

Summary

Mobility and transportation

How can sustainable mobility strategies be developed for cities in the developing countries?

01

Cities in the developing countries are today facing huge population growth and the accompanying growth in travel. They are struggling to keep up with these changes and to introduce sustainable urban transport policies.

Faced with these major mobility challenges, the training guide "Quelles stratégies de déplacements adopter pour les villes des pays en développement?" (What transport strategies should be adopted for cities in the developing countries?) offers technicians having to deal with these issues some suggested pathways for:

- analysing the urban transport situation in these cities
- predicting long-term changes
- defining a sustainable transport system
- implementing the strategy defined.

This document is a summary of the guide. Readers should refer to the guide itself for more detail.

An urgent need for action to respond to the growth in urban mobility

A huge and fast-growing urban population

By 2030, the urban population of the least developed regions of the world should grow by 1.7 billion, while that of the most developed countries should only increase by around 110 million.

This very rapid demographic increase is also accompanied by urban sprawl and metropolisation phenomena, which generally extend beyond the built-up area and the limits of the city itself, and do not always follow political and administrative boundaries.

European cities have experienced these kinds of changes in the past, but they have had more than a century to adapt, while cities in the developing countries have to adapt in just a few decades.

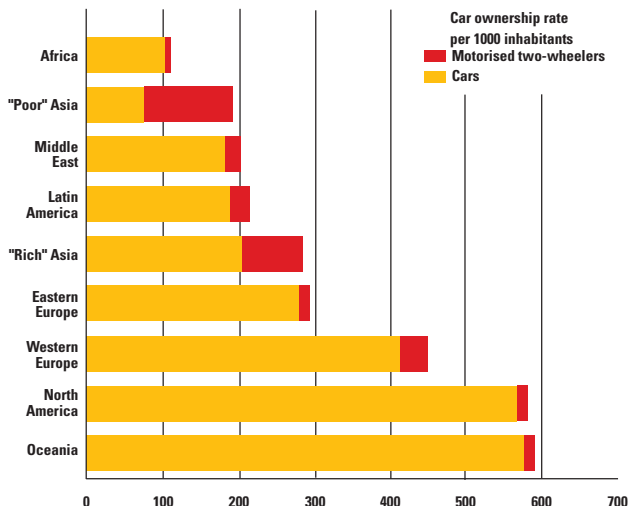
Increasing dependence on individual motorised modes of transport

Individual mobility in cities in the developing countries is generally lower than in other regions of the world. However, these cities are characterised by strong growth in car ownership, often combined with a rise in the number of motorised two-wheelers.

Although household incomes may slow down the rate of vehicle ownership, owning a car is often seen as a model of social success and this tends to boost growth in car ownership.

The growing use of cars and motorised two-wheelers, combined with the problems the public transport sector is having with keeping up with the constant increase in demand, is causing growing dependence on individual motorised modes of transport in these cities.

Car ownership throughout the world



Source: UITP Millenium Cities Database. 2001



Public transport in crisis

Increasing car traffic damages public transport, which is often not given the reserved lanes or priority at traffic lights that would enable it to offer and maintain the kind of performance that would encourage use. Public transport has not managed to keep up with growth in demand, particularly in peripheral areas.

Because of these difficulties, there has been significant development of taxi transport. This offers the advantage of great flexibility and is often the only transport alternative for the poorest populations. However, it contributes to traffic congestion, atmospheric pollution and lack of safety on the roads, and is in competition with the public transport sector where this exists.



Taxis in Mumbai ©SYSTRA H Mazzoni

Unsustainable transport

The space taken up by individual motorised modes of transport has a major impact on the operation of cities. Road congestion reduces economic productivity and aggravates public transport problems. Atmospheric pollution increases, affecting public health. The growing proportion of individual motorised modes of transport excludes those without sufficient means to buy a vehicle.

So developing cities are sucked into a spiral of unsustainable development when it comes to urban mobility.



