Division 44
Environment and Infrastructure
Sector project "Transport Policy Advice"

Sustainable Transport:
A Sourcebook for Policy-makers in Developing Cities
Module 1b

Urban Transport Institutions

– revised December 2004 –

Deutsche Gesellschaft für
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Overview of the Sourcebook

Sustainable Transport: A Sourcebook for Policy-Makers in Developing Cities

What is the Sourcebook?

This *Sourcebook* on Sustainable Urban Transport addresses the key areas of a sustainable transport policy framework for a developing city. The *Sourcebook* consists of 20 modules.

Who is it for?

The *Sourcebook* is intended for policy-makers in developing cities, and their advisors. This target audience is reflected in the content, which provides policy tools appropriate for application in a range of developing cities.

How is it supposed to be used?

The *Sourcebook* can be used in a number of ways. It should be kept in one location, and the different modules provided to officials involved in urban transport. The *Sourcebook* can be easily adapted to fit a formal short course training event, or can serve as a guide for developing a curriculum or other training program in the area of urban transport. GTZ is meanwhile elaborating training packages for selected modules, being available from June 2004.

What are some of the key features?

The key features of the *Sourcebook* include:

- A practical orientation, focusing on best practices in planning and regulation and, where possible, successful experience in developing cities.
- Contributors are leading experts in their fields.
- An attractive and easy-to-read, color layout.
- Non-technical language (to the extent possible), with technical terms explained.
- Updates via the Internet.

How do I get a copy?

Please visit http://www.sutp-asia.org or http://www.gtz.de/transport for details on how to order a copy. The *Sourcebook* is not sold for profit. Any charges imposed are only to cover the cost of printing and distribution. You may also order via transport@gtz.de.

Comments or feedback?

We would welcome any of your comments or suggestions, on any aspect of the *Sourcebook*, by e-mail to transport@gtz.de, or by surface mail to:

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Modules and contributors

Sourcebook Overview and Cross-cutting Issues of Urban Transport (GTZ)

Institutional and policy orientation

1a. The Role of Transport in Urban Development Policy (Enrique Peñalosa)

1b. Urban Transport Institutions (Richard Meakin)

1c. Private Sector Participation in Transport Infrastructure Provision (Christopher Zegras,MIT)

1d. Economic Instruments (Manfred Breithaupt, GTZ)

1e. Raising Public Awareness about Sustainable Urban Transport (Karl Fjellstrom, GTZ)

Land use planning and demand management

2a. Land Use Planning and Urban Transport (Rudolf Petersen, Wuppertal Institute)

2b. Mobility Management (Todd Litman, VTPI)

Transit, walking and cycling

3a. Mass Transit Options (Lloyd Wright, University College London; Karl Fjellstrom, GTZ)

3b. Bus Rapid Transit (Lloyd Wright, University College London)

3c. Bus Regulation & Planning (Richard Meakin)

3d. Preserving and Expanding the Role of Non-motorised Transport (Walter Hook, ITDP)

Vehicles and fuels

4a. Cleaner Fuels and Vehicle Technologies (Michael Walsh; Reinhard Kolke, Umweltbundesamt – UBA)

4b. Inspection & Maintenance and Roadworthiness (Reinhard Kolke, UBA)

4c. Two- and Three-Wheelers (Jitendra Shah, World Bank; N.V. Iyer, Bajaj Auto)

4d. Natural Gas Vehicles (MVV InnoTec)

Environmental and health impacts

5a. Air Quality Management (Dietrich Schwela, World Health Organisation)

5b. Urban Road Safety (Jacqueline Lacroix, DVR; David Silcock, GRSP)

5c. Noise and its Abatement (Civic Exchange Hong Kong; GTZ; UBA)

Resources

6. Resources for Policy-makers (GTZ)

Further modules and resources

Further modules are anticipated in the areas of *Driver Training*; *Financing Urban Transport*; *Benchmarking*; and *Car Free Days*. Additional resources are being developed, and an Urban Transport Photo CD-ROM is available.

Module 1b

Urban Transport Institutions

About the author

Richard Meakin holds degrees in law, transport planning and political science. He has spent his entire 35-year professional career in public transport, initially as a bus company manager in the UK, then for twenty years as a government public transport planner and regulator in Hong Kong, and for the last ten years as an international consultant based in Bangkok. His core experience was gained in Hong Kong where he played a key role in developing the public transport system to meet the needs of the city's rapidly growing economy and population whilst maintaining public transport's share of trips at over 80%.

Richard has undertaken consultancy assignments in major cities in more than twenty countries in Asia, Africa, the Middle East and the Caribbean. Most were studies relating to the organization, planning and regulation of public transport. His clients have included international aid agencies, governments and the private sector.

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1. Introduction

1.1 The focus of this module

This module describes the organisation of urban transport responsibilities within governments. Its focus is on passenger transport in large cities. Some principles of organisation are recommended and case studies of successful and unsuccessful organization discussed in order to identify factors that contribute to efficient organisation.

There is a wide variety of current practice in the organization of urban transport, but a broad categorization of cities may be made.

Advanced cities of Europe, North America and Australia

Public transport in most European, North American and Australian cities, often in the form of tramways and railways, was established before mass 'motorisation' began to erode ridership 50 years ago. Governments have attempted to influence modal choice in favour of public transport, partly by subsidizing transport fares. Due to factors such as urban sprawl and high levels of individual motor vehicle ownership, city governments have generally been unable to establish bus systems which can provide a public transport service without subsidies. Subsidies are a political issue, and sophisticated administrative mechanisms have been developed to check that subsidies are economically justified and that the use of public funds is fully accountable. Surrogate performance measures have been derived to replace financial viability. These techniques require highly sophisticated administrative and planning capability, and both funds and expertise are available in advanced cities to provide this capability.

A few cities in Asia, notably Hong Kong and Singapore have developed very sophisticated public transport systems without providing operational subsidies, thereby avoiding the technical and political-accountability complexities that go with subsidies.

The large cities of developing countries in Asia and South America

These cities are experiencing rapid expansion and are the main focus of this module. Traffic congestion and competition for use of road space is endemic in many cities, which reduces the quality of public transport and encourages more people to shift to private cars and motorcycles. In such cities, very few transport operations are subsidized, and those that are tend to be 'by default'; that is, by government meeting operating deficits of state-owned undertakings. In many cities a large proportion of the public transport systems comprise a mass of poorly coordinated vehicles in individual ownership (see further Module 3c: *Bus Regulation and Planning*).

These cities are in a 'vicious cycle'. They have complex urban management problems, but lack the resources (both professional skills and investment funds) to deal with them. Available resources are often poorly organized. The core problem is often the lack of a coherent policy, and a lack of political will to deal with controversial transport issues where stakeholders are likely to strongly defend their interests.

The South American cities of Curitiba and Bogotá have broken the 'vicious cycle' to develop highly sophisticated and efficient bus systems. The political and institutional basis for these successful initiatives will be examined in this module. Hong Kong and Singapore attest to the benefits of clear policy objectives pursued in a favourable and stable economic and political environment. Chinese cities also have particular organizational characteristics. Again, consistent policies for urban transport management are being applied by governments who have political authority, within an environment of economic growth and social discipline.

