00 | 14.00 | 13.50 |
| 4 | 7.00 | 7.50 | 7.00 | 12 | 13.50 | 14.50 | 14.00 |
| 5 | 8.00 | 9.00 | 8.00 | 13 | 14.00 | 15.00 | 14.50 |
| 6 | 8.50 | 9.50 | 9.00 | 14 | 14.50 | 16.00 | 15.00 |
| 7 | 10.50 | 11.00 | 11.00 | 15 etc | 15.00 | 16.50 | 15.50 |
| 8 | 11.00 | 12.00 | 11.50 | 305 | 201.50 | 222.00 | 207.00 |

Table III-12: Sri Lanka Regular Bus Fares By Stage (2002 and 2003 Fares)

Source: NTC

As shown in [Table III-12](#), on normal services, the fare for the first stage was LKR 3 with an additional LKR 1.50 for each additional stage up to stage seven. From the eighth stage, each additional stage alternated between 1 rupee and 50 cents more. Hence, the longer the distance travelled, the lower the average fare per kilometre. Therefore, given the same loading, shorter distance routes generated more revenue per bus kilometre than long distance routes because the first stage cost so much more than subsequent stages. Therefore long distance bus operators had an incentive to stop frequently along their route to pick up and set down short distance passengers.

In India and elsewhere, the minimum 'step-on' fare of long distance buses is usually much higher than local buses in order to eliminate competition between urban and long distance

buses operating on common route sections. This speeds up the long distance buses and reduces overcrowding, while short-distance buses enjoy higher loadings and revenue.

This effect could be achieved in Sri Lanka by lowering the load factor used in the fares formula for long distance buses to about 60%.

3.1.10 The Fare Formula

The rationale of developing the fares policy and formula was that bus operators would be assured of an increase in average bus fares in line with inflation of input costs, thus removing a major source of risk and a disincentive to invest in the bus industry.

All increases were applied to a baseline of input costs at May 2001. The analysis did not demonstrate that profit levels were reasonable at that baseline.

For the purposes of estimating bus costs for the formula, ten different categories of bus route were identified:

- A. Long distance, low country
- B. Long distance, low country, air-conditioned
- C. Long distance, up country
- D. Long distance, low country, air-conditioned
- E. Regional
- F. Urban line haul
- G. Urban line haul, air-conditioned
- H. Urban cross-town
- I. Urban feeder
- J. Rural

The formula was developed by aggregating the cost data and then weighting the formula by the number of buses in each of the ten categories. It is understood that the objective was to adopt a single national fare scale, even though it was acknowledged that different routes had different cost structures. It followed that, if the fare scale provided cost-recovery for the category with the highest operating cost, it must produce excess profits for the category with the lowest cost.

The formula did not distinguish between the cost structure of the private sector and the public sector.¹⁰⁷

There was a strong case for providing different fare scales for routes with different cost structures to ensure that fares reflected operating cost for that category. If this resulted in the highest fares in the districts with the lowest affordability (perhaps the rural category) there was a case for subsidy, or cross-subsidy.

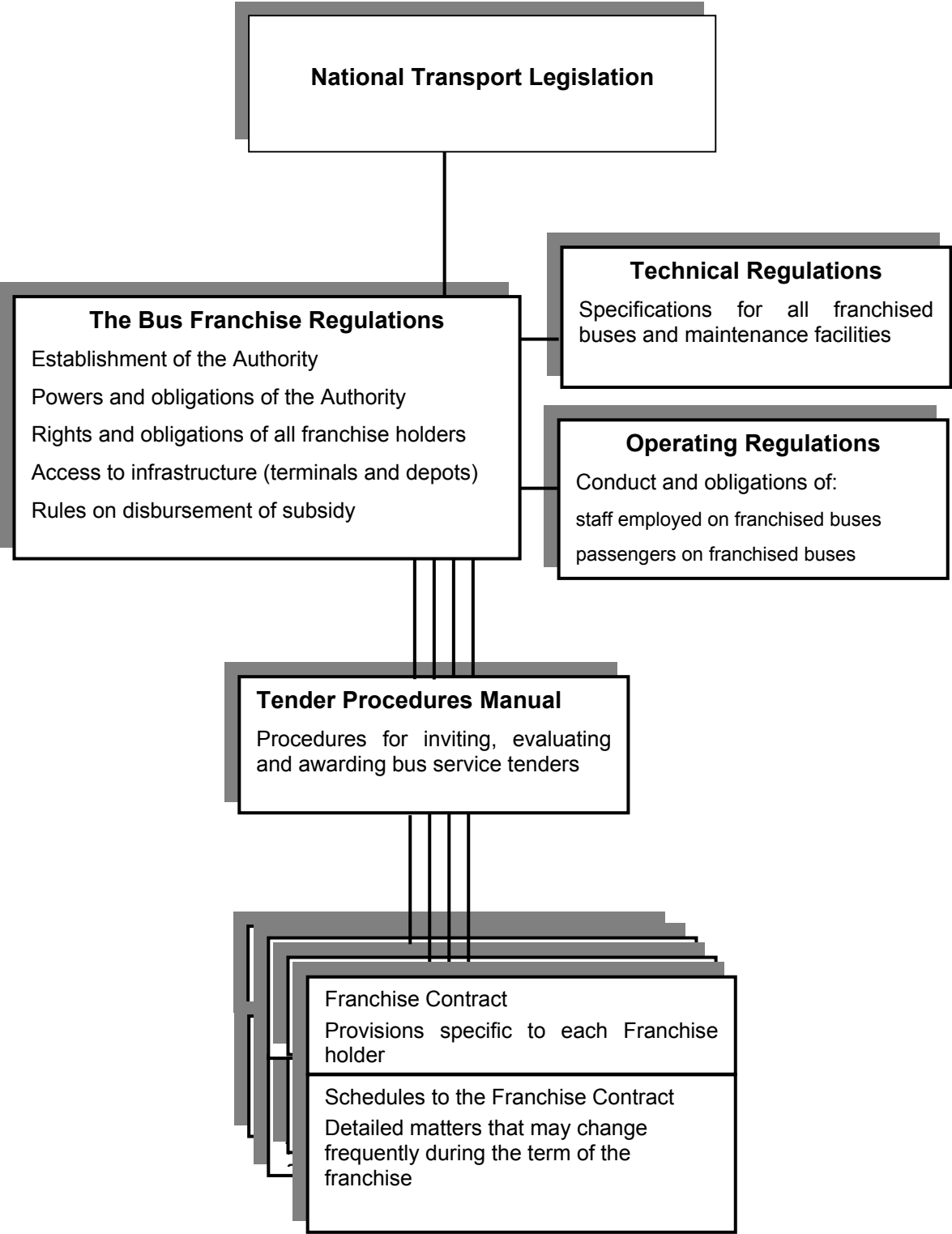
The formula had to be adjusted periodically to reflect changes in average bus load factors and the proportion of kilometres in each of the ten route categories. It would also be necessary to revise the weights given to the input cost components. Updating the formula will require a major data gathering and analytical exercise due to its complexity.

With fares based on historic fares scales increases have been applied by increasing all fares by an overall percentage. This approach has perpetuated anomalies in the fares that vary in terms of cost per passenger kilometre between routes.

There was no distinction in step-on fares for urban line-haul route buses and long distance buses. Consequently, long distance and urban bus operators competed for short distance riders on common segments of routes. It was recommended that long distance and short distance passengers should be segregated by the fare structure.

¹⁰⁷ This is significant given the current (2003) staff/ timetabled bus ratio of 8.42 for the regional bus companies, which was estimated to be three times the staffing ratio in the private sector.

Annex 1: Components of a Regulatory Framework for Buses



Content of Bus Franchise Regulation

1. Preamble:
 - a. Citation of other relevant Regulations and Decisions
 - b. General objectives
 - c. Definition of terms used in the regulation
2. Definition of the Authority
3. Constitution of the Authority
4. The Authority's Powers to Award and Administer Franchises
 - a. Prohibition on operating buses except under a franchise
 - b. Organisations eligible to hold a franchise
 - c. Power of the Authority to grant franchises
 - d. Procedures for the award of franchises
 - e. Conditions of franchises (matters that must, or may be included)
 - f. Periods (maximum and minimum) for which the Authority may grant franchises
 - g. Provisions for renewal and extension of franchises
 - h. Restriction on assignment or transfer of franchises
5. The Authority's Powers to Control Bus Services
 - a. Power to control fares
 - b. Procedures for changes in fares
 - c. Alteration of routes and provision of additional routes
 - d. Temporary alteration of routes and provision of additional routes
 - e. Frequency of services, carrying capacity and types of buses
 - f. Power to order franchisees to compile and submit operating data
 - g. Power to revoke a franchise, or a specified route
 - h. Power to Inspect premises, maintenance facilities and vehicles
 - i. Power to impose sanctions for non-compliance with regulations or franchise conditions
 - j. Emergencies

Content of Franchise Contract

(Specific to each franchise holder)

- Name and status of operator
- Period of franchise and right to any extensions
- Obligation to maintain a proper service
- Obligation to maintain and submit a forward planning program (*if applicable*)

Schedules to the Franchise

(matters which will change during the franchise period)

- Route(s) covered by the franchise
- Minimum service hours and frequencies for each route (if applicable)
- Details of buses to be used under the franchise
- The approved fare-scale

Content of Technical Regulations

- Types, specifications and equipment of buses that may be used under franchises
- Facilities to be provided for the maintenance and cleaning of buses

Content of Operating Regulations

- Drivers hours (unless specified in other legislation)
- Conduct of passengers
- Conduct of drivers and conductors

Annex 2: The System of Tendered Bus Operating Contracts and the Monitoring of Contracted Operations by London Buses

Part 1 – The Contracts and Tenders

1. Overview

- London Buses manages bus services in London:
 - Plans routes;
 - Specifies service levels;
 - Monitors service quality;
 - Responsible for bus stations, stops and other support services.
- Services are operated by private operators, under contract to London Buses;
- Every year a fifth of the whole bus service is re-tendered, with around a half of the network subject to some level of review each year;
- The London bus network is one of the largest and most comprehensive in the world:
 - Every weekday over 6,500 scheduled buses;
 - 5.4 million passengers per weekday;
 - 700 routes;
 - 1.5 billion passengers a year;
 - 397 million kms per year;
 - About 40 operators, including small independents;
 - Operating area: 1,630 km².

2. Introduction of Competition and Gross Cost Contracts

- In the 1980s London Transport operated all buses via a subsidiary London Transport Buses;
- In the mid 1980s UK bus services were deregulated;
- Regulation retained in London and competition introduced;
- A Tendered Bus Division (TBD) was set up in London Transport;
- First tenders on a gross cost basis:
 - London Transport paid the operator the cost of operating each route including overhead and profit;
 - All revenue was paid to, or retained by, London Transport;
 - Competition was among the private bus companies and subsidiary companies of London Buses Limited.

3. Privatisation of London Buses and Introduction of Net Cost Contracts

- 1985 UK Government decided to privatise London Transport Buses.
- LTB divided into 13 subsidiary companies, each competed for tendered contracts.
- The non-tendered bus services provided by the LTB subsidiaries were funded by a 'block grant' to cover the net costs etc. for all their service.
- Formal contracts made for each route so that after privatisation a tendering programme could continue allowing competition for all routes.
- Initial contracts on a net cost basis, operators took revenue risk and had incentives to increase quality and revenue.
- These net cost contracts were not subject to competition, as the routes operated by each LTB company under the block grant were allocated to them and the terms of the contracts were negotiated.
- The LTB subsidiaries were sold to the private sector in 1994 and the Tendered Bus Division was restructured within what is now London Buses Limited (LBL).
- The Net Cost Contract that could be competitively tendered was introduced in 1996/7.

4. Key Features of Operating Contracts

- LBL contract objective: to obtain the best value for money, with quality and safety, and provide incentives to operators to deliver a higher quality service;
- Both Net and Gross Cost Contracts are used and a flexible approach has been adopted to allow development of alternative arrangements;
- Contracts give incentives to operators to improve quality and increase patronage;
- Normally a 5-year contract duration – though can vary from 3 to 7 years;
- Contract payments related to mileage operated;
- Comprehensive quality measurement.

5. Tender Procedures

- Pre-qualification to enter the Approved Supplier List;
- Frequent invitations advertised to submit expressions of interest;
- Pre-qualification questionnaire evaluated by LBL – may include visits and meetings;
- Continuous tendering programme;
- Invitations To Tender (ITT) issued throughout the year;
- About 22% of the LBL network re-tendered each year (i.e. circa 100-120 routes);
- Invitations to Tender issued every 2 to 3 weeks;
- The tendering programme for each financial year is issued to all approved suppliers in advance;
- An indicative 5 year programme is also issued.

6. Types of Route Tendered

Range of services includes:

- Small specialized services for disabled;
- Low-frequency midibus services;
- High-frequency 24 hour double deck routes;
- Dedicated school bus routes;
- Rail replacement services for London Underground;
- Peak Vehicle Requirements (PVR) range from 1 to 48 buses.