Competition between bus and taxis in Rabat ©Certu P. Varnaïson-Revolle

Analysing the urban transport situation of developing cities

The main criteria that affect mobility levels in a city are:

- **the level of economic development of the city.**

Mobility grows rapidly up to \$10,000 of GDP per capita, and then grows more slowly

- **demography and sociology of individuals.**

Men in Cairo make 2.06 trips per day by all modes of transport compared with 1.19 for women. Here, gender is an important criterion and after that, level of education

- **transport supply and cost.**

If there is no alternative to the car, mobility is restricted. In Algiers in the 1990s, suppressed demand was estimated at approximately 300,000 trips per day because of a lack of public transport

- **cultural and urban factors.**

These factors are more difficult to detect, but they can affect very diverse phenomena such as urban form, conflicting modes of transport, the development of leisure activities, difficulties getting around (chronic congestion), etc.

Many cities in the developing countries are still at the crossroads and can switch from one model to another:

- the American model with its massive car use, approximately 80% of trips made by any mode of transport on average;
- the Asian model of moderate car use
- Western Europe is usually somewhere in between these two models.

Urban structure.

Any long-term transportation strategy should be defined at a level that best takes account of the phenomena involved in the metropolisation of cities.

A good understanding of the area, its characteristics and the difficulties it has to cope with is essential when considering the formulation of a transportation strategy. In addition to the features and general trends common to certain groups of cities (linked to geographical location and cultural influence), the urban form and organisation of transport depend on many factors, including the vicissitudes of history, and successive planning schemes. Other more specific factors such as topographical constraints (influence on urban development, the transport system, cuts, etc.), geological constraints and natural risks (extra costs, risk of destruction), and the presence of water in multiple forms and the way it restricts urban development should also be analysed to establish the urban context and its consequences for the transport system.

Demography

Three indicators need to be analysed to reveal current demographic dynamics and predict future trends.

Population density is a major indicator of the potential represented by public transport in a city. The higher the density, the greater the proportion of non-motorised modes of transport and public transport. This holds true regardless of GDP. It has also been observed, in the chart below, that the lower the urban density, the higher the consumption of energy.

Another important indicator is **the demographic weight of the city**, or area of study. This is used to identify the level of response to be applied in terms of transportation. The level of intervention in a big city like Zagreb will not be the same as the level for a vast metropolis or 'megacity' such as Cairo



Bus lost far in the crowd ©Alain Guillaume

Population growth rate is also an important indicator because it gives an idea of the speed at which changes should be made. The growth projections needed for any kind of planning should be defined in line with the geographical situation of a country, and in particular how far it is through the urban transition process.

Current population	Examples of cities
Between 200 000 and 1million inhab.	Zagreb
Metropolises: 1 to 2 million inhab.	Conakry, Dubai
Large metropolises: 2 to 10 million inhab.	Hanoi, Bogota, Dakar, Casablanca, Caracas
Very large metropolises or 'megacities': more than 10 million inhab.	Cairo, Teheran, Bangkok, Delhi, Manila, Rio de Janeiro, Moscow

Annual demographic growth	Geographical areas concerned
Low growth: <1%	Western and Eastern Europe, North America, Australia, New Zealand, rich Asia
Moderate growth: between 1 and 2	Latin America, Maghreb
High growth: between 2 and 3%	Poor Asia, sub-Saharan Africa, Middle East

Energy consumption and urban density



Source: SYSTRA from UITP Millenium Cities Database. 2001

Level of development and socioeconomic structure of the population

There is no single indicator that is completely satisfactory for estimating the level of socioeconomic development of a large city. However, by combining several indicators it is possible to build a picture of the economic situation of a city and to rank it among the world's cities.

The level of urban development defined by the UNDP is based on a country's GDP per capita. Countries are then grouped into the three main categories below.

GDP level
Countries with high income GDP > \$9000 per capita per annum
Countries with medium income GDP between \$1000 and \$9000 per capita per annum
Countries with low income GDP < \$1000 per capita per annum

The level of economic growth can be used to predict a country's economic future.

Level of economic growth
Recession < 0%
Low growth: between 0 and 2
Moderate growth between 2 and 4
Vigorous growth between 4 and 7
Strong growth > 7%

Finally, the human development index calculated annually by the UNDP takes account of quality of life factors such as level of health and education.

So all these indicators together give a picture of a country's socioeconomic development.

