

Brazilian urban transport in an era of decentralized cooperation

Les transports urbains au Brésil face aux défis de la coopération décentralisée

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ABSTRACT: Brazilian public transport is experiencing a significant moment, which can be synthesized in the binomial crisis-transition. The elements of crisis place into check the current institutional framework that supports the provision of urban public transport all over the country. This paper seeks to analyze to what measure this institutional framework is able to deal with current problems and to answer to the challenges of required decentralized cooperation between cities and different levels of government. The hypothesis is that times of crisis lead to breaks from old institutional arrangements and the emergence of new ones, the setting of which redefines authorities and relationships between public and private sectors regarding transport provision. It is concluded that the organizational model that is currently being delineated in Brazil requires metropolitan agencies constructed according to flexible, negotiated standards involving municipal and state governments, with the participation of social actors and private initiative with interest in the issue and an effective participation of the federal government.

RÉSUMÉ: Les transports publics urbains dans les villes brésiliennes vivent un processus qu'on appelle crise-transition. Les éléments de cette crise posent, de façon claire, les limites de l'organisation institutionnelle qui supporte la provision des transports publics des agglomérations du pays. Ce travail a pour but de vérifier dans quelle mesure l'organisation des transports est capable de faire face aux défis actuels, dans la perspective de la coopération décentralisée entre villes et les gouvernements municipaux, les états de la Fédération et le Gouvernement Fédéral. Notre hypothèse de départ est que ce sont justement les moments de crise qui forgent les ruptures de vieux schémas institutionnels et l'émergence de nouveaux à l'intérieur desquels se redéfinissent les

compétences et les rapports entre les secteurs public et privé dans la provision des transports. On peut conclure que le modèle organisationnel qui s'esquisse aujourd'hui au Brésil demande des agences métropolitaines construites selon des patrons flexibles et négociés, avec la participation non seulement des gouvernements municipaux, des états fédérés et du Gouvernement Fédéral mais aussi des acteurs sociaux et de l'initiative privée.

1 TRANSPORTATION IN CRISIS IN URBAN / METROPOLITAN BRAZIL

Some elements of the crisis in urban public transportation emerge, in its institutional dimension, since the mid 1980s thru (Brasileiro & Santos, 2003; Brasileiro et al, 2000; Santos, 2000):

i) the progressive reduction of the role of the federal government in the sector (for example, in the process of shifting metropolitan railways to state control in preparation for future privatization; or in the extinction of federal departments such as the Brazilian Urban Transportation Company - EBTU – and the Brazilian Transportation Planning Company – GEIPOT);

ii) the phenomenon of de-concentration, with a more rapid growth of peripheral cities in urban ag-

glomerations polarized by state capitals and medium-sized cities, what requires complicated inter-municipal arrangements with or without the participation of state governments to solve problems regarding planning, regulation and operational management;

iii) the expansion of small-scale transportation services within the regulated system (school, freight, tourist and special transportation) as well as outside the regulated system ("alternative", "clandestine" or "pirate" transportation, neighborhood transportation, motorcycle taxis, rented transport), mainly using smaller vehicles as vans instead of buses;

iv) the decrease in the demand for regular bus transportation, hegemonic in all urban setting in the country, which has been continuously registering

fare increases, reductions in operational speeds as well as in general service quality;

v) the lack of human resources in municipalities with scanty financial resources;

vi) the inexistence of real articulation between local transport, land use and urban development policies, resulting in the proliferation of uncontrolled lot developments in peripheral areas without urban infrastructure and of car-dependent urban expansions, what gives rise to new neighborhoods and urban sectors that lack any urban planning directives.

Such elements certainly appear in different forms and intensities among urban settings, as Brazil is a country that is diversified enough so that local logic usually places its stamp on the characterization and typology of the crisis.

Nonetheless, the persistence of these elements throughout the nation characterizes a state of crisis in urban public transportation, placing into check the current institutional framework of the sector. However, such elements also configure a potential transition inasmuch as it is possible to come up with strategic perspectives to overcome the crisis.

2 THE URBAN ISSUE AND TRANSPORT POLICY IN THE YEARS 1970

The characteristics of industrialization/urbanization in Brazil have generated a large demographic concentration within a small number of urban agglomerates. In 1970, 20% of the Brazilian urban population resided in the cities of São Paulo and Rio de Janeiro. Then, the rate of urbanization among the Brazilian population surpassed 55%, compared to 31% in 1940, 36% in 1950 and 45% in 1960.