Classification by frequency

- High (5 bph or more) or low (less than 5 bph);
- Frequencies range from 25 bph to one bus per day;
- Operating day is generally from about 0430 to 2400;
- Some all-night services 2300 to 0430.

Each ITT includes:

- Route to be followed;
- Frequency of operation;
- Vehicle type;
- Quality standards, etc.;
- Indicative revenue generation (net cost contracts).



Figure III-21: Busses at Bus Transfer Point at Euston Station, London. UK

Lloyd Wright, 2001

7. Tender Evaluation

- All tenderers receive the same information and have the same response date;

- Bids must comply with specification but may offer alternatives with advantages to customers/LBL, e.g. alternative vehicles, different contract durations, enhanced quality standards etc.;
- Evaluation Procurement Department skilled technical and commercial staff;
- Approved by Tender Evaluation Committee, includes the MD, London Buses;
- Evaluation criteria: quality, safety, cost (value for money);
- Procurement staff may contact bidders to clarify areas of uncertainty;
- Post-tender negotiations may take place;
- Unsuccessful bidders are offered a tender debrief, giving reasons.

8. Net Cost Contracts

- Main terms and conditions are contained in a Framework Agreement signed by each operator before award of contract;
- Individual agreements are then prepared for each route;
- Operator also signs 'Off-Bus Revenue Agreement' setting out allocation of off-bus revenue. 75% of revenue is generated off-bus (Travelcards, permits etc. eliminating cash transactions on the bus is now an LBL objective);
- Operators submit a bid for the difference between the route revenue and the cost of providing the service (including profit and overhead contribution). Cost and revenue are part of the contract so that they may be adjusted;
- The operator receives all cash collected on the bus and a share of the off-bus revenue;
- If revenue exceeds cost the operator pays the settlement to LBL, if cost exceeds revenue LBL pays the settlement to the operator;
- The settlement is adjusted during the contract for changes in UK Retail Price Index, fares revisions and significant service changes. If the route revenue rises or falls from the agreed contract level outside these changes then the operator retains the benefit (extra profit) or suffers the loss (less profit).

9. Gross Cost Contracts

- Under Gross Cost contract, each route has a separate contract – no Framework Agreement;
- Conditions of Gross Cost Contracts and Net Cost Contracts are very similar except in the way the service is paid for;
- Operators submit a bid for the lowest cost of providing the service, including profit and overheads;
- All on-bus revenue is passed to LBL and all off-bus revenue is retained by LBL;
- Once the contract price has been agreed it is adjusted during the contract to take account of movement in the UK Retail Price Index, and significant service changes;
- Outside these changes revenue risks are borne by London Buses;

10. Price Adjustments For Service Reliability

- Net and Gross Cost Contracts include an agreed mileage to be operated;
- If, for reasons within the operator's control, mileage is not operated the contract payment is adjusted to reduce the cost to LBL:
- Staff not available;

- Bus not fit for service;
- Bus fails in service.
- The operator submits lost mileage data to LBL weekly;
- Overall, about 1% of scheduled mileage is not operated for reasons within the operator's control;
- The main reason outside the operator's control for mileage not operated is traffic congestion – this is paid for by LBL.

11. Final Route Forecasts

- The Final Route Forecast (FRF) option for Net Cost Contracts is to protect the operator and LBL from revenue changes due to structural or frequency changes in the LBL network;
- Final Route Forecasts assess the actual revenue of the route(s) compared to anticipated and fleet-wide revenue levels;
- Mainly used when a new route is introduced or an existing route is substantially changed in a way that is expected to change the revenue;
- If revenue differs significantly from LBL's estimate, an adjustment is made to the contract amount – either an increase or decrease;
- The system is also applied to 'adjacent' routes, i.e. those that are likely to be materially affected by a change to a route in the same area.

12. Minimum Performance Standards

- Bus operators must operate all scheduled mileage and the published timetable;
- LBL sets specific minimum standards of service quality;
- Criteria used vary between high and low frequency routes.

13. Summary – Allocation of Responsibilities

The contract and tendering system places responsibilities on both LBL and operators, some are legal or contractual obligations, others are the present custom governing all operators.

London Buses:

- Determines and runs the tendering programme;
- Determines the routes;
- Specifies the frequency;
- Sets and monitors quality and safety standards;
- Sets vehicle capacities and minimum standards;
- Agrees the timetable and schedule prepared by the operator;
- Sets fares;
- Supplies and maintains ticket machines (via a third party contractor);
- Manages the revenue apportionment system;
- Provides revenue data;
- Provides revenue protection at a level decided by LBL;
- Provides and maintains infrastructure e.g. bus stations, bus stops, bus stands etc.;
- Provides an emergency communications facility;

- Provides staff to deal with diversions and major incidents;
- Markets the services at network level and sets corporate standards;
- Manages liaison with local authorities and other bodies;
- Invests in major network and infrastructure projects e.g.;
- Fleetwide Automatic Vehicle Location, development of bus priority schemes.

Operators:

- Use local knowledge to contribute to service planning;
- Develop and submit bids;
- Develop timetables (to be agreed by LBL) schedules and staff rotas;
- Provide and maintain premises and vehicles;
- Recruit, train and manage staff;
- Manage day-to-day operation;
- Provide data to LBL;
- Supervise services to maintain quality and deal with disruptions etc.;
- Collect cash revenue on buses and Control the use of passes;
- Obtain radio equipment for communication;
- Market the services locally (to agreed corporate standards);

Part 2 – Service Monitoring by London Buses Ltd

1. Customer Satisfaction Survey (CSS)

Passengers are interviewed about their journey as they alight from a bus. Ratings are collected for 20 service features which are grouped into 6 broad service areas:

- Cleanliness;
- Condition of the bus/bus stop etc.;
- Information;
- Staff;
- Service;
- Personal Safety.

As the survey is based on customers' qualitative perceptions it does not relate directly to specific numerical targets in the contract but is related to the general requirements of the contract.

2. Mystery Traveller Survey (MTS)

- MTS is likely to become part of a future scheme;
- Approximately 150 service features are covered by the survey by trained market research staff. Broken down into broadly the same service areas as the CSS (excluding personal safety). MTS also provides detailed data on the operators' compliance with some contractual obligations;
- There are approximately 24,000 surveys each year.

3. Public Correspondence

- All communications from the public are recorded and data is supplied to the Customer Service Centre by operators and LBL departments;
- Reports are produced detailing routes/operators and reasons for correspondence.

4. Contract Compliance Audits

These involve an LBL 'Auditor' visiting the operator's premises and reviewing its administration of such aspects as drivers' hours, control of free-issue equipment, lost mileage and revenue receipts.

5. Safety, Engineering and Environment

- A range of data is used by LBL to assess an operator's ability to provide a safe service;
- Failure can result in the loss of a contract;
- Unsatisfactory performance can lead to failure to win new contracts;
- The incentive is not directly related to payments/deductions due to the importance of avoiding the suggestion that safety is a negotiable trade off against cost.

6. Engineering Inspections

- 5-10% of the vehicle fleet is inspected annually;
- Garage records and procedures are checked;
- Key indicators are the rates of prohibited defects identified LBL's targets.

7. Vehicle Inspection Monitoring System (VIMS)

- VIMS collates data regarding operator performance at Vehicle Inspectorate Executive Agency (VIEA) vehicle spot checks (this is a UK government agency);
- All data is supplied by operators;
- Key indicators are the rate of issue of prohibition notices;
- LBL does not have internal targets for these but they are a valuable source of information;
- The VIEA inspection programme is totally independent of LBL.;
- The system also collects data on the pass rate achieved by each operator when vehicles are submitted for their annual test.

8. Driver Quality Monitoring

- LBL has a contract with the Driving Standards Agency (a UK government agency) to assess the driving standards on LBL services;
- Key indicators are the number of unacceptable drivers;
- Survey size is about 3,000 pa, but does indicate serious issues that require action by operators.

9. Accident Incident Collection System (AICS)

- Data on in-service accidents and incidents are collated;
- Data is input by operators;
- This information is not used for incentive arrangements.

10. Sanctions and Remedies

- Bus operators' performance is regularly reviewed by LBL senior management;
- Unsatisfactory performance is discussed first with the operator's local manager;
- May also be raised at the regular Business Review Meetings at Director level;
- Operator's management may be required to produce and implement a remedial action plan;
- If problems persist, a Formal Warning may be issued;
- LBL has the right to terminate any contract with consistent unsatisfactory performance.

MODULE IV: A Planning & Regulatory Institutions Capable of Administering the Regulatory Framework

| | | |
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1 Foundations of Effective Transport Management

The four foundations of effective public transport organisation and management are, as described earlier:

1. A coherent policy, and implementation strategies;
2. A structure of the public transport industry that is amenable to competition or regulatory control;
3. A regulatory framework that provides a legal basis to impose the right mix of obligations and incentives by which policy objectives may be achieved
4. Regulatory institutions that have sufficient capability and independence to undertake basic network planning, to administer regulation and guide the development of the sector.

Ultimately, responsibility for creating and maintaining these foundations rests with central government.

Previous modules have described the first three key foundations for effective regulation of public transport: a coherent policy and an industry structure amenable to competition or regulation and an appropriate regulatory framework.

This module focuses on regulatory institutions.

1.1 Effectiveness

It is evident from the previous modules that effective political and administrative institutions are fundamental to the effective planning, development and management of urban transport.

An 'effective' institution is one that is capable of pursuing and achieving its assigned objectives, and capable of managing a transition to a new or revised objectives. Institutions that are not effective tend to 'muddle through', reacting to issues as they arise with incremental measures.

The following are essential requirements for an effective transport planning and regulatory institution:

- clear, attainable objectives which are consistent with broader policy objectives;
- well-defined working procedures with limits to officers' discretion;
- adequate resources: funds and qualified, motivated staff;
- an appropriate and sound legal basis for the exercise of powers and duties;
- accountability for performance to a higher administrative or political body;
- procedures for public reporting and consultation with stakeholders.

1.2 Devolution of Functions

The structure of government varies widely between countries, but all share a basic hierarchical structure, with responsibility delegated downwards to local levels, and accountability upwards.

Government comprises several tiers of political and administrative institutions:

- National;
- Provincial (or state in a federal system);
- Metropolitan or county;

- Municipal (or city);
- Town and district.

Not every country has each tier of government.

Efficiency requires that responsibilities are distributed appropriately between tiers, and within tiers.

Devolution – which functions are carried out by central government and which are devolved to regional or local tiers of government, and what arrangements exist for the (vertical) accountability of each tier to the tier above, and supervision of the tier below.

Distribution – how compatible functions are grouped into departments within each tier of government; what arrangements exist for (horizontal) cooperation and consultation within each tier; and principles of accountability of the administrative body to the political body.

Internal Structure – the internal arrangement of functions within an agency, authority or department.

These issues are addressed in the following sections.

1.2.1 Hierarchy of Functions by Government Tier

The degree to which transport functions are devolved to regional or local tiers of government varies widely between countries. There is a basic dilemma: transport services must be responsive to the needs of users at local (village or district) level, but the framework for the provision of services, including:

- Strategic urban land-use and infrastructure plans which are integrated with road network and public transport network plans;
- The role of various transport modes;
- The regulatory framework; and
- Long-distance bus networks

are most efficiently planned on a large-scale, at the tier of metropolitan government or provincial government.

In practice, there are wide differences between countries as to the level at which responsibilities for planning and regulating public transport are carried out.

In France, a 1982 law devolved responsibility for the planning and procuring of passenger transport services, together with budgetary provision, down to the level of town or village *communes*. There are 36,700 *communes* in France and 85% have less than 2,000 population. They function by combining to form voluntary district associations (*'communautés urbaines'*). The French system of public transport administration is described in [Section 2.2](#).

Some developing countries have devolved responsibility for local transport to the governments of provinces¹⁰⁸ and metropolitan cities. This enables the geographical scope of the authority to cover the full extent of the conurbation transport network, overcoming problems of coordination between constituent authorities. Such a system does not encourage local sensitivity

However, in other cases, for example in the Asian megacities, Bangkok and Manila, central government still exercises key urban transport functions due to the dominance of the capital city in the economy and the lack of professional expertise at metropolitan and city levels.

In Hong Kong and Singapore, central government exercises all transport planning and regulatory functions because a regional tier of government does not exist except for purely

¹⁰⁸ For example, Sri Lanka, Pakistan and Indonesia

local issues. This simple government structure has contributed to these cities' success in maintaining consistent and progressive policies and strategies to manage urban transport.

Devolution of Functions in European Countries

In Europe, decision-making at the level of national government tends to focus on an 'enabling framework' of legislative and fiscal measures and on the key elements of national/international networks and services. Local government focuses on implementation and integration of strategies in the urban context and on meeting rural transport needs.