Human development index	Geographical areas concerned (HDI 2004)
Countries with high human development HDI>0.8	OECD countries (0.923) Central and Eastern Europe and CIS (0.802)
Countries with medium human development HDI between 0.5 and 0.8	Latin America and Caribbean (0.795) East Asia and Oceania (0.760) Arab states (0.680) South Asia (0.599)
Countries with low human development HDI<0.5	Sub-Saharan Africa

* UNDP: United Nations Development Program

Household budget spent on transport

A socioeconomic mapping of the population reveals the social mix of different neighbourhoods and means that neighbourhoods with more deprived populations can be targeted.

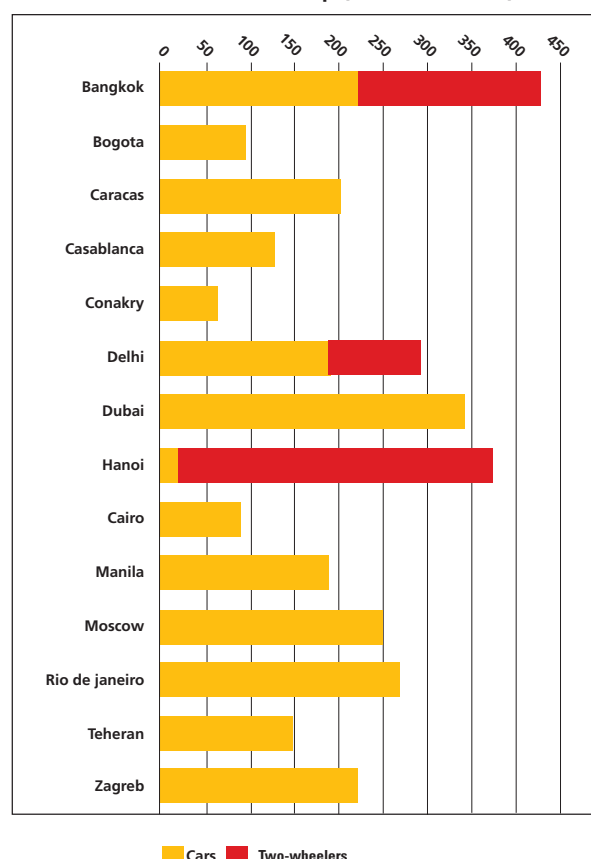
For the poorest, there is a limited choice of modes of transport and it is restricted by disposable income. So walking and public transport are the modes of transport used most by these categories of users. In Buenos Aires, the average income of public transport users is 50% lower than that of car users, and in Lima, 73% lower.

Household car ownership rate

The rate of car ownership is an interesting indicator of the level of development of a city, though there is not automatically a link between car ownership and GDP:

- below 100 vehicles per 1000 inhabitants, car ownership is still limited to the upper classes and a tiny fringe of the middle classes
- between 100 and 250, the car ownership rate becomes significant because it indicates that use of this mode of transport is spreading among the middle classes
- above 250, the level of car ownership is high and car use is widespread among the middle classes
- above 400, multiple car ownership is spreading among households. The specific case of Asian towns should be noted, where the rate of ownership of motorised two-wheelers is very high.

Rate of car ownership (veh./1000 hab.)



Collecting data on mobility and travel

The question of transport demand is absolutely essential when defining a transport management policy, whether it is a matter of improving existing services or setting up transport infrastructure. There are various complementary methods of finding this out:

- general censuses provide data on the population and jobs, sometimes the car ownership rate or figures for certain types of trip, home/work, home/school, etc.;
- travel demand surveys are used locally to find out about general mobility, the characteristics of trips, their socioeconomic context, their starting points and destinations;
- more sector-based surveys are looking at one mode of transport or a planning objective (road surveys, public transport surveys, etc.).

This toolkit is not always available in cities in the developing countries because no data are collected or the data are too old. Furthermore, the cost and human resources required to obtain this information are such that they can only be built up over time, for example through an observatory responsible for collecting and updating the data.

Because of these costs and difficulties, the scope of the information to be collected should be finely calibrated in line with the planning and transport objectives.

Transport supply

It is necessary to have good knowledge of what is already available to understand the gaps in transport supply.