1.2 The structure of government

The structure of government may be seen as a hierarchy comprising several tiers ranging down from central (national) government to district (a suburb or a part of a city) government. Each descending tier of government covers a progressively smaller geographical area. The division of a country into provinces, metropolitan areas and towns requires coordination across the geographical boundaries between jurisdictions. At each tier there may be both an administrative body with executive powers and a consultative (elected or appointed) body.

Generally, the range of responsibility will reduce with each descending tier of government.

The distribution of responsibilities between tiers may be formalized by legislation. There is a trend towards the devolution of responsibilities and more autonomy for decision-making, to the lower tiers of government.

1.3 The scope of urban transport responsibilities

Urban transport responsibilities are all those functions relating to the planning and management of the circulation of vehicles, passengers and pedestrians on the road system, and where relevant, on local rail and water transport networks. They generally include:

- planning and development of transport infrastructure (road & rail networks)
- management of roads and road use, including the licensing of vehicles and drivers
- public transport organization, development and regulation
- financing and investment
- an interface with land use and urban planning.

Government's transport responsibilities may extend to operations where there are state-owned bus, rail or ferry undertakings, or toll roads, bridges and tunnels.

Table 1 illustrates the range of functions exercised by a sample of urban transport agencies. All the agencies listed are responsible for regulating public transport services, but there is a wide variation of other transport functions integrated within the individual authorities. Some

Table 1: The range of functions of urban transport authorities.

- Plan' means to forecast demand and intervene to ensure supply
- Operate' means to own and manage the transport system
- Construct' means to finance and direct construction

Key to abbreviations:
LTA Singapore Land Transport Authority
TD Transport Dept., Hong Kong Government
BMTA Bangkok Mass Transit Authority
NYTA New York Transit Authority
LTD Land Transport Department
MVV Munich Verkehrsverbund
STP Syndicat des Transports Parisiens

City	Autho-rity	Roads, Traffic, Parking, Non-Motorised Transport			Public Transport					Freight Transport			
					Infrastructure			Services		Infrastructure			Services
		Plan	Design & construct	Manage	Plan	Design	Construct	Plan	Regulate	Operate	Plan	Design	Construct	Regulate
Singapore	LTA	X		X	X	X	X	X	X		X	X		
Hong Kong	TD	X		X	X	X	X	X	X		X			
Bangkok	BMTA				X	X		X	X	X				
New York	NYTA				X	X	X	X	X	X				
Manila	LTD								X					
Munich	MVV				X			X	X					
Paris	STP				X	X		X	X					
London	London Transport				X	X		X	X					

agencies are limited to public transport planning and regulation only, while others extend to the management of the road system, and even to freight transport infrastructure. The Singapore Land Transport Authority (http://www.lta.gov.sg) is the transport agency with the widest scope, and the highest level of integration. It embraces not only road transport but also the rail mass transit system, the registration and licensing of private vehicles, and administering the private vehicle quota system and electronic road pricing.

Bangkok is a city with one of the lowest levels of integration of urban transport institutions, with around 20 government departments, agencies and state-owned enterprises exercising responsibilities related to urban transport. A case study of Bangkok is presented in Section 4.3.

It is not suggested that highly integrated agencies are necessary to successfully manage urban transport. However, it is clear that the larger the number of agencies involved in urban transport, the greater the difficulties of coordination.

Institutional gridlock in Argentina

Difficulties of institutional coordination, which can paralyse policy development, are exemplified in Buenos Aires. Overlapping authority between national (Republic of Argentina), provincial (Federal District) and city (City of Buenos Aires) governments has yet to be overcome by any effective coordinating mechanism, despite numerous attempts. As in Bangkok, urban transport policy initiatives developed by one level of government or agency are frequently blocked by another level of government (or agency) with overlapping or related authority.

An example is the recent bus priority measures devised for the city centre by the national government transport office. These plans, elaborated in great detail, could not be implemented because the city government has authority over traffic management in the city centre. The city government in turn were not motivated to establish bus priority schemes or instigate other much-needed public transport planning reforms, because the licensing authority for the vast majority of urban buses is held by the provincial government.

GTZ, 2002

2. Foundations of effective transport management

Effective public transport management is built on four foundations:

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;
4. Effective ***supervisory institutions*** that have sufficient capability and independence to undertake basic network planning, administer regulation and guide the development of the industry.

Ultimate responsibility for creating and maintaining these foundations rests with central government.

This module deals with item 4. It discusses the principles of organisation and the functions of supervisory institutions, and gives examples of effective institutions in different countries with different transport policies.

2.1 Effective institutions

An 'effective' institution is one that is capable of pursuing and achieving its assigned objectives, and capable of managing a transition to new or revised objectives. Institutions that are not effective tend to 'muddle through', with incremental measures to issues as they arise.

The following are essential requirements for an effective public 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.

2.2 Devolution of functions

Government structures vary 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 efficiently by:

Devolution – whereby functions are devolved from central government to regional or local tiers of government; arrangements are made for the (vertical) accountability of each tier to the tier above, and supervision of the tier below.

Distribution – compatible functions are grouped into departments within each tier of government; and internally within those agencies. Arrangements for (horizontal) cooperation and consultation within each tier; and accountability of the administrative body to the political body are necessary.

Principles of devolution and distribution are addressed in the following sections.

2.2.1 Hierarchy of functions by government tier

The degree to which transport functions are devolved to regional or local tiers of government varies presents a 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 roles of various transport modes;
- The regulatory framework; and
- Long-distance bus networks

are most efficiently planned on a large-scale, at the metropolitan or provincial government tier.

In practice, there are wide differences between countries as to the level at which transport planning and regulatory responsibilities 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 *commune*. 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 4.2.

Some developing countries have devolved responsibility for local transport to the governments of provinces (e.g. Sri Lanka, Pakistan and Indonesia) 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.

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 local issues. This unity of government structure has contributed to their success in maintaining consistent and progressive policies and strategies to manage urban transport.

"International experience indicates that the old model of a government-owned and operated bus system is neither cost-effective nor, more importantly, does it provide the levels of service necessary to support the economic growth and social requirements of a community."

World Bank, *Options for Bus Transport – the Overseas Experience*, http://www.worldbank.org/transport/urbtrans/pub_tr/chinafin.doc

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.

Transport responsibilities vested in 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 powers devolved 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.

Transport Responsibilities Vested in State/Province Government

- Planning and regulation of transport services within the province, including the power to enact provincial regulatory legislation.

Devolution of public transport responsibilities to provincial level is provided by the Constitution in Indonesia and Sri Lanka and has been the practice in India and Pakistan since Independence. It does give rise to variations in policy between provinces.

Transport responsibilities vested in 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 municipalities, each with its own government.

The constituent municipal governments control many internal local services, but transport, and especially public transport, is most efficiently planned and administered on a metropolitan scale, across municipal boundaries.

There are several 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 but passenger transport is administered at metropolitan level through a metropolitan transport authority which comprises representatives of the constituent municipalities – common in Europe (see the description of Passenger Transport Authorities in UK in Section 4.2) and the USA;
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 above 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.

Conflicts between city and national governments

Such a conflict arose in the UK in 1984. The socialist controlled Greater London Council adopted a 'social' approach and permitted lower levels of cost recovery and lower fares from bus and rail services it controlled through the London Transport Executive (LTE). This was in conflict with the Conservative central government's 'commercial' approach. The conflict was resolved by central government dissolving the LTE and reconstituting it as London Regional Transport directly under state control.