The key features of this approach are:

- **Regional planning and coordination** – to integrate land-use and transport planning and co-ordinate transport policies at the regional and sub-regional levels;
- **A single public transport authority** – responsibility for planning, co-ordination, tariff setting, procuring services and marketing;
- **Funding** – public sector investment in new infrastructure to encourage sustainable transport and to provide revenue support for public transport.

The key outcome of the 'European' approach has been greater emphasis on transport in all regional and local policy making, particularly on the location of development, leading to 'compact city' strategies, with reduced tendency to urban sprawl; and:

- Higher density development located adjacent to public transport, or constructed in parallel with new rail infrastructure (as in Munich);
- Mixed-use developments to reduce the need for motorised travel;
- Higher levels of use and satisfaction with public transport through closer co-ordination and integration of services and more modern infrastructure.

Box IV-1: Devolution of Functions in European Countries

Whilst acknowledging the wide variety of practice between countries, the following section suggests some norms for the distribution of transport responsibilities between the national, state/province and metropolitan/city tiers of government. It is followed by case studies which illustrate how the norms are applied in various cities and countries.

National Government

- National policies, strategies and programs for the transport sector;
- Integration of transport sector policies with wider economic, planning and environmental policies;
- National transport legislation, including defining devolution to regional levels;
- Matters relating to national or international networks of roads, railways and air services;
- Technical regulations e.g. standards of vehicle design, including safety and environmental standards;

- Collecting and collating national transport system data;
- Budgets: administration of national taxes and disbursement of grants and subsidies to local governments;
- Research and development.

State/Province Government

Responsibility for planning and regulation of transport services within the province may be devolved to provincial government, including the power to enact provincial regulatory legislation. This devolution is provided by the Constitution in Indonesia¹⁰⁹ and Sri Lanka and has been the practice in India and Pakistan since Independence. It does give rise to variations in policy between provinces.

Metropolitan/City Government

Most large cities in developed countries and many large cities in developing countries comprise a number of municipalities or districts, each with a local government. This often occurs because the urbanised area has outgrown the city boundary and extends into neighbouring districts, or because several satellite towns have merged into a metropolis.

For example, Metro Manila comprises 17 cities, each with a separate government. The municipal governments control many local services, but transport, and especially public transport, is most efficiently planned and administered on a metropolitan scale, across municipal boundaries.

There are several optional approaches to the coordination of transport within a metropolitan conurbation:

1. A metropolitan tier of government administers all functions, including urban passenger transport; (Shanghai);
2. There is no metropolitan tier of government and passenger transport is administered at metropolitan level through a metropolitan transport authority which comprises representatives of the constituent municipalities. This structure is common in Europe and the US. (see the description of Passenger Transport Authorities in UK in [Section 2.2](#));
3. Certain transport functions such as strategic planning, setting fares and operating standards are administered by a metropolitan authority, while other functions, such as the licensing and regulation of local services are administered at local (municipal) level;
4. There is no joint authority but municipal governments within the conurbation cooperate to administer urban transport (*'communautés urbaines'* in France);
5. Metropolitan transport is managed directly by central government, or by provincial government where city government lacks the necessary funding and staff resources (Dhaka, Bangladesh; Bangkok, Thailand; and Lahore, Pakistan).

While options 1-4 reduce the problem of coordinating transport across jurisdictional boundaries within the metropolitan area, the problem of coordination across the outer boundary remains.

It is common for services licensed by an authority outside the metropolitan area to operate across the boundary, and to carry passengers on journeys wholly within the metropolitan area. The effect is that the metropolitan transport authority does not have regulatory control of all services within its boundary.

¹⁰⁹ For example: In Indonesia the law reserves the power to plan and regulate transport services which cross city or *kabupaten* (suburban area) boundaries, and to set fares, for the provincial government. Law 22/99 Article 9 and law PP 25/2000 Art 3 Para 5, Field 15, Item b) respectively

Bandung provides an example of the problems caused. The Bandung transport authority imposed a limit on the number of small minibuses (*angkot*) that could operate in the city, in the interests of limiting congestion. However, large numbers of minibuses licensed by the adjoining *kabupaten* (regional government) operated radial routes into the city and, because the urban sections of those routes were the most profitable, tended to run short-workings inside the metropolitan area. Thus, the need for coordination remains, even where internal metropolitan boundaries have been resolved.

A few cities, including Hong Kong and Singapore, are 'city-states' which basically have a single-tier of government¹¹⁰. Thus there are no institutional boundaries based on administrative areas or hierarchical levels of government. This, and the continuity and authority of government in these two cities, has greatly simplified the administration of urban transport. Other one-tier governments include Mauritius, and Middle East states such as Kuwait and Bahrain.

Case studies which describe the various approaches to the management of metropolitan urban transport are considered in [Chapter 2](#) below.



Figure IV-1: Bus stop in Colombo

Jan Schwaab, 2002

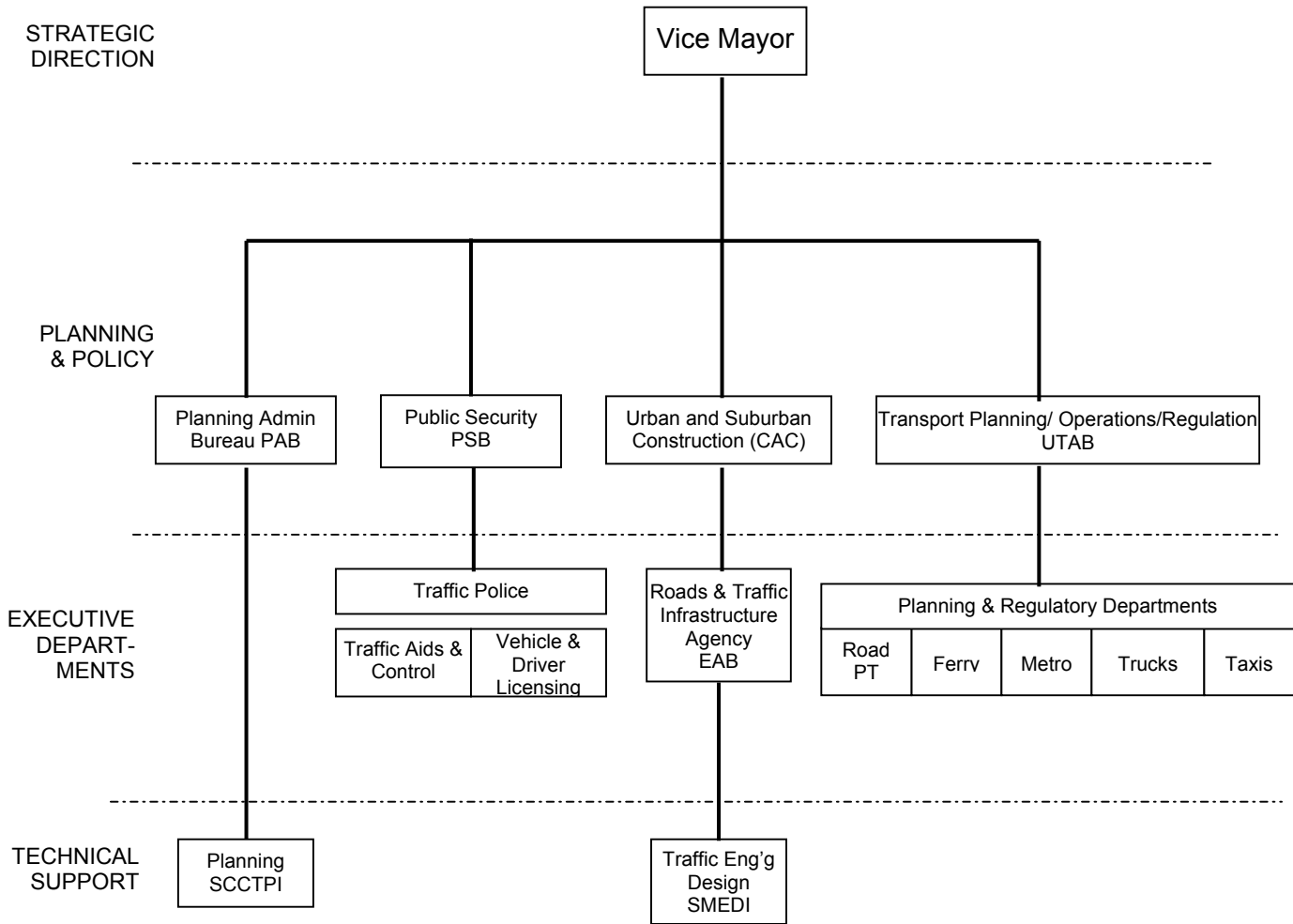
1.2.2 Distribution of Functions within each Tier

The tiers of government (national, provincial, metropolitan, municipal) form a hierarchy. Within each tier of government, agencies are also arranged hierarchically, with high-level policy and strategic planning bodies at the top, and implementation and regulatory agencies at the bottom.

A typical vertical structure of agencies with urban transport responsibilities in a major city is that of the Shanghai Municipal Government (in year 2000) shown in [Figure IV-2](#) below.

¹¹⁰ There are district councils but these deal with purely local management matters.

LEVEL



Legend

- EAB = Engineering Administration Bureau
- SMEDI = Shanghai Municipal Engineering Design Institute
- UTAB = Urban Transport Administration Bureau
- PAB = Planning Administration Bureau
- DPC = Development Planning Commission
- SCCTPI = Shanghai City Comprehensive Transportation Planning Institute

Figure IV-2: The Hierarchical Structure of Transport Agencies in the Shanghai Municipal Government

Horizontal divisions between different functional areas are also necessary. For example, an institutional boundary is usually drawn between 'bus service planning and regulation' which is an economic and administrative function, and 'traffic engineering and control', which is an engineering function.

There is a dilemma:

- responsibilities for the higher-level functions of strategic planning and policy development need to be highly integrated, and therefore consolidated into as few agencies as possible;
- there is a need to keep the executive departments within a manageable size and without too many diverse professional disciplines; this imposes a constraint on the degree of consolidation possible.

Figure IV-3 illustrates a typical vertical and horizontal structure of a transport agency in a city or metropolitan government (based on the Hong Kong Government).

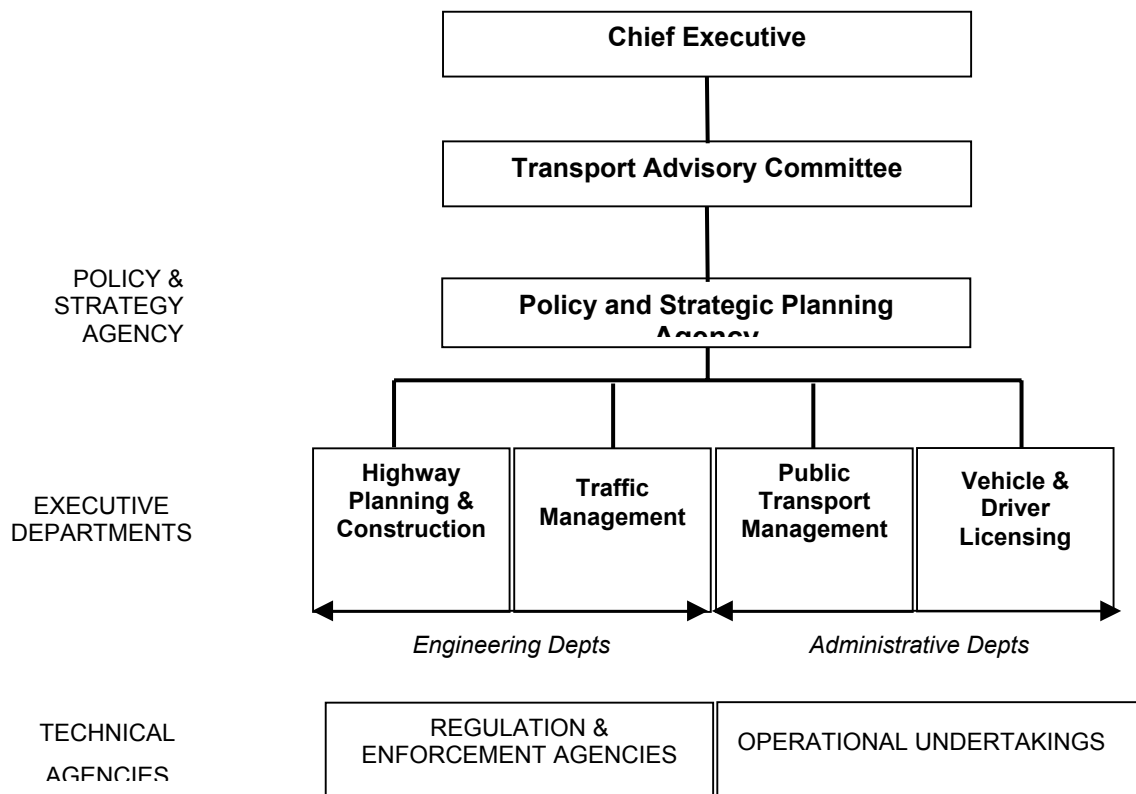


Figure IV-3: Division of Functions by Professional Discipline

Professional discipline is often the basis of a rational division of functions between departments. Another dilemma is then evident:

- a greater degree of specialisation within each department requires a larger number of departments, but also:
- more departments require more complex inter-departmental and inter-professional coordination which adds to bureaucratic processes and increases cost.