The road system is the location of much of the transport supply: public transport, walking or cycling and car traffic, not forgetting motorised two-wheelers. The main aim of analysing the existing and projected transport system is to define clearly the type of roads suitable for all modes, establishing: the characteristics of the main roads (capacity, speed, traffic direction, condition, junction management) and their hierarchy, ownership, traffic volumes, congestion and accident black spots, and traffic nuisances.

The diagnosis should highlight the main problems of the road network, whether in terms of lack of infrastructure (missing links, neighbourhoods that are cut off, etc.), functionality (traffic using unsuitable roads), infrastructure condition (surfacing, maintenance, etc.) or operation (congestion, lack of regulation or signs at junctions, etc.).

It should be noted that parking policy is an issue that is often badly managed in cities in the developing countries, though it is an important lever of a transport policy.

The factors to be analysed to make a diagnosis of the public transport system are: physical coverage and accessibility of the area by public transport, pricing policy, how this translates to the area, users' ability to pay (particularly of the poorest), transport network capacity (vehicles per km, places per km, timetables, passengers, etc.), network performance, intermodality (integration of different modes, pedestrian access, etc.), operation of the economic sector local to the transport.

In cities in the developing countries, walking or cycling are used both for short trips and for longer trips. Indeed, in these cities, walking or cycling is the only mode of travel available to a large fringe of the population, because of its poverty. So they play a very important role. When drawing up a diagnosis, it is worthwhile looking at the "non-motorised level of accessibility", based on an analysis of the following criteria: accidents involving pedestrians and cyclist, the existence and usability of pavements and reserved areas (cycle lanes, etc.), and accommodation of pedestrian and cycle access around public transport stops.



Congested sidewalk in Hanoi ©Certu P. Varnaison-Revolle



Urban motorways in Cairo: ©SYSTRA/H. Metge

The administrative organisation of urban transport

Before establishing a transportation strategy, it is important to analyse the administrative organisation of the country in which the city is located, in order to adapt the strategy to the local context. This means finding out the different administrative levels that exist and the areas they are responsible for, the degree of decentralisation of the government's responsibilities to local authorities and their level of autonomy in terms of budget and taxation. In the transport field, a table similar to the one below can help to analyse the organisations in place.

Other information is also necessary to complete the analysis. This is: the decision-making tree (role of central government and the central powers, inter-institutional relations, etc.), the culture of contracts and respect for contractual guarantees, regulation of the urban transportation system, the status of operators and transport trade unions.

Financing of urban transport

This is an issue on two levels:

- 1 finance for spending on infrastructure (roads, public transport - creation of reserved lanes, etc.) and rolling stock
- 2 finance for spending on recurrent maintenance, operating and renewal.

It should be noted that weight of these items may vary significantly with GDP level. In the developing countries, the cost of fuel is proportionally higher than in the developed countries. To cope with these finance needs, several sources exist and should be analysed:

- the ability and willingness of users to pay. They contribute directly (fares) and indirectly (local and national taxes) to financing urban transport
- the government and local authorities. They may set up direct and indirect taxation systems and specific taxes for transport
- businesses. Like the French "transport levy" scheme, taxation of the payroll of businesses can be used to finance the organisation of public transport
- lenders via loans from international finance institutions
- private investment as part of public/private partnerships.

Analysis of the administrative system - Example of Moroccan cities

	Entity responsible designated by law	Short-term management	Medium- and long-term consideration
Urban roads	The municipality The state on national and prefectorial networks	Yes	Medium-term
		Updated programs over 3 years, partially funded by the Ministry of the Interior	
Traffic management	The municipality	Yes	No
Road signs	The municipality	Yes	No
Road safety	The town is not explicitly responsible State, through relevant ministries and the Council National for the Prevention Of the Traffic Accidents		National policy instead in interurban
Parking policy	The municipality is responsible for parking The parking policy is not explicitly assigned	Yes	No
Urban public transport	The municipality or association Municipalities	Yes	Studies are beginning to emerge
Tramways of Rabat	State, through the agency planning Bouregreg	Feasibility studies under way, taking into account the future development of the public transport network	
Projects of tramways and subways in Casablanca	Not yet defined		
Suburban lines	State: ONCF	Yes	Uniquely for some precise services
Small and big taxis	State: Licenses issued by the prefectures and provinces economic and social division	Yes	No
Transport policy and planning	Power not explicitly attributed by the law		
Regulation of public transport services	Power not explicitly attributed by the law		

Source: Analysis of the urban transport sector - Kingdom of Morocco - The World Bank - in October 2006

Predicting long-term changes

Before formulating any strategies, it is worthwhile identifying any future changes in the area of study, from the point of view of urban development, transport demand and economic and financial projections.