More recently, a similar confict has arisen in London, with the current Mayor Ken Livingstone developing a transport strategy (see http://www.london.gov.uk/approot/mayor/strategies/transport/index.jsp) in which several elements are opposed by the national government.

Bandung provides an example of the problems caused. The Bandung city 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 across the metropolitan boundary remains.

A few cities, including Hong Kong and Singapore, are 'city-states' which basically have a single-tier of government, as their district councils deal with purely local management matters. 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 4 below.

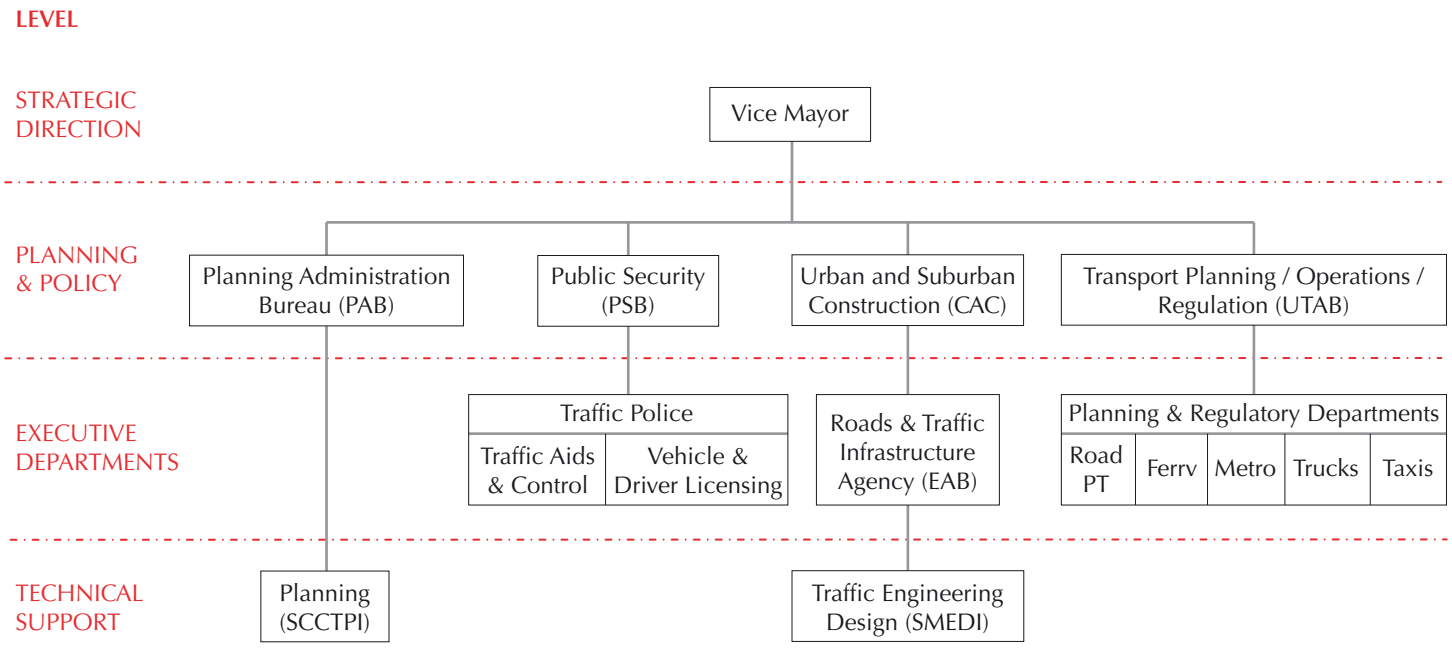
2.2.2 Distribution of functions within each tier

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 executive agencies at the bottom.

A typical vertical structure of a major city government is that of the Shanghai Municipal Government (in year 2000) shown in Figure 1 below.

Note however that the four key transport functions of urban planning, traffic police enforcement, public transport planning and regulation, and roads and traffic fall under four different policy-level bureaus. Thus, coordination of roads and transport policy must be resolved at the level of Vice-Mayor.

Fig. 1
The hierarchical structure of the Shanghai municipal government
Note: only agencies with transport responsibilities are shown



Legend:

DPC = Development Planning Commission
EAB = Engineering Administration Bureau
PAB = Planning Administration Bureau
SCCTPI = Shanghai City Comprehensive Transportation Planning Institute
SMEDI = Shanghai Municipal Engineering Design Institute
UTAB = Urban Transport Administration Bureau

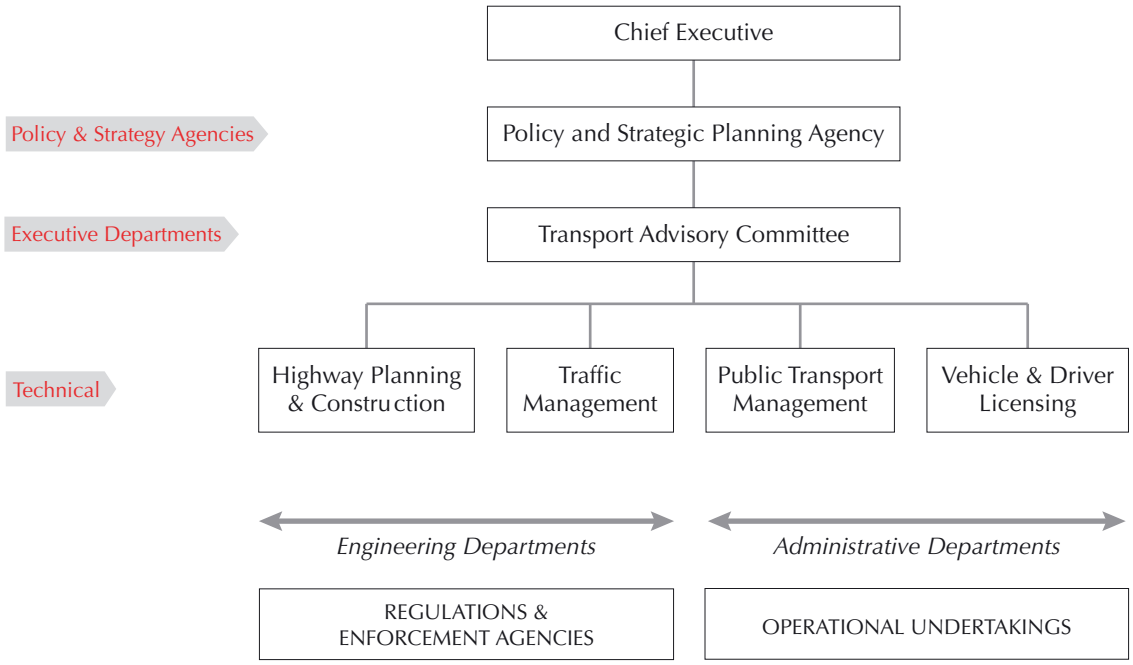


Fig. 2
Division of functions by professional discipline (here: Hong Kong goverment)

By contrast, Figure 2 illustrates the organisation of transport functions in the Hong Kong Government. Three key urban transport functions of public transport planning and regulation, traffic management and urban planning converge in a single Transport Bureau at the 'Policy and Planning' level.