Many governments have created specialised transport departments to deal with urban transport development and management. The scope of these departments varies.

Urban transport can be divided into five main functional areas as a basis for organisational grouping:

Planning

1. Integrated strategic transport planning and land use planning
2. Transport infrastructure (road & rail) planning and programming
3. Transport network and service planning

Transport System Management

4. Management of roads and road use
5. Public transport development, management and procurement

Dedicated transport departments usually embrace all the above functions, except sometimes land use planning.

Where the size and complexity of the urban transport system is smaller, more functions may be consolidated into a single agency.

In rapidly growing cities with a high planning capability (e.g. Hong Kong) strategic planning (land use and major transport infrastructure planning such as roads, bridges and railways) may be administered by a specialised strategic planning agency. Transport infrastructure both enables and promotes urban development.

1.2.3 Internal Arrangement of Functions within an Agency

Transport agencies can be internally structured on a functional basis or on a modal basis, as illustrated below:

Functional division separates planning functions from transport system management functions:

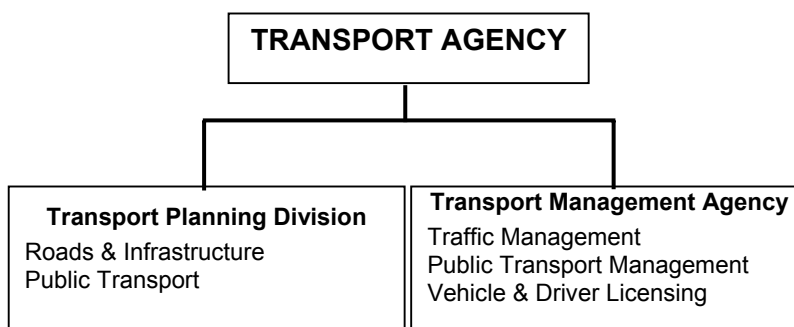


Figure IV-4: Option 1 – Division by Function

Modal division separates planning and management of the road and traffic system from planning and management of the public transport system:

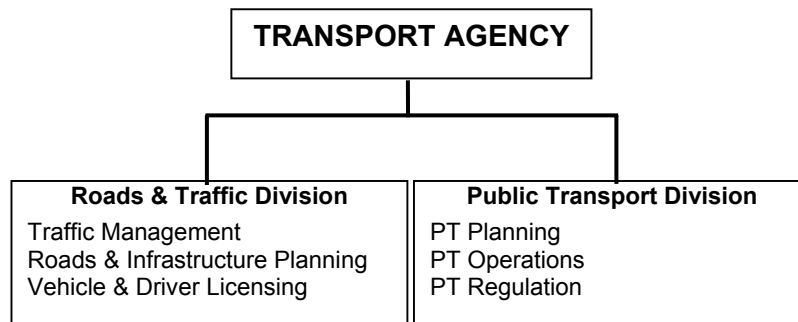


Figure IV-5: Option 2 – Division by Transport Mode

2 Transport Authorities

2.1 The Role of a Transport Authority

Module 3 ‘Planning and Regulatory Framework’, Section 2.3 describes the roles of a transport supervisory agency under the three regulatory models: ‘no competition’; ‘controlled competition’ and ‘open competition’. It concludes that an effective body is necessary for any of the models to be successful.

Under the ‘no competition’ model a supervisory body must ensure that, in the absence of competition a monopoly operator meets certain standards of service coverage, performance and quality. However, in the case of a private monopoly the authority may have no effective recourse if the standards are not met since the incumbent operator will be difficult to replace in the short term and will often blame his shortcomings on deficiencies in the regulatory or operating environment. In the absence of a comparison, the authority will tend to accept these uncritically. This may discourage effective planning by the authority.

In the case of a public sector monopoly operator the supervisory body is likely to be ‘under the same roof’ as the operator (usually a department of city government) and not independent.

A monopoly has weak incentives to control costs and the supervisory agency may have the task of presenting demands to the government to fund ever-increasing operating deficits.

Under controlled competition ‘for the market’ the authority will be responsible for the planning and development of the whole public transport service, including all the modes, perhaps down to the level of operating timetables.

The authority will also be the government’s main advisor on public transport policy. It will recommend service standards including capacity and quality, environmental standards, fares, vehicles and labour conditions.

Under an open market a supervisory body is required to maintain and enforce minimum safety and environmental standards for operators and buses and to ensure that the operator meets certain standards of service coverage, performance and quality. The role of the authority will not include comprehensive planning of the network and services – this will be done by the operators in the market, although the authority may have responsibility for procuring any services that the market is unwilling to provide. This will be done through tendering and contracting.

It is also necessary for the body to monitor the industry to ensure that competition remains effective and that operators, or illicit organisations, are not controlling or restricting entry to the market or access to passengers. It was noted in Module 2 'Industry Structure'; Section 5 that illicit control in some form is almost always present in developing cities where the public transport industry is fragmented, and especially so where vehicles are unregulated.

It has been noted earlier in this Module that transport supervisory agencies take a variety of forms, including government departments and autonomous agencies, and that urban transport may be administered at almost any level of government from national level (Bangkok) to town and village level (France).

Nevertheless, in Module 3a a clear divide was identified between developing cities and developed cities in respect of the basic characteristics of their public transport systems.

Transport authorities are usually associated with conditions that are usually present only in developed cities. Of these, the main determinant is whether public transport is subsidised: the administration of subsidies requires sophisticated administrative mechanisms to ensure they are allocated efficiently and agencies are accountable. Developing city governments often lack this level of capability. There are relatively few examples of developing cities with subsidised bus systems except those which fund the deficits of a publicly-owned bus undertaking by *ex post*¹¹¹ payments.

Other conditions of developed cities that require sophisticated planning and regulatory mechanisms, which are most efficiently undertaken by a transport authority are:

- public transport service quality and reliability is high in order to achieve the objectives of diverting trips from private vehicles, providing equality of mobility to disadvantaged members of society while meeting high environmental standards;
- the cost of public transport is high, commensurate with its high quality, but broader policy objectives may only be achieved if fares are low, compared to the perceived cost of private vehicle use;
- there is a high degree of integration between routes, modes; fares do not reflect the cost of the mode used;
- there is an absence of informal paratransit modes;
- operators are subject to service obligations;
- there may be a public sector monopoly operator.

Characteristics of a highly developed transport system may also be identified:

- Transport is highly subsidised, and there are procedures to ensure that the best value for funds expended on subsidy is obtained;
- Routes and fares of all modes are integrated and a common tariff and/or common ticket system is adopted. Either the authority collects and retains revenue or an arrangement for distributing revenue between operators is in place;
- The transport authority has a highly sophisticated capability for planning, service procurement and monitoring.

Transport authorities vary widely in the scope of their powers, their degree of autonomy and their constitutions. They also go under a variety of titles.

It is common for an authority to be governed by a supervisory board or committee made up of appointed experts, lay members or elected representatives of constituent municipalities. An authority will also usually be governed by a statute which sets out its constitution, funding, powers and duties.

¹¹¹ i.e. their deficits are paid from public funds

Typical characteristics of a transport authority are described below:

Typical Characteristics of a Transport Authority

1. Governance:

by a Board, appointed by a minister or mayor, with or without a power of direction by the minister or mayor, which may comprise:

- elected representatives from constituent local governments;
- expert and other appointees;
- officials 'ex officio'.

2. Financing:

by means of one or more of:

- subvention from government budget;
- revenue generated from operations;
- charges/fees levied on 'clients';
- government post facto underwriting of deficits
- proceeds of designated revenues from an external source (e.g. proceeds of vehicle licence fees, fuel tax, 'versement transport' employment tax)

3. Employment of Staff:

Staff may be:

- recruited by and employed by the authority which has power to 'hire and fire';
- seconded from the civil service, but with their work directed by the authority.

4. Operating Policy:

- may be empowered to determine operating policy within sector policy guidelines, and within activities and corporate objectives set by the authority's statute or constitution;
- objectives should be precisely defined, not vaguely-stated, and incompatible e.g. include both cost-recovery and 'social' transport objectives.

Box IV-2: Typical Characteristics of a Transport Authority

Although the most common form of public transport authority is an autonomous planning and regulatory agency, operating under a statute and directed by an appointed board, some agencies using the title 'authority' are government departments or parts of government departments. Others (such as BMTA in Bangkok) are public corporations operating transport services, which may also have powers of regulation over other operators.

While public transport authorities are quite common in Europe and the US, a few cities have transport authorities (eg Singapore LTA , Transport for London) responsible for both public transport and road network management, including parking. In Singapore's case, the authority is also responsible for vehicle and driver licensing.

2.2 Transport Authorities in Developed Cities

Many would argue that a public transport authority (PTA) is necessary to plan co-ordinate and regulate a mature public transport system where subsidy and integration, or state-ownership of some operating undertakings have muted market incentives.

Such a body is needed to create a 'level playing field' for public and private sector companies.

The PTA's duties and responsibilities should be defined by law, to ensure it is independent from both government and the transport operators. To ensure continuity, a multi-year service contract between government and the PTA will further define its duties and responsibilities and ensure continuity of funding.

Management and staff should be professional, competent and sufficient, and should include in-house legal, economic and financial expertise.

The powers and duties of the three parties (local government, the PTA and the operators) must be clearly defined:

- the local government must take strategic decisions, including adopting a comprehensive public transport policy and implementation plan;
- the public transport authority is an intermediary between government and operators, and is responsible for all tactical-level decisions, basically implementing the government's public transport policy;
- the public transport operators, both public and private, are solely responsible for operations.

An independent supervisory council, consisting of elected representatives of the government, public transport users and perhaps the transport operators should monitor the PTA to ensure political control over transport policy and the use of funds used to support public transport.

The creation of transport authorities is thus strongly associated with a policy of subsidising public transport.

Detailed tasks of a public transport authority are:

- advisor to government on public transport policy development and standards;
- comprehensive planning of the public transport network and schedules, including transport infrastructure and technical systems such as information and ticketing;
- tendering and contracting public transport services on behalf of the government: defining the routes and groups of routes to be tendered, preparing terms of reference, conducting tenders and managing, and enforcing contracts¹¹²;
- integration of routes, fares and timetables, comprising both the public and private operators;
- managing a revenue allocation system, based on productivity and passengers carried;
- a uniform tariff system that enables the use of an integrated ticket system;
- management of transport infrastructure, such as terminals and shelters;
- maintenance of a public transport database.

The authority must achieve:

- effective co-ordination and planning of public transport services,

¹¹² Steps: announcement of the tender, the (pre) qualification of bidders, evaluation of proposals, contract negotiation and award, contract management and monitoring and evaluation of performance of the contract.

- efficiency and transparency in spending subsidies,
- fair and efficient tendering and contracting.

2.2.1 Examples of Transport Authorities

This section describes some examples of public transport authorities:

Europe and the US:

- Transit Authorities – the US model
- Transport for London – the UK model for London
- Passenger Transport Authorities – the UK model ex-London
- STIF – the French model for the Paris Region
- Communautés urbaines – the French provincial model
- Verkehrsverbund – the German model

Asia:

- Singapore Land Transport Authority
- Metro Manila Development Authority

Public transport systems administered by government departments are also described.

- Hong Kong
- Singapore (prior to 1995)
- Bangkok

Finally, Bogotá and Curitiba (Brazil) are included to provide an insight into the institutional bases of these widely-admired public transport systems.