In economic terms, spatial concentration was similar to demographic concentration. Between 1950 and 1970, the participation of the nine major urban agglomerations of the country in terms of industrial aggregated value and industrial employment went from 60% and 50% to 67% and 60%, respectively.

In this context, public actions in the urbanization process of the 1970s were accompanied by the creation of a powerful organizational and financial structure to provide the basic infrastructure for the urban economic dynamics — telephone services with EMBRATEL and TELEBRÁS, water and sewerage with PLANASA, transportation with EBTU and GEIPOT, electricity with ELETROBRÁS. This institutional machinery was fundamental in propelling urban economies and making grower the national gross domestic product.

Furthermore, in the context of a strong central government with appointed state governors and state capitals' mayors, metropolitan regions were created in the 1970s.

The creation of these entities followed a directive of a technical nature, based on the need for the planning of integrated services and actions on the part of public powers in territories where economic activities and movement surpassed the physical limits of the city, as social and economic relations between distinct public and private agents had already established strong interdependent and/or complementary ties.

One can also point out the role political interests played in the creation of metropolitan regions, namely, that of deterring the growth of opposition to the military government. Although with no possibility of reaching the executive municipal power in the capitals — the mayors of which were appointed in the same way as the state governors — such opposition was extending its realm of political influence to neighboring municipalities.

2.1 *The Adopted Organizational Framework*

In this highly centralized socioeconomic, urbanistic and political context, the issue of urban transportation emerged in the discourse and practices of the Brazilian Federal State for the first time. In 1976, an important organizational and financial structure was created as defined by the National System of Urban Transportation — SNTU, and the National Fund for the Development of Urban Transportation — FDTU. The third element was the Brazilian Urban Transportation Company — EBTU, the federal government agency in charge of coordinating policies and the modal integration of rail and road urban transport.

At the local level, Metropolitan Urban Transportation Companies — EMTUs were created in nine officially defined Metropolitan Regions (those around Belém, Belo Horizonte, Curitiba, Fortaleza, Porto Alegre, Recife, Rio de Janeiro, Salvador e São Paulo), along with Urban Transportation Departments — STUs in each one of the other state capitals.

This emerging institutional structure sought to modify the organizational and regulatory framework of urban public transportation, which was then undergoing a profound crisis, the roots of which were the following:

i) small-scale private operation of bus transportation based on a multiplicity of small private companies offering services of poor quality;

ii) deficient jurisdiction exercised by municipalities over the production of transportation services, which demanded planning and coordination that stretched beyond the territorial boundaries of the central city in metropolitan areas.

The overall results of this policy implemented by the federal government from 1975 to 1985 (date of the creation of the Transportation Voucher) were considerably positive, leading to far more efficient configurations of local transportation systems. The

reasons for the success of the initiative are as follows:

i) rationality was sought in the operational programming of urban buses;

ii) business concentration was urged through the fusion, purchase and association of private companies;

iii) control mechanisms were created for the operational costs of the companies and calculation of fares;

iv) financing sources emerged for renovating bus fleets with subsidized interest rates;

v) urban railway and trolleybus systems received important funds to improve infrastructure;

vi) an important human resources program was put into place in universities, with the creation of masters' and doctoral courses;

vii) a training program was developed for professionals in federal and local public agencies;

viii) Brazilian technical training was consolidated in the planning and operation of urban transportation networks and systems.

These federal actions, which led to a general improvement of urban transportation conditions, culminated – thereby putting an end to the cycle of intervention from the central government – in the Transportation Voucher, adopted in 1985/86 as an obligatory source of financing based on the participation of indirect beneficiaries and is currently indispensable to the functioning of the public transportation system in Brazilian cities.

2.2 Metropolitan Coordination: Myth and Reality

One of the key points of the national urban transportation policy of the 1970s was the creation of the EMTUs - Metropolitan Urban Transportation Companies.

The core of this proposal rested on the predominant belief at the time that from a strong action of the central government, it was possible to impose an idealist view upon local settings of a multi-modal transportation system that was integrated in physical, operational and institutional terms, as well as with regard to fares.

However, as with everywhere else in the world, Brazilian experiences are diversified and local logic predominates based on socioeconomic and urbanistic dynamics, as well as the relations between social actors. Thus, EMTUs were never even created in the large majority of agglomerations. Furthermore, experiences and results varied widely in places where they were created.