There is a dilemma here:

- Responsibilities for the higher-level functions of 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.

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 complex inter-department and inter-profession coordination is needed, which adds to bureaucratic processes and increases cost.

Most 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 functions 2-4 above. Land use planning is usually the responsibility of a separate agency. For example, in Hong Kong, strategic planning (land use and major transport infrastructure planning such as roads, bridges and railways) is administered by a specialised strategic planning agency.

"Regulatory functions should be clearly separated from those of system operations."

3. Overcoming constraints

3.1 Administrative capability

The previous sections showed how transport functions may be organized within different levels of government, and considered some examples.

In practice, in the developing world, a wide range of administrative structures may be seen. These often reflect a country's historical legacy and political system. In many former colonies the structure of government still reflects the structure adopted during the colonial era. In the newly independent countries of the former Soviet Union, the Soviet structure is still visible. In China the unitary structure, in which each tier of government shows the same functional divisions, each corresponding with a tier of the People's Congress, still reflects the structure created when the People's Republic was founded.

Differences between developed and developing countries

There are major differences between developed and developing countries which have implications for urban transport institutions.

In the developing world, metropolitan cities tend to be much larger, relative to national population, than in developed countries. Many of these megacities dominate their national economies.

For example, Bangkok Metropolitan Region accounts for 56 percent of Thailand's Gross Domestic Product. Because of the economic primacy of Bangkok within the country and the political sensitivity of urban transport issues, central government ministries and the Cabinet deal extensively with metropolitan issues. This would not matter if central government responsibility resulted in consistent and effective strategic planning. Unfortunately, the effect is contrary. Competition for power between the fragmented transport agencies of the central government precludes the strategic functional coordination so essential to effective metropolitan transport planning. Meanwhile, the city government has little incentive to develop its capability in transport planning and management.

The shortage of professional skills in developing countries inhibits the devolution of transport responsibilities to the city (metropolitan and municipal) level of government. Where professional resources are scarce, expertise tends to be concentrated in central government. Sometimes this is a strategy to create a centre of expertise, but more often because more budget is available and employment opportunities in central government are more favourable.

A related factor inhibiting initiatives by city government is that central government often has not laid a framework of transport policies and objectives for cities to follow. Therefore city governments have no principles or guidelines to help develop and implement initiatives. Policy initiatives then tend to be *'ad hoc'* or experimental, and are often misguided. Without a policy, each initiative creates a new precedent, with the risk of a reaction from stakeholders which the city government may be unable to manage.

In developed countries, policy-makers and the public are much more aware of the social, economic and environmental costs of failing to manage urban transport efficiently. In European and North American cities the need to subsidise urban public transport from public funds has led to a situation where in many cities less than half of operating costs are recovered from fares. The need to allocate and administer subsidies and to account for the use of those funds has introduced a political element into the urban transport equation.

In developing countries, the economic, social and environmental benefits of developing a high quality, high capacity public transport system are increasingly recognized. Developing countries are characterised by relatively low average incomes, low private vehicle ownership, and high population densities in the cities. These conditions are favourable to a high level of transit ridership. In many developing cities a high proportion of public transport has always been in the private sector, often using basic, small vehicles in individual ownership. Quality has been low, but fares have remained affordable without subsidy. The practical problems of administering a subsidy to a transport industry largely comprised of loosely organized owner-drivers, and accounting for performance, are

beyond the administrative capability of most developing city governments.

Consolidation of the industry

A strategy that has proved successful in breaking the low-cost, low-quality equilibrium by raising quality while not raising fares beyond affordability by users, is to consolidate the public transport industry. This usually means replacing minibuses operated by individuals with big buses operated by corporate bodies, which enables the introduction of professional management, coordination of services and economies of scale. Fragmentation of the industry is not just related to minibuses: Buenos Aires for example has an excessively fragmented large bus industry, as does Surabaya, Indonesia.

Even this strategy requires reforms: a system of route franchising to replace individual vehicle licences, and improved planning and regulatory capacity in the government. These are fairly modest reforms, but despite technical assistance in several developing countries, have been partially implemented only in Pakistan's cities.

Government provision of infrastructure

A strategy used in many cities in the developing world, which enables some costs to be borne by government but without the administrative complexity of operating subsidies, is for government to bear the cost of infrastructure. This may mean (as in Hong Kong) that government provides bus terminals free of charge to the operators, and land for depots at below-market costs. The governments of Hong Kong and Singapore gave financial support to their mass transit railways by, respectively, providing substantial equity, and meeting the full costs of the infrastructure.

In the highly successful bus rapid transit systems in Bogotá and Curitiba, government provided the track and station infrastructure, enabling the private buses using the system to benefit from very high operating speeds and reliability.

By contrast, Indonesian city governments levy charges on all minibuses using terminals. Illicit charges are also levied by gangs (*preman*) who control access to the terminals, adding further to operating costs.

3.2 Alleviating a shortage of professional skills

Developing countries often have a shortage of professional skills. Exacerbating this shortage is the fact that skills are continuously lost through emigration to developed countries.

Two strategies may be used to alleviate a shortage of skills: increase the supply of skills, and make more effective use of the skills available.

1. Improve the availability of the particular skills needed in the transport sector.

Increasing the supply of skills is a function of the education system. Transport is a multi-disciplinary sector, utilising a range of technical skills in monitoring, analysis, forecasting, planning and design. Many of these skills have their basis in civil engineering and statistics, but specific applications in transport probably require post-graduate education at Masters level overseas. Non-numerate, economic skills are also needed for service regulation and policy-making.

2. Utilise and organize skills so that they are used most effectively

- Concentrate available expertise in 'expert' agencies, or 'think-tanks' with a degree of autonomy that can prepare the all-important policy framework, oversee implementation and act as an agent of change. Creating expert bodies frees staff from day-to-day administrative duties which are usually oriented towards 'fire-fighting' (prioritising short-term symptoms of problems rather than their fundamental causes).
- Conduct a skills analysis to assess the range of specialisations and minimum number of qualified personnel required to staff an expert unit, and ensure those skills are acquired.
- Reward key expertise with market-level salaries to retain skills, even though salaries may be higher than civil service salary scales. This is feasible within an expert unit.
- Make use of external expertise, like consultants, universities and other expert establishments (for example, the Small and Medium Industries Development Authority, Pakistan).

Simplifying a regulatory system

Regulatory frameworks are often inappropriate to industry conditions and bureaucratic, because they are not matched to their objectives, or their objectives are not clear or unambiguous. It may be better to simplify a regulatory system so that it is within the capability of available resources to administer it, rather than administer an inappropriate framework partially, ineffectively or discriminately.

- Avoid an excessive turnover of staff in key posts. Allow generalist staff to learn from the specialists.
- Put experts in positions where they can influence policy.
- Ensure that scarce skills are not rendered ineffective because they are engaged in uncoordinated initiatives, or in unnecessarily complicated systems (see margin note).

3.3 Clarifying policy objectives

The key to making transport institutions effective, within resource constraints, lies in the organization of the sector. A consistent, progressive and rational approach must be adopted.

"Once objectives, principles and priorities have been established and accepted by stakeholders, the tasks of the city government become greatly simplified."