Table IV-1 shows the typology of urban transport authorities in a number of European and Asian cities. Their composition and scope of functions are compared.

| City | Name of Authority | Governing Body | Constituent Local Government Units | Public Transport Functions | | | | | | | | |
|---|--|---|--|----------------------------|---|-----------------------------------|--------------|---------------------------------|-----------------------|----------------------------|---------------------------|--|
| | | | | Planning | | Regulation | | Fares/Marketing | | Infrastructure | | |
| | | | | Strategic Planning | Service Planning, Bus/Rail, Information | Procuring and Regulating Services | Fare Setting | Managing Fare Collection System | Marketing PT Services | Planning PT Infrastructure | Funding PT Infrastructure | Managing Construction of PT Infrastructure |
| London | Transport for London | Appointed Expert Governing Board | Boroughs | √ | √ | √ | √ | √ | √ | By Boroughs | | |
| Manchester (Model for 7 UK Metropolitan Counties) | Greater Manchester Passenger Transport Authority | Elected Representatives of constituent Councils | 10 District Councils | √ | √ | √ | √ | √ | √ | By District Councils | | |
| Paris region | Syndicat des Transports d'Ile de France | Council of representatives of central, department and region gov't | Departments and Region | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| Lyon (French provincial model) | Urban Transport Perimeter (PTU) | Association of constituent town councils | 25 town councils | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| Frankfurt (German Model) | Rhein-Main-Verkehrsverbund GmbH | Supervisory Board Representatives of constituent cities districts and state | 11 cities, 15 districts, State of Hessen | √ | √ | √ | √ | √ | √ | By Municipalities | | |
| Singapore | Singapore Land Transport Authority | Appointed Board of Directors | No local governments | √ | √ | √ | By PTC | By Operators | √ | √ | √ | √ |
| Metro Manila | Metro Manila Development Authority | Metro Manila Council of constituent Mayors | 13 cities, 4 municipalities | √ | √ | By LTFRB | By LTFRB | √ | Operators | √ | √ | √ |
| Hong Kong | Transport Bureau and Transport Department | Appointed Transport Advisory Committee | No local governments | √ | √ | √ | By TAC | By Operators | √ | By Works Dept | | |

LTFRB Land Transportation Franchising and Regulatory Board
PTC Public Transport Council
TAC Transport Advisory Committee and Chief Executive-in-Council

Table IV-1: Typology of Metropolitan Transport Authorities

Transit Authorities – The US Model

In USA, the creation of transit authorities followed the transfer of public transport operations to the public sector. This process took place quite quickly. In 1949, of the 117 largest American cities 107 had privately owned transport systems. By 1979 only eleven cities had a major private sector operator.

Both private and municipal operations were consolidated into transit authorities which were constituted in a variety of ways:

- A separate transit authority established by legislation – adopted by most American cities,
- A municipal department funded from the municipal budget, with ultimate authority for budgets, routes and fares vested in the Mayor,
- Regional transit authorities were created in the larger cities, extending beyond the city boundary into surrounding counties. Usually these bodies plan and regulate rail and road modes with the objective of achieving a high degree of integration. There are some inherent disadvantages of regional authorities:
 - they make the transport system independent of the local jurisdiction
 - they act as an additional layer of government

Contracting out

Not all services are operated by the transit authority. Some retain authority for budgets, routes, fares and services but sub-contract operation to non-profit corporations or commercial organisations. Many authorities employ contract executive management, selected competitively, thus introducing private sector incentives into some areas of their activity.

In 2002, only 9.2 percent of public transit bus services were competitively tendered in the United States. Most systems that are fully competitively tendered are in smaller cities, outside major metropolitan areas, though the greatest amount of service is in large metropolitan areas. There is no competitive tendering of metro or light rail service. However, there are proposals to competitively tender the Minneapolis-St. Paul light rail system, which is under construction. In addition, approximately 30 percent of dedicated school bus services in the US is operated by private companies, though not all are competitively tendered¹¹³.

Constitution

The constitution of US transit authorities varies. Some allow close political and bureaucratic control over policy and operations; others follow a 'corporate' model with management autonomy. Typically the authority is governed by a board of directors to which elected officials are appointed to represent constituent municipalities in proportion to their population or contribution to subsidy. There is usually a professional coordinating agency.

The authority usually reflects a central government policy to give social and network aspects of public transport priority over a commercial approach. Authorities generally have low cost-recovery objectives – in many cities half or less of operating costs is met from revenue. The balance is provided by local and central government subsidies and sometimes by specific transit taxes.

With little competitive pressure on operators, surrogates have to be devised to provide incentives to efficiency.

There is growing political pressure in the US to curb the rate at which federal transit subsidies to municipal authorities are increasing. Recently political initiatives have been

¹¹³ From: 'Competitive Participation in U.S. Public Transport: Special Interests Versus the Public Interest' Wendell Cox. Conference on Competition and Ownership in Land Passenger Transport 2003.

taken to cut the federal subsidy, leaving municipal governments to finance a much larger share of transit deficits. This has put pressure on municipalities to reduce costs and services and to improve cost-effectiveness, though deregulation on the UK model is not proposed. The most progressive US cities now achieve over 65% recovery of operating costs from fares.



Figure IV-6: Los Angeles - City Transit is Operated by a Transit Authority

Karl Fjellstrom, 2002

Verkehrsverbund – The German Model

In Germany, state governments make transport policy, while the largest cities and conurbations have joint transport authorities (*Verkehrsverbund – VVR*) which plan and integrate services, and co-ordinate a common fare structure and investment programme on behalf of the participating municipal operators. A variety of formulae are used by the VVRs to distribute the revenue collected among operators. These are highly complex and secret.

Examples of VVR:

- The Rhein-Ruhr VVR co-ordinates the services of 19 participating municipal operators and the national railway;
- In Munich the MVV coordinates municipal bus, tram and metro services, the suburban services of DB the national railway and the suburban bus services of almost 50 operators;
- Participants in the Rhein-Main VVR, based on Frankfurt, are 11 cities, 15 districts and the state of Hessen. Almost 150 operators provide services under contracts. Rhein-Main was one of the first VVR to adopt competitive tenders for service contracts. A universal ticket and tariff allows unlimited interchange on all bus and rail services.

STIF – The French Model for the Paris Region

From 1959 until 2000, the *Syndicat des Transports Parisiens* (STP) was responsible for organizing public transport in the Paris Transport Region. The STP management board comprised 22 members representing central and local government.

The composition of the STP board was:

- Twelve representatives of the State:
 - The Préfet of Ile-de-France region, (chairman) and representatives of:

- Ministry for Equipment, Housing and Transport;
- Ministry for the Economy, Finance and the Budget;
- Ministry for the Interior;
- Préfet of Police;
- Paris Préfet;
- Ten representatives of local authorities:
 - Paris councilors;
 - Members of the Conseil Général representing the 4 Departments of the inner ring of Paris conurbation;
 - Members of the Conseil Général representing the Departments of the outer ring of Paris conurbation.

The board did not include operators.

In the Paris region, government provides about 55% of services directly through state-owned undertakings, including RATP and SNCF. The remaining services are provided by private operators under contracts. In the latter case, the authority has the option to take a capital shareholding in the operating company.

In December 2000 the important SRU law (*Solidarité et Renouvellement Urbain*) was passed concerning transport, land use planning and housing:

As a result, the transport authority for the Paris Region was changed from STP to STIF (*Syndicat des Transports d'Ile de France*).

STP was an association comprising representatives from central government and departmental councils. The STIF association introduced several representatives from the Regional council. It illustrates that public transport is now planned on a wider scale than the city of Paris – now including the whole *Ile de France Region*.

The ratio of passenger revenue to operating cost in 2000 was 35% for Paris, and 32.5% average for other cities¹¹⁴.

Responsibility for urban road planning (except national roads), traffic management and parking in Paris is vested in departments of the city government and the adjacent *departments*.

Communautés Urbaines – The French Model for Provincial Cities

In France, the decentralisation (LOTI) law of 1982 defined a local government structure comprising three levels. Responsibilities for organising public transport were assigned as follows:

- Central government is responsible to organise national trunk roads and railways, for defining the general framework of urban transport policies including methods of financing and technical and financial assistance. 26 regional councils participate to the organisation of the regional rail services;
- 100 departmental councils are non-urban transport authorities (except for national routes and railways);
- Responsibilities for performing the roles of public transport authority, together with the budget, were devolved to the 36,700 town or village councils (*communes*), the lowest level of government. Eighty-five percent of *communes* have less than 2,000

¹¹⁴ *Local public transport organisation in France: A new deal?* Presentation to the 7th International Conference on Competition and Ownership in Land Passenger Transport. June 2001 by Benoît THOMÉ CERTU (France)

population. A 1999 law encourages the *commune* councils to group into local associations (*communautés urbaines*) in order to manage their responsibilities in land use planning, transport and several other fields. By 2001 about 90 local associations had been formed.

The LOTI law decentralised the organisation of public transport and devolved the responsibility, and the budget, for performing the roles of public transport authority down to the lowest level of *commune*. Eighty-five percent of *communes* have less than 2,000 population.

Under the decentralisation law, each *commune* council must:

- define its transport policy through a transport mobility plan;
- design the services (routes, timetables, quality);
- determine the fares;
- create and manage transport infrastructure;
- The local transport authorities can choose two different ways of providing transport services:
 - provide the services themselves directly via a public company (*regie*);
 - contract operation one or more private or mixed economy companies.

By 2001, more than 90% of authorities had opted to contract the provision of services to the private sector.

Having opted for contracts, authorities must follow a strict tendering procedure defined by law.

The contract defines the services to be operated, the quality standards and the penalties if these standards are not maintained, and the way the operator is remunerated. The contract is for a fixed period which varies according to the size of the investment required and the level of operating risk.

In French cities, average commercial receipts from traffic cover about half the operating expenses, and about one-third of overall financing requirements. Local authorities fund passenger transport services from the tax levied on employers the '*versement transport*'.

Transport for London – UK Model for the London Area¹¹⁵

The loss of competitive incentives and increasing motorisation led to public ownership of London bus services in 1933 when the London Passenger Transport Board, a public authority, acquired control of 11 municipal bus and tram undertakings. Since then the transport authority in London has taken several different forms.

During the 1970s London Transport was under the control of the metropolitan government, the Greater London Council. The GLC was controlled by the Labour Party while the national government was controlled by the ruling Conservative Party. This led to conflicts of policy which the Conservative government resolved by abolishing the GLC and bringing metropolitan government, including the London Transport Executive, directly under the central government.

In 2002 public transport was returned to the control of the city government as 'Transport for London'.

Transport for London (TfL) is an integrated body responsible for the London's transport system. TfL is directed by a management board, chaired by the Mayor. Members are appointed by the Mayor for their 'understanding of transport matters'. In 2001 the Mayor's

¹¹⁵ For further detail see http://www.tfl.gov.uk/tfl/useful_links.shtml and <http://www.tfl.gov.uk/tfl/>

Transport Strategy was published which set out a package of policies and proposals designed to improve transport in London.

TfL is responsible for both the planning and delivery of transport facilities.

TfL manages:

- London Buses
- London Underground
- Docklands Light Railway
- London Trams
- London River Services
- Victoria Coach Station
- London Transport Museum
- Taxis and private hire vehicles
- Dial-a-Ride scheme
- The network of 580 km main roads including 4,600 traffic lights

TfL works with:

- the boroughs, which implement the Mayor's Transport Strategy on local roads;
- the Strategic Rail Authority (overseers of national rail services into London);
- Police;
- other stakeholder groups, communities and businesses.

The current organisation of public transport in London has some similarities to the German VVR system. Responsibility for bus and underground railway operations is devolved to numerous operating companies, who operate the route network and fare structure determined by London Transport. Most bus operating franchises are awarded by tender for 3-year tenure. Many bus services are subsidised by local government so the successful tenderer may be the one offering to provide the service at the lowest subsidy.

Full details of the London tendering scheme are presented in Module 3 – 'The Planning and Regulatory Framework', Annex 3.

Passenger Transport Authorities – UK Provincial Model

Prior to 1968, many large towns and cities in UK had municipal bus undertakings, often heavily subsidised. In 1968, municipal bus operations in the seven large UK conurbations¹¹⁶, excluding London, were consolidated and transferred to Passenger Transport Executives (PTE)¹¹⁷ which were supervised by Passenger Transport Authorities (PTAs).

The 1985 Transport Act deregulated the UK bus industry and provided that any person may operate a non-subsidised bus route subject only to registration. The Act required all municipal bus enterprises, and those operated by the PTEs in the major conurbations, to be

¹¹⁶ PTAs and PTEs operate in the seven main metropolitan areas outside London: Centro covering the West Midlands, centred on Birmingham; Greater Manchester PTE covering the Greater Manchester area; Merseytravel operating throughout Merseyside centred on Liverpool; Metro covering West Yorkshire; Nexus serving Tyne & Wear, including Newcastle; South Yorkshire PTE covering Barnsley, Doncaster and Sheffield; Strathclyde PTE centred on Glasgow.

¹¹⁷ The power to declare Passenger Transport Areas was granted by the Transport Act 1968 (ss9-23), with detailed provisions for the constitution of each Authority and Executive. Some of the provisions of this Act were later amended by the Transport Act 1983, which imposed new duties on PTEs to balance their revenues and expenditures, and also to prepare annual three-year plans.

incorporated as companies and sold to the private sector. There is now no operation of public transport by municipal government departments in UK.

Since the deregulation of the bus industry in 1985, public transport throughout Great Britain, except in Greater London, has been operated by commercial companies who decide what services to run and what fares to charge. In the seven large conurbations Passenger Transport Authorities are responsible for providing the services and facilities which the market does not provide. On routes supported by subsidy the PTE is bound to secure the best value for money. Operators compete by tender on the basis of the lowest level of subsidy.

PTEs also have a power to secure passenger rail services in their areas, contracting with the local franchised passenger train operators to provide these additional services.