What picture can be built up of the urban area in 25 to 30 years' time?

Because of the impact they might have on travel, the following factors should be analysed to build up a picture of the urban area by this horizon:

- What urban plans are there, plans for road infrastructure but also port, airport and rail infrastructure? What new centres will be developed?

An inventory of the projects planned for an urban area, whether they are large-scale or simply an accumulation of smaller projects, can be used to build a picture of how the organisation of the urban area may change. This picture will be easier to produce if there are urban planning documents available. But not having these documents does not prevent the exercise from being performed and may prove to be an incentive to produce them.

- What changes are expected in population, employment and economic activity?

The projects planned may drive demographic and employment changes. However, these changes should be identified at city level and must be localised: volumes of inhabitants and jobs, age pyramids, household structures, student population, socioeconomic characteristics, type of jobs, etc.

What will the impact be on demand for transportation?

To tackle the question of transportation in 10 to 20 years' time, it is necessary to estimate demand for transportation by this horizon. A first approach is to estimate demand for motorised transport within the city, and particularly the scale of increase to be expected over this timescale. To do this, it is necessary to project the growth in mobility, using the relationship that exists between GDP and mobility.

To go further, it will be necessary to use origin/destination matrices and to look at the effects of urban changes on the population, employment, etc. This information should reveal the catchment areas, i.e. the areas generating most trips, and the best routes, which are likely to channel high demand and along which it is worth considering the construction of transport infrastructure. This traffic flow should then be allocated among the various transport systems available (modes and itineraries).

To make more detailed projections, it is necessary to use multimodal allocation software.

What is the projected investment capacity?

The World Bank estimates that country-level investment in transport (roads, airports, ports, urban and inter-urban public transport) traditionally represents 2-2.5% of GDP, with a maximum of 3.5% for countries modernising their transport infrastructure or building new infrastructure.

At the city level, the example of developing urban areas shows that the proportion of GRP (gross regional product) invested in urban transport infrastructure is generally around 1-2%. Half is usually allocated to public transport and the other half to road networks. This can be used to estimate a maximum investment range for each city.

Teheran's transport plan calls for investing 1.2% of the city's GDP in public transport from 2005 to 2016.

The transport master plan for Greater Cairo proposes investing 1.7% of GDP in public transport from 2002 to 2022.

In Belgrade, investment in public transport was 1.04% for each year from 1997 to 2001.

Projections of the volume of trips expected by 2030 in several world metropolises

	Population of metropolitan area in 2005 (million)	Motorised mobility in 2005 (motorised trips per day per inhabitant)	Total volume of motorised trips (million)	Population of metropolitan area in 2030 (million)	Motorised mobility in 2030 (motorised trips per day per inhabitant)	Total volume of motorised trips (million)
Cairo	17,6	1	17,6	28,9	1,1	31,8
Caracas	4,7	1,5	7,05	5,8	1,8	10,4
Teheran	14,3	2,6	22,9	18,3	1,9	34,8
Hanoi	2,9	2,1	6,1	4,3	2,6	11,2

Source: SYSTRA

Defining a system of sustainable transport

Developing a strategy for urban transport in developing countries is based on several cross-functional objectives:

1. Provide a framework for strategic long-term action to anticipate needs, make substantial savings on investment and allow the drivers leveraged to yield their results. For example, setting land aside for reserved-lane public transport limits building costs (by avoiding the more expensive addition of elevated or underground facilities).
2. Approach the question of mobility in an integrated manner. Mobility is too often reduced to the deployment of technical means or infrastructure without any action that addresses all factors. A transport policy cannot exist without an array of complementary, sustainable measures, from planning to implementation, not to mention evaluation, an indispensable step throughout the life of the projects.
3. Propose a long-term strategy which ensures financial survivability and sustainability, by developing equitable initiatives with funding that benefits everyone, especially the poorest inhabitants; this requires an urban project which respects and protects the environment and non-renewable resources.
4. Work to reduce poverty by promoting access to employment, education and healthcare, by focusing on transport safety in specific urban zones and by making sure public transport fares are within reach for the poorest inhabitants.
5. Improve safety for urban transport users by promoting crossover between action areas.