The most evident unsuccessful case was the creation of the EMTU in Sao Paulo in 1979 and its extinction in 1980 after just 18 months of existence. One important metropolitan agency was METROBEL, created in 1980 in the city of Belo Horizonte. This agency played a feature role in local metropoli-

tan organization for a number of years. It was, however, extinct in 1987. Along the same lines and with a much longer duration, we have the case of the EMTU in the city of Recife, which is the only structure of a metropolitan nature to remain in operation to the current day.

A number of factors explain the limits of this form of metropolitan organization in Brazil, and consequently, the limits of the organizational and regulatory framework in the current crisis of national urban transportation. A detailed examination of these factors follows:

(a) Deficiencies in legislation

Even though the law established the authority of the EMTUs in exercising the coordination of all modes of metropolitan transportation, this has never occurred in practice. The urban railways remain under either federal jurisdiction (metropolitan trains of Recife, Recife, Belo Horizonte, Porto Alegre and other trains of suburban communities) or state jurisdiction (subways of Sao Paulo and Rio de Janeiro).

It must be pointed out that the correct idea was that these modes of transportation would constitute the backbone of the integrated system because of their structuring role and capacity for transporting the public, but this never occurred. Today, the process of the states taking over control opens up new possibilities of multi-modal coordination.

(b) The lack of precision in the law regarding conflicts between "common interests" and local jurisdiction

The law established that EMTUs were responsible for services of "common interest", which included local transportation. However, the constitution itself defines a municipality as the only responsible entity for the coordination of transportation services.

Given the spatial nature of transportation production, along with the fact that there was already a high proportion of trans-frontier travel in metropolitan geographies at the time, EMTUs could only fully exercise their role in coordinating and integrating transportation in a given region if the city councils authorized the transference of jurisdiction. However, political and institutional conflicts impeded this from ever occurring.

(c) The fragility of the idea of a Metropolitan Region

Ever since its emergence, the very idea of metropolitan organization was fragile. This "fourth" authority of power had no financial resources of its own nor administrative autonomy. The metropolitan organization structure became dependent upon state governments, and therefore at the mercy of attention, or lack thereof, that the state government conferred to the capital city.

(d) The stirring up of conflicts of interest through financial resource management

As municipalities did not have the capacity to generate important resources, the public agencies that planned or operated transportation were obliged to turn to the federal government. When their cases were successful, they refused give up absolute control over the resources they had obtained, often following a policy of self-serving investment that was not coordinated with other agencies.

This aspect gave rise to the extinction of the Sao Paulo EMTU, where each public railway agency (subway, suburban train lines) or roadway agency (public bus companies) applied their financial resources independently from the EMTU, which excessively weakened it in its coalescent, coordinating role the law has reserved for it.

(e) The authoritative route by which implantation of the MRs was intended

Another factor, perhaps the most important, in the relative lack of success of the metropolitan organization of transportation in Brazil was related to the authoritative manner by which the implantation of the idea was intended at the time.

Besides the fact that the creation process of Metropolitan Regions followed authoritarian procedures, it should be remembered that the EMTUs were part of the organizational framework conceived on a national level that sought to impose a single, rigid model upon each Metropolitan Region, without the model to be implanted taking into consideration local specificities.

2.3 Success stories of municipal and metropolitan coordination in Brazilian cities

Two experiences are worth mentioning here. They are quite distinct and have had striking success: administration of a metropolitan nature in Recife and municipal nature in Curitiba. Both reinforce the importance of local dynamics and the role of social actors (Brasileiro, 1994). Recife constitutes the most highly finished example of the application of the model conceived on the national level. The main reason for its success is due to the intensive negotiation process that occurred in 1979/80, when the EMTU was created:

- a set of elements converged so that this negotiation was successful:
- the relatively small participation of the City of Recife in the population of the Metropolitan Region;
- the existence of a culture consolidated around the technical environment of metropolitan planning;
- the technical, political leadership of the State Transportation Secretary at the time, who as a uni-

versity professor and businessman, exercised considerable local influence;

- the fact that the first president of the Recife EMTU enjoyed considerable leadership and representativity at the time at the federal transportation agency level;

- the strong involvement of local social actors that bestowed representativity upon the Recife EMTU — private bus companies that came to rely on a stable system with well-defined norms; user associations approved a project ensuring a rational schedule of lines, greater spatial coverage and simplification of ticket fees; state and municipal legislative powers from the capital were the object of innumerable presentations of EMTU goals;

- the involvement of technicians from local transportation agencies, who were motivated by and relied upon technical and political support, and were astute in their conception and implantation of a technical project that bestowed a nationally recognized professional support system upon the Recife EMTU;

- the adoption of institutional and technical instruments in permanent evolution: the Metropolitan Urban Transportation Council, the Fee Compensation Chamber, Evaluation of Transportation Companies, the Desired State of Services, continuing to the present day with the computerized administration of operations and studies for a new regulation model for collective transportation services.