PTEs are responsible for day-to-day administration and are controlled by their respective Passenger Transport Authority (PTA). Each district council in the PTA area contributes finance from local taxes and appoints local elected councillors to the PTA to represent their district. The Authority decides on public transport policy and expenditure plans for the county and provides the funds to carry out these policies.

The specific functions of PTE's are as follows:

- planning and investing in the development and integration of bus and rail networks to meet future demand;
- maintaining a network of subsidised bus services on routes not commercially viable and securing schools service contracts; ensuring efficiency and value for money on these services;
- financing local rail services;
- ensuring that information is available about local transport services;
- funding the concessionary fares scheme for the elderly, children and disabled;
- providing assistance for people with disabilities through special-needs transport services;
- providing investment to build and maintain local transport infrastructure such as bus and rail stations, bus stops shelters and light rail systems; and
- offering assistance to Passenger Transport Associations and partners on the best way to provide, plan and pay for local public transport services.



Figure IV-7: All buses in London are operated by the private sector under competitive contracts awarded by London Buses Ltd, under the control of Transport for London

Transport for London (TfL)

2.3 Transport Authorities in Developing Cities

At this point, it is useful to re-iterate the rationale for establishing dedicated transport authorities which cover several local jurisdictions, have a formal constitution and some autonomy to achieve their objectives, which is based on three factors:

1. To manage the expenditure of public funds for the procurement of public transport services where these are unprofitable. Transport authorities are strongly associated with subsidised transport services and they have a duty to secure the best value for money. The establishment of supervisory boards comprising elected politicians of the constituent local governments is to provide oversight and accountability for the expenditure of public funds. The statutory constitution of the authority also adds formality.
2. There is a strong case on efficiency grounds for bus and rail networks to be planned and managed on a conurbation basis, with full service and fare integration between modes to reduce costs by diverting passengers to the most cost-effective mode. In an environment where transport services are unprofitable and obtaining value for money is an imperative, that case is even stronger.

The second factor is reinforced where an authority has responsibility for both public transport and management of the road network (for example, Transport for London and Singapore Land Transport Authority). In that case there is scope for managing public and private transport as a single system and, for example, roads and public transport can be seen as competing for available resources, allocation being made according to policy priorities. In both London and Singapore, revenue generated from private car users is used for expenditure on developing public transport.

3. An authority has defined objectives, usually set out in its statute, and dedicated resources. Its autonomy usually confers some freedom to manage those resources in a way that most effectively achieves the objectives. Thus, a major advantage of an authority is that it may hire qualified staff free of the salary and terms of service constraints that prevail in the civil service. This is particularly important in developing countries where civil service salaries and motivation may be very low, and it is very difficult to attract professional staff with the specialised qualifications and experience needed to tackle complex transport problems.

Whereas the first two factors apply to developed cities, the last one applies to developing cities where, generally, public transport is not directly subsidised, except sometimes to meet the deficits of state-owned transport undertakings. In cities where a large proportion of public transport is informal paratransit, affordability of public transport is assured, not by subsidy, but by the density of captive demand and by allowing the quality of services to fall to a level at which they are affordable.

Other factors that have constrained the development of transport authorities in developing countries are:

- Planning transport on a conurbation-wide scale, with fare and network integration requires skilled professional staff, a sound legal basis and financial resources that are often not available.
- Many developing cities have regulatory frameworks that are based on 'one-vehicle one-licence' under which no service obligation can be imposed. This is not conducive to control, or to cross-subsidy between routes or even between vehicles. It is thus difficult for an authority to exercise effective control over paratransit modes that make up a large proportion of developing city public transport. Service obligations are often borne solely by the public sector operator.
- Even where a dedicated transport authority is established, it has to work in the context of the wider government which may constrain its effectiveness. Transport authorities require policy continuity, assured funding and a sound legal basis (usually a specific statute), which are difficult to establish in developing cities.

Under the conditions that generally prevail in developing countries, the administration of public transport by a government department is likely to be as efficient as administration by an authority.

It might be said that the establishment of a transport authority, with the objective of achieving efficiency through a high degree of inter-modal network and fare integration, marks the transition from 'developing' transport system to 'developed' transport system. The progressive consolidation of Singapore's transport agencies into a Land Transport Authority is an illustration.

2.3.1 Singapore and Hong Kong

Restraint of Private Vehicles and Integrated Public Transport

The most successful cities in the developing world in achieving a balance between public and private transport were Singapore and Hong Kong. In both cities the shortage of developable land has dictated a policy of maintaining a high proportion of trips by public transport.

Both are city-states in which a single-tier government enjoyed a long period of continuity and authority.

Both cities have been able to pursue consistent transport policies over several decades which rest on three principles:

1. development of transport infrastructure;

2. improvement of the public transport system;
3. managing the demand for road use.

Strong economic growth and high population density has enabled substantial investment in rail mass transit networks, supported by high quality, privately-owned bus systems run by large companies. Public transport in both cities is run on commercial principles, supported by restraints on the ownership and use of private vehicles. In both Hong Kong and Singapore, rail mass transit was vested in autonomous public corporations, structured with a longer-term view of sale to the private sector. Hong Kong has successfully sold a proportion of the shares of its Mass Transit Railway Corporation.



Figure IV-8: Singapore has pursued a policy of private vehicle restraint and development of high quality public transport, including bus services

Karl Fjellstrom, 2002

It is interesting to note that the institutions responsible for implementing the transport management policies of both Hong Kong and Singapore (until 1995) were government departments – in Singapore the Registry of Vehicles and the Road and Transport Division of the Public Works Department, and in Hong Kong the Transport Department. There were appointed boards of experts and laymen (PTC in Singapore and TAC in Hong Kong) but these were advisory only. The government departments and operating corporations were well coordinated at policy level by central government – in Singapore by the Land Transport Division of the Ministry of Communications and in Hong Kong by the Transport Bureau of the Government Secretariat, through coordinating committees.

The examples of Hong Kong and Singapore demonstrate that integrated transport policies and programmes can be successfully implemented by government departments, even where the public transport sector comprises a mix of public corporations and privately owned companies. Keys to success are:

- the continuity of governments' policies – both Singapore and Hong Kong have consistently maintained their basic urban transport policies for thirty years;
- adequate professional expertise, supplemented where necessary by contracted specialists and consultants;
- financial discipline;
- effective regulatory and co-ordination mechanisms that subjugate all agencies and transport operators to basic policy objectives.

While Singapore increased the degree of integration by merging government's transport institutions into a single Land Transport Authority, in Hong Kong, the institutions remain separate, and the co-ordination of different agencies and operators is the responsibility of a central transport policy bureau.

Constitution of Singapore Land Transport Authority

Singapore Land Transport Authority (SLTA) is an integrated authority with wide functional scope¹¹⁸. It has removed the administrative boundaries between private and public, road and rail mass transit, and the various modes of transport.

SLTA executes all government functions relevant to land transport, except land use planning:

- policies for the land transport sector;
- planning, design, development and management of all land transport infrastructure and services; regulates (but does not own) MRT, bus and taxi systems;
- road building and maintenance, traffic management and enforcement;
- design, building and operation of the MRT and any future rail systems;
- vehicle registration and licensing and administering the private vehicle quota system and demand management policies.

The Authority is directed by an appointed Board of Directors comprising fifteen representatives of business, academia, the professions, labour and community organisations¹¹⁹.

2.3.2 Metro Manila Development Authority

Creation of MMDA

Metro Manila faces many of the problems of Third World megacities.

Metro Manila is unusual in having no metropolitan government, as it comprises thirteen cities and four municipalities, each with their own local government.

As a result of massive in-migration in the 1960's, Manila's population surged, huge squatter settlements developed, quality of life suffered and the environment deteriorated rapidly. These problems put a considerable strain on the capability of individual local government units to deliver basic services, stretching their resources to the limit.

Metro Manila now has an estimated daytime population of 9.9 million¹²⁰, about 13 % of the national population and is estimated to be the 18th largest metropolitan area in the world. The area accommodates about 90% of the Philippines' business, cultural, educational and medical establishments.

The need for a body to manage the problems at metropolitan level was recognised in the 1970's. The initial organisation was a council of mayors which was a loose coordinating body that could attend to the most pressing problems of its member communities. This body later became formalised in 1975 as the Metro Manila Authority.

The Metro Manila Development Authority (MMDA) was created by statute in March 1995 as a special organisation under the Office of the President.

¹¹⁸ SLTA was formed by merger of four government agencies: the Registry of Vehicles, the Road Transport Division of Public Works Department, the Land Division Ministry of Communications, the Mass Rapid Transit Corporation.

¹¹⁹ Further data is available at SLTA web-site <http://www.lta.gov.sg>

¹²⁰ National Statistical Office 2000

MMDA is governed by the Metro Manila Council, which comprises the Mayors of the 17 cities and municipalities. The Council Chairman has cabinet rank. He is assisted by a Deputy Chairman, General Manager and Assistant General Managers for Planning, Operations and Finance and Administration, all appointed by the President.



Figure IV-9: Manila's buses are regulated by the national Land Transportation Franchising and Regulatory Board. In 2000 it was estimated that about 10,000 buses, operated by about 100 companies, provided services within Metro Manila, greatly outnumbered by about 60,000 jeepneys

Karl Fjellstrom, 2003

Functions

MMDA provides basic services which have metro-wide scope or entail expenditure beyond the capability of the individual municipalities. MMDA is required by its statute to maintain links with the local governments, national agencies performing functions at the local level, non-government organizations (NGOs), people's organizations (POs) and the private sector.

These basic services include:

1. Development planning: which includes the preparation of medium- and long-term development plans; the development, evaluation and packaging of projects; investment programming and coordination as well as the monitoring of plans, program, project implementation.
2. Transportation and traffic management: which includes the formulation, coordination and monitoring of policies, standards, programs and projects to rationalize the existing transport operations, infrastructure requirements, the use of thoroughfares; and promotion of safe and convenient movement of persons, goods; provision for the mass transport system and the institution of a system to regulate road users; administration and implementation of all traffic enforcement operations, traffic engineering services and traffic education programs, including the institution of a single ticketing system.
3. Solid waste disposal and management;
4. Flood control and sewerage management;
5. Urban renewal, zoning, land use planning and shelter services

6. Health sanitation, urban protection and pollution control and public safety.

Sources of revenue include an appropriation from the national budget, a share of the Internal Revenue Allotment (like a province), subsidy from the national budget, contribution from the constituent municipalities and fines, fees and charges.

Central Government Functions

MMDA does not have full jurisdiction for the transport sector. Of the 14 central government ministries, three have responsibilities relating to Metro Manila's transport urban transport system.

The Department of Public Works and Highways (DPWH) is responsible for planning, constructing, and maintaining major roads throughout the country, including within Metro Manila. It has a special project management office (Urban Projects Office) responsible for project development, construction and letting of contracts for national roads in Metro Manila.

Department of Transport and Communications (DOTC) is the agency responsible for urban transport planning and regulation, including urban buses and light rail transit construction. It supervises the:

- Land Transportation Franchising and Regulatory Board (LTFRB), which is the regulatory agency for public transport vehicles including buses and jeepneys. LTFRB operates through its regional office in Metro Manila.
- Land Transportation Office (LTO) which registers motor vehicles and licenses drivers nationwide and has an enforcement function for non-moving traffic violations. LTO has a regional office in Metro Manila;
- Light Rail Transit Agency (LRTA) an autonomous state enterprise which administers LRT operations;

Department of Interior and Local Government (DILG) supervises all local government units: municipalities, cities and provinces. DILG supervises the Philippine National Police (PNP) which has a Traffic Management Command responsible for traffic enforcement in Metro Manila and throughout the country.

Discussion of Problems

Manila is unusual in that there is no city or metropolitan government. MMDA's primary focus is on urban development and infrastructure planning. Its functions do not extend to bus network planning or regulation of public transport services which is done by local offices of the national LTFRB which is part of MOTC.

While the formation of MMDA has enabled urban development and infrastructure planning to be undertaken on a metropolitan basis, overcoming previous administrative boundaries, MMDA has not had a major positive impact on the development of the formal bus system. In fact, a new institutional boundary has been created between MMDA and LTFRB, both of whom have responsibilities for public transport planning. In 2000 it was estimated¹²¹ that about 10,000 buses, operated by about 100 companies, provide services within Metro Manila, greatly outnumbered by about 60,000 jeepneys, so the regulatory task is enormous.

In its first five years, MMDA was not able to effectively co-ordinate transport infrastructure plans because it has lacked both resources and technical capability, while the organizational structure it inherited from its predecessor MMA, had not been adapted to its new role. Many agencies, including central government departments, local governments, ad hoc development agencies and task forces and the private sector all initiate or sponsor transport projects.