The strategy proposed to meet these objectives can be broken down into four major areas:

- orienting and structuring urban development according to the metropolitan area's transport issues
- developing the road network with a view to shared use and regulating the use of privately owned motor vehicles
- developing an efficient public transport network
- promoting the use of environment-friendly modes of transport.

Defining these four areas gives shape to the long-term strategy and defines objectives that can only be achieved through a sustained approach.

Orienting and structuring urban development according to transport issues

In response to current and future demographic pressures in the cities of developing countries, it is essential to coordinate approaches to city planning and transport.

An emblematic example is the land use and transport planning in Curitiba in the 1970s, which canalised urban growth along the itineraries of the BRT (reserved-lane rapid bus service).

This planning approach is based on two principles. First of all, it depends on mixed and dense cities (spread-out cities favour the use of privately owned motor vehicles). Secondly, it is based on a re-balanced approach to road sharing. This re-balancing is necessary to allow development of reserved-lane public transport, walking and cycling.

Transport costs according to mode (% of GDP)

Urban zones	Density (inhabitants/ha)	% of trips by foot, bicycle and public transport	Cost of transport (% of GDP)
USA, Canada, Oceania	18	15%	12,7%
Europe	55	52%	8,3%
Japan, Hong Kong, Singapore	134	62%	5,4%

Source: UITP Millenium Cities Database. 2001

Developing the road network with a view to shared use and regulating the use of privately owned motor vehicles

The road network is the principal platform for all modes of urban transport. It is therefore one of the foundations of a city's structure. In the cities of developing countries, the following points are commonly observed:

- the road network has not always preceded or even accompanied urban development, and this has led to the exclusion of certain districts as well as an insufficient urban mesh
- the lack of maintenance tends to favour congestion, penalising public transport which gets stuck in traffic. It also causes safety problems and shortens vehicle life, especially for public transport vehicles, damaged by roads in poor repair
- the current state of road sharing puts non-motor vehicles or even public transport at a large disadvantage
- some existing roads were not designed to handle the traffic flows they now carry. This makes it hard to access certain districts, especially for emergency vehicles.

In response to these observations, action is required to improve the existing infrastructure and the urban mesh. But any initiatives must be taken with road sharing and regulation of motor vehicle usage in mind. While motorised modes of transport are still in check in many cities of developing countries, it is clear that unless policies to control their usage are implemented, they will grow and even explode in the coming years.

- Preserve and rehabilitate existing facilities.
In a number of cities in developing countries, disused rail lines situated in urban zones could either be rehabilitated or reused to install other types of transport systems. If this is not done immediately, these facilities could at least be protected for later use.
- Give priority to upgradeable solutions.
Given the financial situation of certain cities and the investment necessary for rapid transit systems, it is unlikely that they will succeed in acquiring such infrastructure in the short term, or even in the medium term. This requires providing for a temporary phase, wherever possible. One example would be to map out a rapid transit system such as a rail line, by setting up a reserved-lane bus system, or a BRT. This structural network cannot completely meet demand by itself. It must be complemented by a high-quality service network. Improving service quality, which obviously depends on the existing situation, is based on the following points:
 - Good coverage: level of service to districts, risk of hemming certain areas in, profitability of specific lines, etc.
 - A good level of service: frequency, regularity and extent of operating hours
 - Enhanced travel time and thus higher commercial speeds
 - Enhanced transport safety and security.