This process presented a number of limitations. The main limitation stemmed from the partiality of the metropolitan coordination: within the municipalities of agglomeration (with the exception of Recife itself), jurisdiction over transportation services continued to be municipal.

Furthermore, the railways remained in the hands of the federal government. Partnerships between EMTU and municipalities in metropolitan Recife have only recently been signed, through which EMTU has jurisdiction over municipal lines that are integrated to metropolitan lines.

Also recently, the process of the state taking over control of urban trains, which came about in a harmonizing effort between METROREC and EMTU, allows us to foresee positive perspectives regarding future integrated inter-modal coordination.

Thus, Recife seems to point to a strategic solution to the crisis in local transportation: multi-modal coordination in the metropolitan setting, with the active participation of local authorities.

Curitiba, in turn, constitutes a successful example of integrated coordination of land use and transportation. This case reinforces two aspects that should be present in the formulation of a new organizational framework: the importance of the local dimension and the negotiation process between social actors.

The Curitiba experience does not fit the frame of the nationally-conceived integrated metropolitan

administration model. Quite the contrary, it is an eminently municipal experience restricted to city limits of the capital.

This is mainly due to the considerable population of the capital in the agglomeration and the fact that the principal industries located on the outskirts of town have always relied on their own transportation for transporting their employees. Furthermore, the Curitiba model fell into place in the 1960s, long before the pressures from the growth of cities demanded a conjunct view of agglomerates.

Currently, the need for this integration exists and has been occurring through partnerships between state agencies, the planning agency of the capital and other municipalities.

The second most important aspect in the Curitiba experience is related to the intensive negotiation process between local social actors in the 1960s, which culminated in the creation of the Research and Urban Planning Institute of Curitiba — IPPUC.

The solidity of this agency stems from its origins and is the result of ideas placed into practice by the city with regard to the elaboration of the Urbanism Plan (1965), which involves the entire local community — specialists, professional associations, university, church leaders, business representatives from state and local commerce, politicians, representatives from workers' organizations and neighborhood communities.

In summary, the efficiency of these negotiation processes is in the origin of a rare longevity in dealing with public agencies in Brazil — the IPPUC and Recife EMTU currently have 40 and 26 years of experience, respectively.

3 ELEMENTS OF THE NEW ORGANIZATION-AL FRAMEWORK FOR THE METROPOLITAN MANAGEMENT OF PUBLIC TRANSPORT IN BRAZIL

Currently, metropolitan (and urban) public transportation is once again in crisis in Brazil. Jurisdiction based on municipal administration alone is limited, as travel has become increasingly metropolitan and requires planning and management on an agglomerate level.

The current institutional configuration fails to take into account the range of transportation modalities, which go from small-sized vehicle to bi-articulated buses. Furthermore, the presence of railways under the auspices of state government will require new planning and inter-modal coordination responses.

Differently from how the issue was addressed in the 1970s, the current situation is far more complex with regard to the strength as well as political and economic significance of the municipalities that make up the metropolitan regions polarized by the capitals.

The metropolitan transportation institution should not emerge from a definition established by a superior echelon of the government (the federal government), but from an intensive negotiation process between relevant social actors possessing a flexible format adapted to Brazilian diversity.

Also, it is increasingly impositive that transportation planning be integrated to the realm of the metropolitan setting. That is how the idea of a metropolitan transportation agency should take into account the lessons of the recent Brazilian experience, as well as understand important lessons from other countries. Between the foreign experiences, some should be taken in account carefully: those in which there is a clear emphasis on flexibilization and on the necessary involvement of local/municipal and regional levels of the public power, as well as the explicit and transparent participation of private initiative and social organizations with vested interest in the issue.

All these points may be synthesized in a set of thesis (from Aragão et al., 2004; Santos et al., 2005; Santos & Orrico Filho, 2002) that define a typology of approach able to deal with the crisis of urban transport in Brazil in a way that enhances municipal responsibilities under a new arrangement of decentralized intergovernmental cooperation.