Policy framework

An urban transport policy which defines objectives for the sector and enable priorities to be set, is a fundamental requirement. Sub-sectoral policies should be compiled at least for non-motorised transport, road use and public transport.

The policy framework must address difficult policy areas such as:

- managing the allocation of road space between competing demands,
- how to regulate public transport fares, and
- control and management of informal paratransit services.

The policy for each sector should be supported by strategies that pursue the policy objectives.

The policies, plans and strategies will form a hierarchy (as discussed in Module 1a: *Urban Transport and Development Policy*):

1. Policy framework: urban transport policy, with modal sub-polices
2. Strategies to pursue policy objectives, such as regulatory procedures
3. Implementation: plans, programs
4. Management and enforcement
5. Operations.

Strategies and plans

The benefits of adopting a 'rational approach' as outlined above are that, once objectives, principles and priorities have been established and accepted by stakeholders, the tasks of the city government become greatly simplified. Instead of having to argue for each initiative as it arises, the government can focus on implementation, and on repeating the cycle of policies and plans. Government's response to stakeholders' objections and representations can be more authoritative once principles and precedents are established. Objectors will be muted if they see that:

- The government is resolute in its policies and programs.
- Policies and programs are rational and confer benefits on the community which outweigh the disbenefits to individual stakeholders.
- Different stakeholders are treated equitably under the programs.
- The polices and programs have the support of the community and the political level.

Of course, compiling a rational set of policies and programs requires both consistent direction and support from the political level, and high level administrative and professional capability. These may be difficult to locate in practice. Hence there are advantages in using external resources, perhaps on a consultancy basis, or an expert 'think-tank' comprising representatives of academia and the industry to prepare the first round of policies and plans and to conduct the first round of consultation.

To change the *status quo* and to sustain changes in the face of opposition from vested interests requires political will. In the absence of a commitment to policy, this is often lacking.

The 'muddling through' approach

A management culture of 'muddling through' involves decisions based on short-term expediency and reaction to pressures. Where the rational approach of policies, strategies and plans recommended above has not been adopted, administration tends to become sporadic, rigid and bureaucratic. This is evident where public officers have some discretion to confer valuable rights, such as vehicle or public trans-

port service licences or rights to use road space. The process rather than the result then takes precedence.

These conditions promote illicit practices, collusion between officials and their clients, and corruption. Under such conditions, clients benefit by organizing themselves into groups so that they can more effectively negotiate with the officials. Access to officials then allows these groups to consolidate their control over other operators, and to extract charges. Collusion between operators' groups and officials may then become formalized, and corruption syndicated to senior levels in the government structure.

"Government's response to stakeholders' representations can be more authoritative once principles and precedents are established."

Operators then have little incentive to invest, since there is no real competition; rights are negotiated and often controlled by criminals or local 'strong-men'. The interests of users are not considered in this process. In many cities, this 'freezes' the route network and leaves gaps in the quality range, or network coverage of public transport services. These gaps may be filled by unlicensed, informal public transport such as minibuses. Officials may take advantage of immunity from enforcement by getting involved in operation, particularly of informal or illegal public transport services. Since users are reliant on unlicensed services, the government must tolerate the unlicensed services.

This complex combination of interests – especially with the complicity of officials – entrenches the illicit system, making it difficult to implement any reform strategies.

The existence of a systematic and transparent process of planning that ensures that services are responsive to the changing needs of users, together with policies that provide clear guidelines for the exercise of official discretion, will provide much less opportunity for the formation of illicit control structures.

There is clearly a cycle at work. Figure 3 (see also Module 3c: *Bus Regulation and Planning*) illustrates the process whereby the lack of a coherent policy for public transport can impact negatively on the confidence of operators and investors. This leads to unsatisfied demand for services, a proliferation of illegal operations, and illicit control and regulation. In extreme cases, as may be observed in some cities in Indonesia, the regulatory authority has effectively surrendered most of its powers to groups illicitly controlling the industry, with whom it works in complicity.

The vicious cycle shows how the lack of a coherent policy and inadequate administrative capability in the city government, aggravated by a regulatory regime which is outdated and inappropriate to current conditions, paralyses the urban transport system.

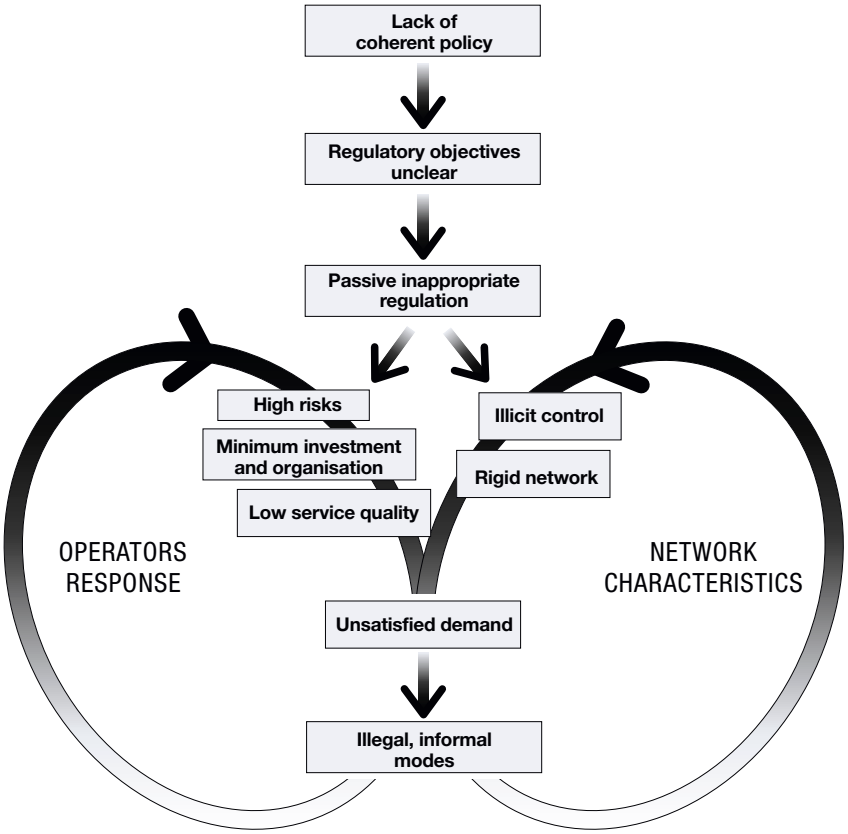


Fig. 3

A 'vicious cycle' illustrating how the lack of a coherent policy and adequate administrative capability by government can paralyse an urban transport system.

Louis Berger Inc., et al, Urban Public Transport Policies in Bandung, Final Report, March 2002

4. Transport authorities

4.1 The role of a transport authority

The focus of this module is on the agencies that plan, procure and regulate public transport. These may be government transport departments, or public transport authorities. This section reviews the roles of a transport agency under three regulatory models: *no competition*; *controlled competition* and *open competition*. It concludes that an effective supervisory body is necessary for any of the models to be successful.

Under the ***no competition*** model a supervisory body is required to ensure that, in the absence of competition a monopoly 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.

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 requests 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'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.

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 operators meet general 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. lllicit control in some form is almost always present where the public transport industry is fragmented, and especially so where vehicles are unregulated.

