

Informal Motorized Transport in Rio de Janeiro, Brazil

**Ronaldo Balassiano and
Richard William Campos Alexandre**

Case study prepared for

Global Report on Human Settlements 2013

Available from <http://www.unhabitat.org/grhs/2013>

Ronaldo Balassiano is an Associate Professor at the Transport Engineering Program - COPPE/UFRJ (Federal University of Rio de Janeiro). Obtained a PhD degree in Transport Engineering from University of Westminster (UK) and Post-Doctorate from UC Berkeley. MSc in Transport Engineering (COPPE/UFRJ) and MSc in Energy and Environmental Planning (COPPE/UFRJ).
Richard William Campos Alexandre is a PhD candidate at the Transport Engineering Program – COPPE/UFRJ (Federal University of Rio de Janeiro). Undergraduate in Administration and MSc in Transport Engineering (COPPE/UFRJ).

Disclaimer: This case study is published as submitted by the consultant, and it has not been edited by the United Nations.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning delimitation of its frontiers or boundaries, or regarding its economic system or degree of development.

The analysis, conclusions and recommendations of the report do not necessarily reflect the views of the United Nations Human Settlements Programme, the Governing Council of the United Nations Human Settlements Programme or its Member States.

Nairobi, 2011

Informal Motorized Transport in Rio de Janeiro, Brazil

Ronaldo Balassiano and Richard William Campos Alexandre

Introduction

With the reduction of import duties in the 1990s, the number of vehicles imported by Brazil increased. Among these were many models not produced at that time by domestic automakers, such as vans with capacity of 10 to 15 passengers. These vans became popular in the city of Rio de Janeiro for informal passenger transport. The first services provided by them were to carry groups to shows, restaurants, sports events or shopping centres, to take students to and from school, etc. The owners of these vans soon saw an opportunity to increase their earnings by offering informal services to compete with those provided by bus companies. This not only provided more options to riders, but also generated jobs for the drivers, most of whom were owner-operators. Indeed, the same economic opening that caused the import duties to decline also sharpened competition in the economy and prompted many companies to downsize. Some of the laid-off workers used their severance benefits to purchase vans (Balassiano, 1996).

Over the past 15 years these services have undergone a series of transformations that in a certain form reflect the problems faced by managers of public transport systems in Rio de Janeiro (both the city and the greater metropolitan region¹) in adjusting mass transit services to the demands characteristic of a large metropolis. Over the same period there has been rapid growth of the fleet of all types of vehicles in the entire country.

The objective of this study is to present a panorama of the informal motorized transportation provided by vans in Rio de Janeiro and how it has evolved over the past decade. Despite the efforts by transport authorities to legalize the vans that meet certain requirements, and to suppress the activities of those not meeting the requirements, in practice the informal segment continues to exist. Even the regularized vans often do not follow the routes and pick-up/drop-off points they are supposed to and in many cases the vehicles are operated by drivers without proper licensing. In general, the drivers concentrate on the parts of the routes with most demand, thus competing with buses. Besides this, some vans circulate in poor maintenance conditions, placing the passengers at risk.

There are other informal means of passenger transport in Rio, such as 'pirate' buses and motorcycle taxis. However, in comparison to the vans, these carry a small number of passengers and are not analyzed in this chapter. Also, in the case of cargo transport, because of the high value of most goods carried, and the taxes charged on them, the control is generally very effective, both by public officials and cargo owners. This makes it very hard to operate informal cargo vehicles, so again these are not analyzed here.

After this introduction, the second section presents a brief history of the operation of vans in Rio de Janeiro. Then the third section describes the trends in the sector, the current situation and the impacts and challenges faced. Finally, the fourth section presents the chapter's main conclusions.

1. The local administrative unit in Brazil is the municipality, which is similar to a county in the United States, except that it is governed by a single mayor and municipal council. There are no unincorporated areas in Brazil. The greater Rio de Janeiro metropolitan region takes in the municipality of Rio de Janeiro and several other outlying ones, each with its own administration, a fact that impedes cooperative efforts to solve metropolitan problems.