3.1 *Thesis for a new approach to the metropolitan transportation issue*

(a) democratic and negotiation processes

First of all, the construction of a metropolitan transportation management framework that encompasses the current political, institutional and urbanistic context must be democratically negotiated with the social actors involved; constructions conceived in a centralized fashion and imposed in a "top-to-bottom" direction failed to achieve success even in times of political authoritarianism.

(b) identification of economic, political and social actors, and their roles

This process presupposes the identification of the economic, political and social actors involved and the recognition of their roles. Evidently, differences in interests and points of view must be recognized; conflicts cannot be whisked away.

In order to rise to challenges in an environment that is transformed at increasing rates of speed and in a discontinuous manner, such conflicts have to be recognized and anticipated so that the interests of the actors can be taken into account in the creation and functioning of metropolitan agencies.

(c) clarity of the institutional framework without the overlapping of authorities or functions

Evidently, the directive remains that the resulting institutional framework must be transparent, without the overlapping of authorities or functions, although henceforth such a distribution of functions and necessary cooperation will need to be negotiated with the actors. Moreover, this framework will have to adapt to cities in transformation.

- (d) recognition of the municipal power over its territory and the possibility of decentralized cooperation

The recognition of the municipal power over its territory will need to be the starting point for the construction of the metropolitan structure; this cooperation will begin when the municipal administration recognizes the need to share the management of particular services, for which the supply and demand structure is not defined merely by city limits, but also includes neighboring municipalities.

Therefore, from a process moving from bottom to top, when facilitated or even initiated by the state or federal government, the municipalities will decide the concrete form of cooperation, taking into account the characteristics of each metropolitan area.

Such cooperation will be duly instrumented by partnerships, associative contracts and diverse forms of consortiums. It should also be expected that for each type of service, the cooperative design will take on distinct features that are adapted to the concrete activity at hand.

- (e) financing mechanisms for transportation infrastructures

The central issue will be the construction of financing mechanisms for transportations infrastructures. The current crisis in urban public transportation partially lies in precisely the lack of such mechanisms, especially inasmuch as the federal government has refused to take on a role in this field since the promulgation of the 1988 Constitution, as mentioned above. In fact, since early 1980, the federal financing process of urban public transportation infrastructure has stagnated, leaving just sporadic input originating from the World Bank.

Currently, the federal government has preferred to follow the directive of solving the infrastructure financing problem by way of concessions to private initiatives. In the case of urban transportation infrastructure, this type of policy has been unable to ensure the necessary resources for the systematic improvement and implantation of the service network.

The international experience of partnerships and project financing in the realm of urban mass transit has been relatively limited, although some initiatives have been successful in a few privileged locations as a result of quite particular characteristics of the

project. Furthermore, such projects have a prolonged implantation, given the difficult discussion regarding the distribution of the risks involved.

Only those countries that maintained a permanent financing system, especially through fiscal instruments, were the ones that successfully implanted transportation infrastructures in an integrated, systematic fashion. Among the preferred fiscal instruments, we can cite taxation on fuel (Germany, the United States), as once practiced by our FDTU, but also taxation on the payroll (classic example of the French *Versement Transport*).

In a general manner, the fiscal element of transportation infrastructure financing passes through the adoption of the fiscal principle of benefit, according to which the beneficiaries should contribute in proportion to the benefit gained. In the case of urban transportation, besides public transportation users, beneficiaries also include users of individual transportation, commerce and industry, as well as employees and the real estate sector. The contribution of these sectors can come about voluntarily by way of diverse partnerships or in an impositive manner through fiscal instruments.

Once the creation of specific fiscal funds is made viable, discussion will center on the division of authorities related to the decision regarding the destination of resources. Allocation criteria will need to pass through broad national discussion.

As long as this situation remains unresolved, it is up to the municipalities and metropolitan agencies to explore local opportunities for private investments and/or partnerships between the public power and private initiative. Ideally, such projects will be combined with development and urban reconstruction programs, thereby attracting partnerships of diverse capitals (real estate, commerce and financial sectors), and enabling an opportune coordination between transportation policy and the planning of land use.

- (f) concept of urban networks and transportation networks (integration between tracks and tires) in an efficient service network project

The offer of public transportation in metropolitan areas of coordinated management will need to be based on the design of an efficient and effective multi-modal network.