Tramway Iasi, Roumanie: ©SYSTRA/H. Mazzoni



VAL of Taipei: ©SYSTRA/J-C Hugonnard

Promoting the use of environment-friendly modes of transport

"Environment-friendly" modes of transport stand in contrast to motorised options and mainly include cycling and walking. These alternatives play a crucial role in the cities of developing countries, especially for the poorest inhabitants. Walking is used for long-distance as well as local transport, contrary to the situation in developed countries.

However, walkway conditions can be very difficult: waste water dumped in the verge, insufficient lighting, high temperatures, lack of pavements or crowding where they exist, unsafe conditions for cyclists on the road, etc.

As such, walking and cycling must be integrated into urban planning and development (e.g. tools for estimating demand, used in studies to better understand practices), in order to offer low-cost mobility, thereby giving everyone access to the city's main services.

They must also be integrated into the design process for public transport so as to favour synergy between walking and cycling and access to public transport (systematic development effort given to the area around stops, with the presence of safe pedestrian walkways and crossings as a minimum requirement).

While improvements can be made through simple and inexpensive facilities (pedestrian shelters, pavements, cycle lanes, pedestrian walkways), they must be part of a more global approach to road hierarchy and sharing.



environment-friendly modes of transport in Curitiba ©SYSTRA R. Gras

Implementing the strategy defined

Strategies of sustainable mobility must be implemented as well as defined. To achieve this, a stable institutional framework and sustainable resources must be put in place, and initiatives over the short, medium and long terms must be planned, ultimately allowing the target strategy to be carried out.

Setting up a stable institutional framework and stable financial resources

Political authorities must support a strong strategic vision at the proper scale to give it a real chance for success. It must also be backed by a solid institutional organisation. Representative and legitimate local institutions are a prerequisite for this.

The following transport issues and competencies must be defined at the relevant scale:

- Road upkeep and maintenance
- Public transport services and itineraries
- Operating licences or public service delegation
- Upkeep and maintenance of public transport infrastructure (which may or may not be delegated to a transport operator)
- Operator oversight
- Public transport fares.

An urban transport authority, bringing together the sector's players, can take responsibility for these competencies. Others can be acquired over time, such as traffic management, collecting a dedicated transport tax, etc.

Human resources are a prerequisite to the proper development of these competencies, particularly supervisory staff, trained not only to execute funding plans but also to use the cooperative techniques needed to implement transport policies.

However, these capabilities cannot be correctly applied without sustainable financial resources. Over the last 20 years, we have witnessed a process of decentralisation on a global scale, affecting numerous countries, from an administrative and fiscal perspective as well as a political one. But this is often an illusion, because the transfer of competencies from the national government to local authorities is not always accompanied by the corresponding resources. This obligates cities in developing countries to develop their own resources to meet their sizable financial needs, particularly in terms of infrastructure:

- Developing local taxes
- Resorting to loans
- Developing public-private partnerships
- Setting up transport fare systems

These solutions will only produce results if accompanied by:

- Transparent management of local finances
- A minimum regulatory and legal framework which is respected
- A favourable economic context.

Planning short- and medium-term initiatives for efforts with a more operational focus, such as urban transport plans

Applying the long-term strategy to all modes of transport is necessary for coherence between initiatives requiring long-term investment and consistency with urbanisation options. However, "operational" initiatives refer to shorter sequences, on the order of 5 to 10 years. Efforts such as transport plans (urban transport plans in France, also called traffic and transport master plans in Rabat, urban transport plans in Algeria, etc.) can be used to both set objectives for a given period and map out action to reach them.

It is within the framework of such efforts that the success of long-term strategies will play out. These transport plans establish intermediate steps in the pursuit of long-term objectives, thereby making them realistic. They must lead to an operational plan of action which is backed by figures and financially feasible. By their very definition, such efforts are adaptable, iterative and include periodic updating processes which account for the rapid changes which cities may undergo.

Moreover, for the urban transport authority to develop a transport plan, there must be coordinated exchange of information belonging to different players, spaces for technical exchange, and validation processes bringing all partners together. Such collaboration between multiple stakeholders results in a shared culture of urban transport and strengthens strategic and planning efforts.



Congestion in Bangkok © A Guillaume

For more information:

Forthcoming publications of Certu - 2^e six-month period 2008, the guide « How can sustainable mobility strategies be developed for cities in the developing countries? »

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