¹²¹ *Review of Urban Transport Competition*. Halcrow Fox for DfID. Draft Final Report May 2000

2.4 Administration by Government Departments – The Case of Bangkok

Bangkok is often cited as a city that has failed to organize urban transport in a way that provides a high level of mobility. Central government has retained ownership of the monopoly bus undertaking¹²² and, although new urban rail systems have been constructed¹²³ in the last few years, for many decades policy emphasis was placed on moving traffic faster and farther through a new network of high capacity expressways, ill-conceived one-way systems and other experimental schemes, at a huge cost to pedestrians, the urban environment and to mobility.

A 1998 study¹²⁴ partly attributed the fundamental causes of Bangkok's failure to ineffective institutional arrangements.

2.4.1 Government Role and Procedures

The first institutional problem was that Government was too closely involved in the provision of transport infrastructure and services through a variety of state-owned agencies. This made operations excessively vulnerable to changes of political direction, the imposition of ill-defined and incompatible objectives, and procedural, bureaucratic and budgetary constraints.

In 1999, at least 27 government departments, agencies and state-owned enterprises exercised responsibilities related to urban transport, any of which could independently take to the Cabinet proposals of major strategic impact. Agency responsibilities were inadequately defined, overlapping, or competing. For example, four separate agencies, under three different ministries, had powers to develop mass transit schemes. This led to fragmentation of strategic development as departments initiated projects without reference to the projects or objectives of other departments. This in turn made it difficult to form or implement a consistent integrated policy. It also led to excessive politicisation of the implementation process when departments were controlled by rival political parties.

¹²² The Bangkok Mass Transit Authority has a legal monopoly of the right to operate bus services in Bangkok and is directly supervised by the Ministry of Transport.

¹²³ The elevated Bangkok Transit System ('Skytrain') opened in Nov 1999, and the first line of the underground Bangkok Mass Rapid Transit system opened in July 2004.

¹²⁴ Final Report. The Transport Policy and Planning Project. Dorsch Consult for OCMLT 1998.

The Transport Agencies in Bangkok in 1999

The following Ministries and line agencies exercised key transport responsibilities

Under the Ministry of the Interior:

Bangkok Metropolitan Administration (BMA) had a major road construction programme and managed most roads in Bangkok. It was the sponsoring authority for the BTS 'Skytrain' elevated railway system, and initiated a scheme to construct 200 kms of light rail feeder lines to the underground mass transit railway (MRT) which opened in July 2004.

The Expressway and Rapid Transit Authority (ETA) is a state-owned enterprise responsible for most toll motorways in Bangkok. It also has powers to develop mass transit systems. Although ETA was (in 1999) in dire financial straits it could still take proposals to Cabinet for completion of links within its plan.

Under the Ministry of Transport and Communications:

Dept. of Highways was responsible for the national motorway network, including some radial toll roads and the Bangkok outer ring road. It was also involved in the construction of non-toll principal roads in Bangkok at the request of BMA.

Dept. of Land Transport was responsible for planning public transport supply, regulation of buses and paratransit, and determining fares. Although it had no direct responsibility for the financial performance or efficiency of the monopoly bus operator (Bangkok Mass Transit Authority), it had to be sensitive to the financial needs of BMTA. It had no direct responsibility or relationship with BMA.

Bangkok Mass Transit Authority was a state-owned enterprise with a legal monopoly to provide bus services in Bangkok. Its services extended into the wider Bangkok Metropolitan Region. By sub-licensing most of its operations to its private 'joint-service partners' it acted as a licensing agency as well as an operator.

State Railway of Thailand was a state-owned enterprise with responsibility for national rail services including the commuter rail services in Bangkok. It sponsored the now cancelled Hopewell project to develop an elevated rail mass transit and expressway system along its rights-of-way.

Under the Office of the Prime Minister:

The Mass Rapid Transit Authority (MRTA) was created in 1992 as a state enterprise to plan, develop and operate a mass transit system in Greater Bangkok. It relied on government guaranteed borrowing to construct the infrastructure of the first phase of the MRT, and on private finance, obtained through an operating concession, for the electrical and mechanical investments. It had no authority over the mass transit projects of SRT (the Hopewell project), BMA (BTS and the light rail feeder network) or ETA (busway).

The Ministry of Science and Technology

specified some technological requirements for buses. In 1999 it ordered that all new buses should comply with 'Euro 2' emission standards, though such vehicles are beyond the financial capability of the private operators at current fares.

Box IV-3: The Transport Agencies in Bangkok in 1999

2.4.2 Weak Coordination

Recognising the problems of coordinating the activities of multiple transport agencies, in 1992 the government strengthened an existing unit in the Ministry of Interior to create the Commission for the Management of Land Transport (CMLT) and its supporting office (OCMLT). The Commission comprised the main agencies which had transport infrastructure, planning, implementation or regulatory functions. It was responsible to the Prime Minister.

2.4.3 Ineffective Decentralization

In most of the world's large cities responsibility for urban transport is vested in a city or metropolitan government. In Thailand, the Bangkok Metropolitan Administration (BMA) was,

in principle, the transport management authority for the capital city, with a mandate encompassing city planning, provision and maintenance of city roads, traffic engineering, including bus priorities, and the provision of transport services. BMA's Traffic and Transport Department was responsible for designing and implementing traffic engineering schemes and minor road improvements, while its Public Works Department was responsible for planning, designing, building and maintaining local roads and highways. In practice, BMA's effectiveness was constrained by lack of powers, funding and technical capability. BMA had no direct operating or regulatory responsibility for public transport. Central government had typically funded 60% of BMA's capital works, and retained implementation powers for those works in central agencies. The continued creation of functional agencies within national government continued to maintain central government control.

Given the economic primacy of Bangkok within the country¹²⁵, the preoccupation of central government with Bangkok matters was not surprising. Nor would it have mattered much if central government responsibility meant consistent and effective strategic planning. Unfortunately, its effect was quite contrary, with competition for power between the fragmented transport agencies of central government precluding the strategic functional coordination which is so essential to effective metropolitan transport.

2.4.4 Inadequate Technical Capability

Many of the institutions in the transport sector lacked the technical skills necessary for good strategic planning, leading to an excessive reliance on foreign consultants. The Thai education system had not produced the professional analysts, transport planners, and traffic engineers that the country needed to develop rational solutions to its transport problems. The few specialists were trained overseas. Despite government's efforts to provide mid-career professional training through attachments to consultancy projects and by such institutions as a proposed Transport Institute to be established within OCMLT, lack of technical capability will continue to be a constraint for the foreseeable future.

¹²⁵ Bangkok Metropolitan Region accounted for 56% of Thailand's GDP in 1998.

2.4.5 Institutional Recommendations for Bangkok

The 1998 study identified a critical need for the establishment of a clear and comprehensively empowered metropolitan focus for coordinated transport and land use planning, both on functional and spatial levels. In the long run this suggested the creation of a new planning authority for the Bangkok Metropolitan Region, comprising BMA and the five adjacent provinces. But this would require comprehensive reform of local government and all public service provision.



Figure IV-9: Integration of Bangkok's public transport has been hindered by institutional fragmentation. Here private and public sector buses pass under the track of the elevated 'Skytrain', but adequate interchange facilities have not been provided.

Karl Fjellstrom, 2001

Immediate improvements could be achieved by the establishment of a transport authority for Bangkok which would represent the full range of local administrations in the region, modelled on those in Europe and North America. The commission would develop a long-term strategic framework for transport in the region. While implementation might be assigned to a range of agencies, all transport expenditures in the region would require approval of the authority as consistent with the integrated strategy.

Only planning functions which needed to be addressed at the metropolitan level would be assigned to the commission, which would thus be charged with:

- integrating strategic urban land-use and infrastructure planning with transport system and network planning, including the development and publication of a strategic planning framework for transport and land-use in the metropolis,
- integrating road network planning with public transport planning;
- integrating the planning of the various public transport modes.

2.4.6 Reorganisation of Transport Responsibilities in 2002

In October 2002 a rationalisation of functions between ministries of the Thai government took place. A new Ministry of Transport was created¹²⁶ which controls eight departments:

1. Office of the Minister
2. Office of the Permanent Secretary
3. Dept. of Waterway Transport and Merchant Marine
4. Dept. of Land Transport
5. Dept. of Air Transport
6. Dept. of Highways
7. Dept. of Rural Highways (which took over the road functions of the Dept. of Accelerated Rural Development and Public Works Dept.)
8. Office of Traffic and Transport Policy and Planning (which took over the functions of the Office of the Commission for the Management of Land Transport, Transport and Communications Policy and Planning Bureau, and Office of the Maritime Promotion Commission).

The new Ministry of Transport supervises the following state enterprises:

- Expressway and Rapid Transit Authority of Thailand
- Port Authority of Thailand
- Mass Rapid Transit Authority of Thailand
- State Railway of Thailand
- Bangkok Mass Transit Authority
- Express Transportation Organization of Thailand
- Thai Airways International Public Company Ltd.
- Transport Company Ltd.
- Thai Airport Public Co Ltd.
- New Bangkok International Airport Co. Ltd.
- Thai Maritime Navigation Company Ltd.
- Aeronautical Radio of Thailand Company Ltd.
- Civil Aviation Institute.

The reorganisation has merged two land transport policy bodies into a new national Transport Policy and Planning office, and this, together with all passenger transport agencies is now vested in the Ministry of Transport. However, the devolution of planning responsibilities for Bangkok from central government to the metropolitan government has not yet taken place.

¹²⁶ The Meteorological Dept, Post and Telegraph Dept. and Communications Authority and Telecommunications Organisation were removed from the MoTC and vested in a new Ministry of Information Technology and Communications.

2.5 Successful Transport Reforms in South American Cities

Two South American cities, Bogota, Colombia and Curitiba, Brazil have become models for the successful introduction of bus mass transit in a wider context of innovative city planning to reduce car dependence, introduce comprehensive environmental improvements, and provide extensive facilities for cycling and walking.

In the context of the theme of this Module, it is of interest to examine the institutional basis of the reforms.

2.5.1 Colombia, Bogota



Figure IV-10: Bogotá's TransMilenio bus rapid transit system operates on an exclusive right-of-way.

GTZ Photo CD ROM

The Sustainable Transport Project

Bogota has a population of 6.4 million and GNP per capita of US\$3,300. For many years the city suffered severe congestion due to a rapid increase in the number of private vehicles. In a year of normal economic growth the number of private vehicles increased by 70,000. In 2001 private cars totalled 832,000. Nearly 70 percent of trips shorter than 3 kms were made by car.

To reduce the negative effects of private car use, Bogotá City Government developed the concept of a sustainable urban transport system. The objectives were to reduce pollution and congestion, but also to encourage a more egalitarian and integrated society, reducing the 'divide' between those who enjoyed convenient transport by private car and those who suffered long and unpredictable journey times by bus. The Bogotá Project took into account both supply and demand factors.

Supply

To increase the supply of transportation, mass transit and alternative means of transport were developed on a network throughout the city, allowing for convenient, economic and sustainable mobility. Components of this system include:

1. TransMilenio: a high-capacity network of bus corridors, served by articulated buses with a capacity of 160 passengers. The system commenced operation in December 2000. It not only provides new transport infrastructure (new vehicles, exclusive corridors with new feeder routes), but also a new organizational structure of the companies providing the

service.

Buses are operated by the private sector, and use the latest control technology of satellite

| Component | Total Cost (US\$) | Cost per km (US\$)* |
|-----------------------|-------------------|---------------------|
| Trunk lines | 94.7 | 2.5 |
| Stations | 29.2 | 0.8 |
| Terminal | 14.9 | 0.4 |
| Pedestrian overpasses | 16.1 | 0.4 |
| Bus depots | 15.2 | 0.4 |
| Control centre | 4.3 | 0.1 |
| Other | 25.7 | 0.7 |
| Total | 198.8 | 5.3 |

* The initial lines of TransMilenio total 37 kilometres

Figure IV-11: Bus Rapid Transit construction cost breakdown, Bogotá's TransMilenio

communication, magnetic tickets and smart cards.

The first phase of TransMilenio comprised:

- 3 lines totalling 41 kilometres;
- 470 buses;
- capacity of 660,000 passengers/day.

Bus speeds average 25 km/h¹²⁷.

By 2015 TransMilenio is planned to have 22 lines and 6,000 articulated buses providing five million trips per day.

2. Cycle Paths: A network of 120 kilometres of cycle paths were provided in year 2000, while an additional 180 kilometres was planned. This network, together with a promotional campaign to encourage use of bicycles raised the proportion of trips by bicycle from 0.5 percent to 4 percent in two years. It was expected that by the end of 2001, 6 percent of the population would be using the network of cycle paths, and by the year 2005, 30 percent of trips would be by bicycle.
3. Public Spaces: The construction of sidewalks and shaded walks ("alamedas") throughout the city. The 15-metre-wide shaded walk El Porvenir, currently under construction, is the longest in the world, at 17 kilometres.