However, we must include some new considerations. Even when integrated, public transportation systems are undergoing an increasingly cut-throat competition from both individual transportation and clandestine transportation.

This is due to negligence regarding investments in public transportation infrastructure, especially along exclusive corridors, thereby forcing collective transportation to share the same space with individual

transportation to the competitive disadvantage of the former.

However, we must recognize that the offer of public transportation was not conceived to take a competitive stance, as it has had the above-mentioned presupposition of a captive public.

This scenario, however, is undergoing a mutation process: as a result of economic stabilization and lower prices of private automobiles, as well as the invasion by clandestine public transportation, the previously considered captive user now has alternatives at his/her disposal (at least a considerable part of them).

Furthermore, changes in urban structure and the geography of the public transportation market make the demand more differentiated.

(g) the introduction of elements of competitiveness in the sector through adequate regulatory reform

Another new aspect to be inserted into the offer philosophy will be internal competition in the public transportation sector, without which there could be no competitiveness from the sector vis-à-vis other transportation options.

If the concessionary regimen needs to open decision venues for contracted operating companies so that such companies can adapt their products in ways that are more adequate to the local market of which it will have more accurate knowledge than will the public power, the right of such companies to do so will have to be earned through competitive selection processes.

The international experience clearly shows that competition in urban public transportation cannot come about directly on the streets. Competition will come about through the right to operate by way of competitive bidding procedures based on economic selection concepts (ticket fees, unit costs, lower subsidies, greater monetary or economic offer, etc.).

The international experience has also shown that the contracts resulting from such processes should have a limited term (no more than 5 years) so that during the execution of the contract, the company is urged to seek maximum productivity, transferring the results of their learning process to society in the following bidding process (in which the company will be in a better competitive position, as it will understand the market for which it is disputing better than its competitors).

Once this "homework" has been carried out (and as an conditional element for such), contracts should include a certain amount of operational flexibility, for which is it up to the public power to define the main parameters of the services (general definition of itineraries, minimum frequencies in diverse time periods, performance indicators, ticket fees), with the operating company having the duty to optimize them.

Finally, it should be pointed out that Direct Concession that is specific to public transportation will need to have basic general rules on a national level, with the local power having the duty of the detailing of the regimen in accordance with the particular conditions, especially with regard to the particular local geography of the public transportation market.

(h) use of marketing tools in public transportation

With the help of a large number of contributions from the university, the sector has finally taken notice of the fact that their manner of considering the market needs to change. The differentiated treatment of diverse segments and the application of marketing techniques are currently recognized as necessary complements to the offer of services (they will obviously not completely replace traditional operational planning, but will substantially modify it).

Thus, the metropolitan public transportation network can no longer be conceived merely as a public planning measure, imposing itself upon the entire spatial logic of the string of communities with a basis on the principle that users will passively subject themselves to the imposed operational conception.

Currently, if this network wants to remain competitive in relation to individual transportation (and clandestine public transportation), it will need to be conceived as a well-polished, competitive product in the metropolitan setting.

(i) training of human resources within the new perspectives opening up for the sector

Evidently, all these reforms require the necessary local and national expertise. For such, corresponding human resource training programs are needed on the most diverse levels, as well as research and scientific/technological development.

A minimum guideline for the latter would be the economic study of urban transportation markets, the marketing process, public and private management improvements (quality administration and engineering), financing alternatives, technological development of vehicles and the installation of prioritized traffic corridors, as well as the development and use of the appropriate telematics.

Complementarily, regardless of the competitive nature of the public transportation philosophy, the system will still experience considerable disadvantages with relation to individual transportation, which is quite heavily subsidized through fiscal assistance to automobile production and through the relatively gratuitous form in which the individual transportation user receives the roadway infrastructure.

Consequently, compensatory measures regarding this imbalance need to be considered. Investments in traffic corridors that are duly equipped with priority

layouts for collective transportation are needed, but may be insufficient.

Taxation for the use of urban roads is increasingly discussed in international forums, especially with regard to areas and/or during periods of increased congestion (discussion on road pricing). However, its implementation has been tangled up in political problems.

One practical and more feasible measure would be the imposition of payment in parking areas, adopting a fee policy that discourages the use of the automobile for going to work without discouraging commercial activities in city centers. The paid "blue zone" plans, complemented with the creation of optional public transportation services for city centers, are easily-achieved solutions and should be optimized and complemented with others.

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