It has been noted earlier 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, there is a clear distinction between developing cities and developed cities in respect of the basic characteristics of their public transport systems.

Dedicated public transport authorities are usually associated with conditions that prevail only in developed cities, particularly the subsidisation of public transport services from public funds. Subsidies require sophisticated administrative mechanisms to ensure they are allocated efficiently and agencies are accountable. Developing city governments often lack

The Singapore Land Transport Authority (LTA)

Source: **http://www.lta.gov.sg**

The Authority's mission statement is to "provide a quality, integrated and efficient land transport system which meets the needs and expectations of Singaporeans, supports economic and environmental goals, and provides value for money".

Essentially a merger of four government agencies (Registry of Vehicles, Road and Transport Division of the Public Works Department, Mass Rapid Transit Corporation, Land Division Ministry of Communications) LTA's responsibilities extend to the planning, design, development and management of all land transport infrastructure and policies including road building and maintenance, the design, building and operation of the MRT and any future rail systems, vehicle ownership and demand management policies. The authority integrates all government functions relevant to land transport, except land use planning, within one agency.

Although it regulates the operation the MRT, bus and taxi services by licence and legislative powers it does not own the systems. They continue to have a degree of managerial independence as corporations or limited companies.

The powers vested in LTA by its Act are largely derived from the legislative powers of its constituent bodies though these have been augmented to remove the administrative boundaries between road, rail and the various forms of land transport to promote the maximum degree of integration. The Authority is directed by an appointed Board comprising thirteen representatives of business, academia, the professions, labour and community organisations.

Powers of the Singapore Land Transport Authority

Empowering legislation	Powers conferred on the LTA
Street Works Act	To plan design construct and maintain roads, pedestrian walkways, bus stops, shelters, interchanges and terminals, taxi stands. Maintain, operate and improve road traffic signs and signals, traffic control and road lighting equipment.
Parking Places Act	To provide, license and regulate the use of motor vehicle parking places.
Rapid Transit Systems Act	To plan, design, build, operate and maintain rapid transit systems including the MRT system, and to regulate the operation of these systems.
Road Traffic Act	Powers for the registration and licensing of motor vehicles and collection of fees and charges. Licensing procedures and systems for road transport.
Other Responsibilities	To grant permits for land transport purposes Traffic management strategies and practices To promote land transport policies and programs To excavate, resume or close any road To compulsorily acquire land for building roads and railways.

this level of capability, so service quality tends to fall to a level that permits cost-recovery. There are relatively few examples of developing cities with subsidised bus systems except by *ex post* (i.e. their deficits are paid from public funds) payment of the operating deficits of a publicly-owned bus undertaking.

The need for subsidy usually arises where policy objectives require a high quality of service that makes public transport attractive compared to the use of private vehicles, and which enables the adoption of constraints on car use. Public transport must also meet high environmental standards. Electric rail modes provide the highest service quality in both respects, but at the highest capital cost. Integration of different transport modes (bus, tram, subway) in the

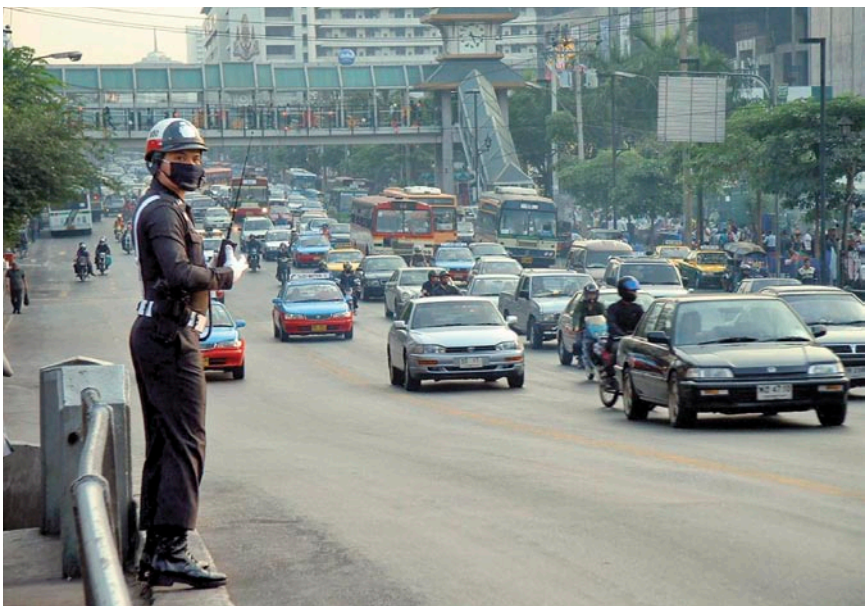


Fig. 4

Traffic police retain a major traffic management role in Bangkok, with an effective 'veto' power over policy initiatives, including pedestrianisation in tourist areas such as Khao San Road.

interests of overall efficiency means that fares cannot reflect the cost components of each mode. Indeed, a universal fare scale and common ticketing for all modes is now common in many developed cities; the authority collects and retains revenue or an arrangement for distributing revenue between operators is in place. However, procedures are needed to ensure that the best value is obtained for funds expended on subsidy.

Satisfying these policy objectives and ensuring value for money in public funds requires sophisticated planning, monitoring and service procurement mechanisms, which are most efficiently undertaken by a transport authority.

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.

Although the most common form of public transport authority is an autonomous 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 the Bangkok Mass Transit Authority – BMTA) 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 responsible for *both* public transport and road network management, including parking, for example, Singapore LTA, Transport for London. In Singapore's case, the authority is also responsible for vehicle and driver licensing.

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4.2 Transport authorities in developed cities

4.2.1 Introduction

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. An independent 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. 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 developing 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, the transport operators and public transport users should monitor the PTA to ensure political control over transport policy and the use of funds used to support public transport.

Specific 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 administering and enforcing contracts;
- integration of routes, fares and timetables, comprising both the public and private operators;
- managing a revenue allocation system, based on productivity and passengers carried;
- maintaining 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.

4.2.2 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 2 (see next page) shows the typology of urban transport authorities in a number of European and Asian cities. Their composition and scope of functions are compared.

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 areas, outside major metropolitan areas. There is no competitive tendering of metro or light rail service. In addition, approximately 30 percent of dedicated school bus services in the US is operated by

Tendering and contracting steps

- announcement of the tender,
- the (pre)qualification of bidders,
- evaluation of proposals,
- contract negotiation and award,
- contract management and monitoring,
- evaluation of performance of the contract.

Table 2: Typology of metropolitan transport authorities

City	Name of Authority	Governing Body	Constituent Local Government Units	Public Transport Functions								
				Planning		Regulation		Fares/ Marketing		Infrastructure		
				Strategic Planning	Service Planning, Bus/Rail, Integration	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 Opera-tors	✔	✔	✔	✔
Metro Manila	Metro Manila Development Authority	Metro Manila Council of constituent Mayors	13 cities, 4 municipalities	✔	✔	By LTFRB	By LTFRB	✔	Oper-ators	✔	✔	✔
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

private companies, though not all are competitively tendered (*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).

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 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. Some US cities now achieve over 65% recovery of operating costs from fares.