Demand

A program of measures to encourage use of public transport and deter private car use was implemented:

1. Fees and taxes – public parking fees were increased, a gasoline tax was imposed that increased its price by 20 percent. The revenue obtained through these measures was earmarked for road maintenance and the development of the new mass transport system.
2. Access restrictions – an odd-even number plate-based restriction on private vehicles. This promoted the use of public transport, reduced the number of vehicles by 40% during

¹²⁷ The average speed of public transport in Bogotá without TransMilenio is 10 km/h.

peak hours and raised awareness of the benefits of reducing traffic and in the long-term, car dependency.

3. Cycleways – every Sunday more than 120 kilometres of highway were closed to motorized vehicles and reserved for bicycles, skaters or walking. There are social as well as environmental benefits to the road closures. The Cycleway has become a safe meeting place.
4. Tolls – to obtain resources for city road maintenance and to control the influx of vehicles, the District Administration presented a proposal to Bogotá City Council that, if approved, will result in tolls at the city entrances collecting US\$35 million per year.
5. As a complementary measure to the improvements in transport and to encourage the use of alternative means of transportation, several programs have been carried out to promote citizen awareness. The most significant one was a car-free day in February 2000.

Institutional Basis

What were the conditions that enabled this major change in transport policy to be implemented so quickly and so successfully?

The structure reflects the public-private roles in other successful systems, such as Singapore and Hong Kong.

Institutional and political factors that contributed to the successful planning, design and implementation of the project were:

1. the initiative and motivation for the project was taken at city level, not national level;
2. a high level of political authority was vested in the Mayor¹²⁸: the program has survived legal and political challenges;
3. legal powers to acquire land and close roads were effective;
4. the progressive implementation of the strategy¹²⁹ contributed to its acceptability, as in Singapore;
5. only 30% of Bogota households owned cars in 1998. A large majority of citizens were in the lower income levels and benefited substantially from the measures. Referendums were used which enabled the majority to out-vote the car-owning minority. The referendums increased the legitimacy of the program and the authority of the Mayor to implement them;
6. the private transport operators have benefited from the measures. Bus services are reported to be profitable;
7. a high level of professional capability has been accumulated in the city government and by the use of expertise in the universities and consultants.

¹²⁸ The success of the project has been attributed to the vision of the Mayor Enrique Peñalosa who served 1998-2000, while his successor Mayor Antanas Mockus 2001-2003 continued the program.

¹²⁹ The first measures under a policy of reducing car dependence were taken in the 1980's with the closure of roads to car traffic on Sundays, allowing only non-motorized vehicles. In December 1999 a car-free weeknight was declared, followed by a car-free weekday.

The Organisational Structure of TransMilenio S.A.

The city planned the system, developed the implementation programme and constructed the infrastructure:

- trunk lines:
 - 37 kilometres of trunk lines;
 - total cost US\$ 94.7 million = US\$ 2.5 million / km;
 - 6 private sector construction contracts and 6 supervisory contracts.
- Stations;
- maintenance facilities;
- complementary infrastructure.

TransMilenio SA (a public authority) is responsible for operational planning, awarding contracts for operating buses and the fare collection system. Management and control of the whole system.

Private Companies operating under concession agreements are responsible for:

- system operation
- bus procurement
- employee management
- maintenance
- fare collection by private sector using smart cards is under concession
- financial management and disbursements

Box IV-4: The Organisational Structure of TransMilenio S.A.

2.5.2 Curitiba, Brazil

City Planning

Curitiba is the capital of Paraná State. Its population is 2.2 million.

Curitiba experienced very high population growth of about 5.7% a year during the 1970's and 80's due to migration from rural areas. The city's population grew from 900,000 in 1970 to about 1,600,000 in 1980.

This uncontrolled population increase demanded effective city planning in areas ranging from social services, housing and sanitation, to the environment and transportation.

The process of creating an urban Master Plan, including a consolidated public transport system began in the 1940s. A Master Plan was approved in 1966, and the Institute for Research and Urban Planning in Curitiba was established to oversee its implementation.

The plan changed the city's radial configuration into a linear structure by designating five 'structural avenues' along which high-density residential and commercial development would be concentrated by zoning laws. The avenues would form the main transport corridors on which high capacity mass transit systems would be built. In 1971, the mass transit terminal plan was developed and in 1974 transit services started on the corridors.

The structural corridors comprised a triple road system with the central road having two lanes dedicated to express buses. Parallel to the express bus lanes were two local roads running in opposite directions. All five structural corridors were completed in 1982. Feeder bus routes

connected to the trunk routes at transfer terminals that operated like subway stations.

The Public Transport System

The Mass Transit System (MTS) covers Bogota and eight neighbouring cities, using 1,900 buses on 340 routes to carry some 1.9 million passengers daily. About 70% of Curitiba's commuters use transit daily to travel to work.

The entire network covers 1,100 km of roads with 60 km dedicated for bus use. There are 25 transfer terminals within the system and 221 tube stations that all allow for pre-paid boarding. Special buses on 28 routes are dedicated to transporting special education and disabled patrons.



Figure IV-12: Curitiba: articulated and bi-articulated buses operating on exclusive busways provide very high capacity and reliability

Karl Fjellstrom, 2002; Manfred Breithaupt, 1999

Institutional Basis

Integrated urban and land use planning in Curitiba, including the concept of structural transport corridors, was developed over several decades. Nevertheless, the realization of the concept presented many challenges. Much of the credit for implementation was given to Jaime Lerner¹³⁰.

The role of the city government has been to plan, manage and direct the transport system.

²³ Lerner was one of the original architects of the 1966 Master Plan, later president of the IPPUC. He became a three-time Mayor of Curitiba, and then governor of the state of Parana. He championed the plan in each of these roles.

The entire MTS is currently operated by *Urbanização de Curitiba* (URBS), a publicly-administrated, privately-funded company that was founded in 1963. URBS enjoys administrative autonomy, access to important development powers typically prohibited to municipalities, some tax advantages, yet has a degree of political accountability. The company:

- awards concessions to the ten private bus operators to run the 256 routes;
- sets fares and minimum frequencies;
- runs the computerized bus scheduling system;
- inspects vehicles for safety;
- conducts surveys to evaluate the performance of the system;
- builds and maintains terminals and bus stops;
- manages the public transport fund into which bus revenue is deposited.

Passengers pay a single fare equivalent to about 40 cents (US) on entry to the system which allows unlimited transfers, using the services of the ten different, private zonal bus companies.

A system of revenue pooling distributes revenue based on the number of kilometres travelled by vehicle type for any given company. The private operators contracted by URBS own, operate, and maintain the buses running on the system. The system operates without any direct subsidy from the city government.

All ten bus companies earn an operating profit.

Supporting Policies

Curitiba's transport policy is supported by other measures:

- the city has 90 miles of bike paths;
- downtown public parking is very limited and time-restricted;
- private parking is very expensive;
- most employers offer transport allowances to their workers.

3 Conclusions on Urban Transport Institutions

Institutional arrangements for public transport vary widely between different countries and cities, reflecting historical, political and social factors, but also reflecting the 'maturity' of their transport systems which is closely related to their stage of economic development.

The characteristics of the transport system of a typical developed city are:

- High GDP;
- High car ownership;
- Policy objective to enhance the level and quality of public transport to attract car owners. A well-developed public transport system is a requirement for private vehicle restraint policies to be politically acceptable;
- Integration of modal networks and fares;
- Public transport is subsidised: fare revenue does not cover operating costs;
- Lack of small-scale, informal and paratransit modes;
- Highly developed planning and regulatory institutions.

The characteristics of the transport system of a typical developing city are:

- Low GDP
- Low car ownership;
- Policy objective to maintain mobility within resource constraints;
- Little integration of networks or fares (except where a state monopoly operator exists);
- Fare revenue covers operating costs;
- No subsidy to public transport operators;
- Preponderance of small-scale, informal and paratransit modes;
- Low capability of planning and regulatory institutions.

These profiles represent typical cities, but it is interesting to note the characteristics of cities that, by virtue of their GDP are, or were, developing countries, but which successfully managed urban transport in advance of their attainment of 'developed' status.

There are relatively few examples.

- Singapore and Hong Kong in the 1970's: although motorisation was increasing rapidly in the early 1970's when their policies were established, both cities were able to substantially slow the trend of rapid growth in private vehicle use;
- Curitiba and Bogota within the limits of their bus rapid transit schemes in the 1990's;
- some cities in China.

Some tentative conclusions on the organizational factors that contribute to successful urban transport systems:

- Successful public transport systems have been achieved with a wide range of government structures and public/private sector combinations. No structure is demonstrably superior, though there is strong evidence that delegating transport operation to the private sector in a competitive environment is effective in improving efficiency and reducing costs;
- There are clear distinctions between the organisation of public transport in the developed cities of Europe, the US and Australasia and developing cities in Asia, South America and Africa. There is no example of a developing city successfully adopting the 'European' model of a transport authority contracting out exclusive operating rights and applying subsidy, though a few have tried to introduce it¹³¹. Conversely, there is no case of a developed city where full cost recovery is achieved. Cities in UK outside London come closest to this situation under the deregulated regime. However, a substantial proportion of bus mileage is subsidised under service contracts and there are public transport authorities in each of the major urban conurbations;
- Metropolitan government may be the best level for strategic transport planning. In several successful cases, reform initiatives have been taken by city governments, and implemented in a single city, not by national governments. The recent trend towards devolution of greater responsibility for urban transport policy to province and city

¹³¹ The Sri Lanka National Transport Commission Act of 1991 empowered the NTC (the regulatory body) to enter into contracts for the operation of unremunerative but socially necessary bus routes. In 1995 there were estimated to be over 2,000 loss-making bus routes due to fare constraints. The NTC invited tenders and awarded contracts for only 14 loss-making routes before the scheme lapsed due to lack of funding and insufficient capacity in NTC.

governments (for example in Indonesia and Pakistan) may allow one city to take a lead in developing an innovative system and becoming a model for other cities;

- The capacity to make fundamental changes in developing cities is constrained by:
 - scarcity of key resources – investment capital and professional expertise;
 - very large numbers of loosely organized stakeholders, many of whom depend on transport services for subsistence;
- lack of political will to promote reforms that change the *status quo*;
- The successful administration of urban transport is strongly associated with:
 - continuity and progressive refinement of policies;
 - consistent, rational and progressive strategies;
 - effective, integrated institutions for urban transport policy-making and administration, with expert technical and financial staff, in both the public and private sectors.
- Well-developed financial institutions are critical to support capital-intensive public transport investments;
- ‘Muddling through’ (resorting to short term, local, uncoordinated or experimental measures) occurs where the political level of government is:
 - unstable or politically divided, lacking strong and consistent political leadership to maintain coherent progressive urban transport policies;
 - has a short-term horizon.

and the administrative level:

- lacks professional expertise;
 - has many separate agencies;
 - rivalry between agencies;
 - lacks an effective coordinating mechanism and implementation mechanisms (eg. procedures for land clearance, right of way acquisition, compensation).
- Two of the most successful Asian cities in developing efficient urban transport systems without high subsidies (Hong Kong and Singapore) have the advantage of being city-states with a single-tier government, without a municipal tier of government. These two city-states have also maintained a progressive and explicit transport policies and invested heavily in railways for three decades, without major policy reversals. High population densities and low car ownership have allowed a range of high-quality public transport services to be commercially viable.
 - A high degree of institutional integration (as in Singapore) facilitates coherent policies and strategies, but policy integration can be achieved without institutional integration by:
 - coordinating committees (as in Hong Kong);
 - a high degree of authority in the top level of the city executive (the mayor’s office as in China, Brazilian cities).
 - Urban transport systems develop incrementally. It may take decades of progressive, coherent policies to realize major reforms such as:
 - new public transport systems;
 - to induce a change of modal split in favour of public transport;

- to reverse a decline in public transport use.
- Incremental change can be managed by superimposing a new formal transport system, corridor by corridor, while leaving the informal system in place, and allowing users a choice. This is the strategy used in Bogota and recommended for cities in Indonesia and Pakistan;
- Developing city governments often prefer new systems (expressways or rail transit) rather than achieve the same improvement in service or capacity by more efficient management of existing systems. Management measures require:
 - 'political will';
 - a comprehensive policy;
 - sustained over a long period;
 - management capability,

which are often absent.

The real challenge is to adopt effective management strategies in an environment of scarce resources. Curitiba and Bogota are successful examples.

- An influential 'champion' for a project or policy, especially where a sizeable minority is disadvantaged, may provide the continuity and momentum for change (Bogota and Curitiba);
- An efficient public/private partnership where government's role is to plan, and usually own, the system infrastructure, while ownership and operation of the public transport undertakings has been vested in the private sector, thereby exploiting the private sector's greater sensitivity to demand and market conditions has been effective in many cities. It also acknowledges that the high cost of transport infrastructure may be beyond the private sector's financial capability.
- The effectiveness of planning and regulatory institutions is critical to the continuous upgrading of the quality and capacity of public transport systems.