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. The introduction of the VVR model goes back as far as 1963. A variety of formulae is used by the VVRs to distribute the revenue collected among operators. These are highly complex and secret.

Examples of VVR include:

- 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 about 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.

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, twelve state ministries and ten representatives of local authorities representing central and local government. 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, STP 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. It changed the transport authority for the Paris Region from STP to STIF (*Syndicat des Transports d'Ile de France*). While STP comprised representatives from central government and departmental councils, STIF introduced several representatives from the Regional council. Thus the jurisdiction of STIF now extends far beyond the city of Paris, and includes 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 cities (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).

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 for national trunk roads and railways, for defining 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);
- 36,700 town or village councils (*communes*), alone or in association with several others, are urban transport authorities.

Thus, the LOTI law decentralised the organisation of public transport by devolving the responsibilities of public transport authority, and the budget, down to the lowest level of *commune*, eighty-five percent of which 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;
- choose one or more operators and award contracts through competitive tender.

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 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. A strict tendering procedure is 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 operators are remunerated. The contract is for a fixed period which varies according to the size of the investment required and the level of operating risk.

Local authorities fund passenger transport services from a tax levied on employers the *versement transport*.

Transport for London – UK model for the London area

http://www.tfl.gov.uk/tfl/useful_links.shtml and
http://www.tfl.gov.uk/tfl/

Public ownership of London bus services started 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.

In the 1970s, metropolitan government, including the London Transport Executive, was placed directly under the central government.

In 2002 responsibility for urban transport management was returned to the city government as 'Transport for London' (TfL).

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 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, and 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 of 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);

- the Police;
- other stakeholder groups, communities and businesses.

The organisation of public transport in London has some similarities to the German VVR. 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.

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 conurbations, excluding London, were consolidated and transferred to Passenger Transport Executives (PTE) 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 incorporated as companies and sold to the private sector. There is now no operation of public transport by municipal government departments in UK.

Since deregulation, 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 the PTAs are responsible for providing the services and facilities which the market does not provide. In subsidising routes, 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 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;
- 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 special-needs transport services for people with disabilities;
- 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.

4.3 Transport authorities in developing cities

The rationale for establishing dedicated public transport authorities in developed cities is based on two main factors:

1. The management of public funds to procure transport services, distribute subsidy, and to secure the best value for money.
2. To plan and manage bus and rail networks on a conurbation basis, with full service and fare integration between modes. The authority may be the revenue collection agency.

In developing cities a third rationale is evident. Planning transport on a conurbation-wide scale, with fare and network integration requires skilled professional staff, a sound legal basis and

PTA and PTE

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.

Comprehensive transport responsibilities

Some authorities have responsibility for both public transport and management of the road network (for example, Transport for London and Singapore Land Transport Authority). In these cases 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.

financial resources that are often not available within government. The creation of an authority has the advantage of isolating the authority from the resource constraints and short-term political pressures of government. 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, for example, an authority 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 are very low, motivation is low, and it is very difficult to attract professional staff with the specialised qualifications and experience needed to tackle complex transport problems.

Where public transport does not require subsidy and resource constraints are not severe, the administration of public transport by a government department may be as efficient as administration by an authority. Of course, the achievement of inter-modal route and fare integration will be constrained, but this may be compensated by the fact that each operator is self-accounting and must recover full costs from fares, thus market forces act as an incentive to efficiency.

It is interesting to note that transport in Singapore was administered by a government department until the formation of LTA in 1995. Hong Kong continues to plan and regulate public transport through government departments. Integration of the fare collection system is occurring at the initiative of the operators, but service integration is constrained.

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 threshold of 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.

Regional autonomy in Indonesia

This dramatic change was brought about by the enactment of Law No. 22 of 1999 on "Regional Government Administration" and Law No. 25 of 1999 on the "Fiscal Balance between the Central and Regional Governments." Indonesia's local governments (approximately 370 regencies and 55 city governments) can function autonomously except for defence and security, foreign policy, monetary and fiscal policies, judicial affairs, and religious affairs. Elected members of the local Representative Assembly and the district executive (the Regent for rural areas or Mayor for urban areas) they democratically appoint is responsible for a wide range of development policies, plans and activities for their region.

Responsibilities of cities and regencies extend to most aspects of urban transport, with the exception of most forms of taxation (including vehicle taxation), fuel pricing and specification, and type approvals. In practice, even the largest cities after Jakarta, such as Surabaya, do not have the institutional capacity to develop their own inspection & maintenance regimes, public transport regulation and licensing systems, ambient air quality standards, or even parking policies. While formally achieving greater independence from the central government, cities generally still look to the central government for policy guidance on urban transport.

4.3.1 Singapore and Hong Kong

Restraint of private vehicles and integrated public transport

The most successful cities in the developing world in managing a balance between public and private transport were Singapore and Hong Kong. In both cities the shortage of developable land 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.

"Neither government [Singapore or Hong Kong] is directly engaged in transport operations."

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 (the Public Transport Council in Singapore and the Transport Advisory Committee 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 nearly 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

http://www.lta.gov.sg

Singapore Land Transport Authority (LTA) is an integrated authority with wide functional scope which 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. It has removed the administrative boundaries between private and public, road and rail mass transit, and the various modes of transport.

LTA 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; 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 organisations.

4.3.2 Metro Manila Development Authority

Creation of MMDA

Metro Manila faces many of the problems of Third World megacities, but is unusual in having no metropolitan government. The metropolis 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 dominates the Philippines' economy and has an estimated daytime population of 9.9 million, about 13 % of the national population. It is estimated to be the 18th largest metropolitan area in the world (National Statistical Office 2000).

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.

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.

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: including the preparation of medium- and long-term development plans; the development, evaluation and packaging of projects; investment programming and coordination as well as the implementation and monitoring of project plans and programs.
2. Transportation and traffic management: which includes the formulation, coordination and monitoring of policies, standards, programs and projects to rationalize transport operations; infrastructure requirements; traffic management, enforcement and road safety; provision for the mass transport 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 for national road projects in Metro Manila.

Department of Transport and Communications (DOTC) is the urban transport planning agency directly responsible for light rail transit construction. It supervises the:

- Light Rail Transit Agency (LRTA) an autonomous state enterprise which administers LRT operations;
- 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;
- Land Transportation Franchising and Regulatory Board (LTFRB) which is the regulatory agency for public transport vehicles. LTFRB has a regional office in Metro Manila.

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

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 which is undertaken by local offices of the national LTFRB which is part of MOTC. 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 estimated 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 (Review of Urban Transport Competition. Halcrow Fox for DfID. Draft Final Report May 2000).

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.

4.4 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 undertaking (legal monopoly of the right to operate bus services, directly supervised by the Ministry of Transport). Furthermore, although new urban rail systems have been constructed in the last few years (elevated Skytrain opened in Nov. 1999, and the first line of the underground Mass Rapid Transit system opened July 2004), 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 study, carried out by Dorsch Consult, partly attributed the fundamental causes of Bangkok's failure to ineffective institutional arrangements.

4.4.1 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 major transport projects to the Cabinet. Agency responsibilities were ill-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 plans 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.

4.4.2 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.

Recent developments in Bangkok: New MOT

In September 2002, the Government announced a reorganization of the Ministry of Transport and Communications to take effect in October 2002. The new Ministry of Transport will control 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 (taking over the road work of the Dept. of Accelerated Rural Devt., and Public Works Dept.)
8. Office of Traffic and Transport Policy and Planning (taking over tasks of Office of the Commission for the Management of Land Transport, Transport and Comm. Policy and Planning Bureau, and Office of the Maritime Promotion Commission).

The new Ministry of Transport will supervise the following state enterprises:

1. Expressway and Rapid Transit Authority of Thailand
2. Port Authority of Thailand
3. Mass Rapid Transit Authority of Thailand
4. State Railway of Thailand
5. Bangkok Mass Transit Authority
6. Express Transportation Organization of Thailand
7. Thai Airway International Public Company Ltd.
8. Transport Company Ltd.
9. Thai Airport Public Co Ltd.
10. New Bangkok International Airport Co. Ltd.
11. Thai Maritime Navigation Company Ltd
12. Aeronautical Radio of Thailand Company Ltd
13. Civil Aviation Institute.

Courtesy of Ubonrat Choonracha, Thai-German Dangerous Goods Project, Oct. 2002

4.4.3 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

Given the economic dominance of Bangkok within the country, accounting for 56% of Thailand's GDP in 1998, the preoccupation of central government with Bangkok issues was not surprising and would not have been problematic if central government responsibility meant consistent and effective strategic planning. Unfortunately, its effect was quite contrary, as competition for power between the fragmented central government transport agencies inhibited the strategic coordination which is essential to effective metropolitan transport.

Fig. 6

In Bangkok, the BMTA functions as both operator and regulator of bus services. Routes, as well as old vehicles, are sub-licensed or sold to private operators. In China it is also the case that urban bus operations are owned, managed, operated and regulated by municipal authorities.

Karl Fjellstrom, June 2002

4.4.4 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 the proposed transport institute to be established within OCMLT, lack of technical capability will continue to be a constraint for the foreseeable future.

4.4.5 Institutional recommendations for Bangkok

The 1998 study identified a critical need to establish a metropolitan institution to coordinate transport and land use planning. This suggested the creation of a new planning authority for the Bangkok Metropolitan Region, comprising BMA and the five adjacent provinces.

Immediate improvements could be achieved by the establishment of a transport authority for Bangkok which would represent all the 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 expenditure 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,

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.

- integrating road network planning with public transport planning;
- integrating the planning of the various public transport modes.

4.4.6 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 created which controls eight departments:

1. Office of the Minister
2. Office of the Permanent Secretary
3. Deptartment of Waterway Transport and Merchant Marine
4. Deptartment of Land Transport
5. Deptartment of Air Transport
6. Deptartment of Highways
7. Deptartment of Rural Highways
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.

GTZ currently supports BMTA in their bus reform (BRPS Project) in terms of institutional and organisational restructuring of the bus industry. Besides improving the policy framework and arrange funding it is aimed to upgrade bus services, increase travel speeds, and improve integration and development of routes. Furthermore the option of introducing BRT routes is under discussion.

4.5 Successful transport reforms in South American cities

Two South American cities, Bogotá, 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.

4.5.1 Colombia, Bogotá

The sustainable transport project

Bogotá 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 normal year of 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 transport, mass transit and alternative means of transport were developed on city-wide networks. Components of this system include:

1. ***TransMilenio***: a high-capacity network of bus corridors, served by 160-passenger articulated buses commenced operation in December 2000. It not only provided 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 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/h while the average speed of public transport in Bogotá without TransMilenio is 10 km/h.

   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.

Poltical commitment as a key factor

The success of the project in Bogotá 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.

Jaime Lerner was one of the original architects of the 1966 Curitiba 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.

This network, together with a promotional campaign 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, under construction in 2003 extends 17 kilometres.

Demand

A program of measures to encourage public transport use 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 reduced the number of vehicles by 40% during peak hours and raised awareness of the benefits of reducing traffic and in the long-term, car dependency. Car free days have been organised.
3. ***Cycleways*** – every Sunday more than 120 kilometres of highway were closed to motorized vehicles and reserved for bicycles, skaters or walking.
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.

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 Mayor: 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 strategy contributed to its acceptability, as in Singapore;
5. only 30% of Bogotá households owned cars in 1998 – the large majority of citizens 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;

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 management and control of the whole system, including operational planning, awarding contracts for operating buses and the fare collection 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

More information on Bogotá

Aspects of the TransMilenio system, and results achieved, are discussed in Module 1a: *Urban Transport and Development Policy*, Module 3a: *Mass Transit Options*, and Module 3b: *Bus Rapid Transit*.

Further aspects of Bogotá's remarkable achievements in recent years are discussed in Module 3d: *Preserving and Expanding the Role of Non-motorised Transport*, and in Module 1e: *Raising Public Awareness about Sustainable Urban Transport*.

TransMilenio also has a website with materials in English and Spanish languages: http://www.transmilenio.gov.co:8080/transmilenio/index.htm

Car-free days in Bogotá

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.

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.

4.5.2 Curitiba, Brazil

City planning

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 0.9m in 1970 to about 1.6m in 1980. Its population is now 2.2 million.

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 an integrated 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 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 bus services started on the corridors. All five corridors were completed in 1982.

The avenues 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.

The public transport system

The Mass Transit System (MTS) covers Bogotá 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.

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. The role of the city government has been to plan, manage and direct the transport system. Much of the credit for implementation was given to Jaime Lerner, who 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 success of an organizational structure is measured in terms of its results."

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 between the services of the ten private, zonal bus companies.

Private bus operators contracted by URBS own, operate, and maintain the buses running on the system. Revenue is pooled and distributed between operators based on the number of kilometres travelled by vehicle type. 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.

5. 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 transport 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 (except a state-owned operator);
- 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 Bogotá 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 highly effective in improving efficiency and reducing costs;

"Policy integration can also be achieved without institutional integration... In Hong Kong policy and strategy coordination is achieved through high-level coordination committees."

- There are clear distinctions between the organisation of public transport in 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 'western' model of a transport authority contracting out exclusive operating rights and applying subsidy, though a few have tried to introduce it. 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 the seven largest cities;
- 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. The recent trend towards devolution of greater responsibility for urban transport policy to province and city governments (e.g. 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

The Sri Lanka National Transport Commission Act

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.

without high subsidies (Hong Kong and Singapore) have the advantage of being city-states with a single-tier 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.

"Change can be more easily implemented by superimposing a new formal transport system, corridor by corridor, while leaving the informal system in place."

- 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 Bogotá 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 Bogotá 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 (Bogotá 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.

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- IPPUC, Institute for Research and Urban Planning of Curitiba Universidad, Livre do Meio Ambiente, http://www.ippuc.pr.gov.br, http://www.unilivre.org.br
- Land Transport Authority in Singapore, http://www.lta.gov.sg, information on MRT, licensing, road construction and details of pricing schemes.
- Sustainable Urban Transport Project, http://www.sutp.org, a cooperation with Citynet, BMA, and other interested cities and institutions in Asia
- The Global Ideas Bank, http://www.globalideasbank.org has resources on Curitiba and other cities
- TransMilenio S.A., http://www.transmilenio.gov.co, world class BRT system in Bogotá, Colombia
- URBS, Urbanição de Curitiba http://www.curitiba.pr.gov.br

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