Evolution of Informal Passenger Transport in Rio de Janeiro – Brief History

The existence of informal or clandestine passenger transportation services is not new in Brazil. However, in Rio de Janeiro the informal transport situation was quite stable until the mid-1990s. This service was operated over a few specific routes by old buses (normally over 10 years) driven by freelancers without any business organization or operational coordination. The maintenance of these buses was generally precarious. Their number is hard to pin down, but the best estimates are that until the 1990s these buses never amounted to more than 500, corresponding to less than 10 per cent of the fleet of regulated buses in the metropolitan region of Rio de Janeiro. On the other hand their market share was not significant because these buses run only a couple of trips each day. There were also some van services operations during this period as well. Nearly all vehicles were ‘Volkswagen – kombi’ type, plying different routes of both formal and informal buses. Some of these services are now regulated by the government and operate in places where access is difficult, such as narrow streets and *favelas* (slums or shanty towns) (Sant’Anna et al, 2000).

Given the difficulty of expanding the services offered by the so called ‘pirate buses’ (though the fleet did grow in the 1980s), despite the fact that they competed marginally with regular bus lines, they were not systematically suppressed (but they were fertile ground for the police to extract bribes). One major reason for the difficulty of expanding pirate buses was the generally poor maintenance, causing frequent breakdowns, which did not inspire confidence by users either in their safety or timeliness. It can also be mentioned that the regulated bus companies, as the main suppliers of used vehicles to this market, had certain control mechanisms to inhibit the expansion of this service.

In the 1990s this picture changed with the expansion of the van fleet. The reduction of import duties facilitated the appearance of new models that were more modern and comfortable than the workhorse VW Kombis, which had been made in Brazil with only minimal design changes since the late 1950s and had virtually no competition from other domestic automakers. These vehicles, with capacity to carry 10–15 passengers, started to operate first by offering specific services to private groups, as mentioned in the introduction. But around 1995 they started to encroach in the market for conventional transport, taking advantage of the failure of bus companies to renew and expand their fleets and services, enabling them to compete on most bus routes (Balassiano, 1996). The vans largely displaced the pirate buses and increased their market share due to a larger number of daily trips on busy corridors (the estimate at that time was that vans had captured almost 3 to 4 per cent of bus passengers). But soon the vans started to exhibit the same failings as their predecessors, such as the difficulty of maintaining quality standards and controlling costs. For more details on this matter, see Araújo et al (1999).

A more recent measure taken by bus companies (along with metro, suburban trains and ferry operators) that had the effect of discouraging passengers from using vans was the introduction of electronic fare payment cards and the parallel phasing out of paper fare vouchers (‘vale-transporte’). The numbers of vans’ passengers decreased on busy routes but no reliable estimate is known to date. In the past five years these paper vouchers have been phased out and replaced by electronic smart cards. Only regulated vans with agreements to use the clearance system can accept this form of payment now.

There appears to be a specific dynamic in the organizational process of informal transportation, tending to make its operation polarized, dominated by owner-operators in a system that is complex and malleable. To succeed in the largely unregulated battleground of

global competition, providers of goods and services need to meet the desire of consumers to attract them and ward off competitors (Bauman, 1998; Hobsbawn, 2007). The form of organization of informal transport by vans, whether or not in a 'formalized' setting, will be a determining factor for the success of the activity. Although informal, they should have a good knowledge of the market reaction to competition.

'Formalization' of informal passenger transport

The Rio de Janeiro Municipal Transportation Secretary created the first rules on van service in 1996. The aim was to preserve the cartel position of the bus companies by establishing that vans could only be used to carry tourists on sightseeing trips, organized groups to shows, company employees for specific purposes and physically disabled people. The rules further stipulated that only vans operated by companies and independent drivers organized into cooperatives could carry these passengers.

In 1997, the Municipal Transportation Secretary established that vans could carry passengers door to door, as long as they had a contract with users. Vans' informal operation over the routes used by buses started to become consolidated in the main urban connections. The estimate was that around 5,000 vans were operating this service, carrying some 200,000 passengers a day (Balassiano, 1998).

In practice the new rules were inadequate, because they were not backed by any form of regular monitoring of van services. There was no control of regular maintenance and minimum safety levels could not be guaranteed. The failure of transport authorities to take effective action to regulate the new segment and consistently enforce rules, also allowed room for organized criminals to gain a foothold, as discussed later in the case study.

At the state level, the governor elected in 1999 decided to make a major effort to regulate the operation of vans in the metropolitan region. But as had happened in the municipal sphere, the state regulations issued in 2000 were deficient. Besides not clearly defining the routes and fleets that would serve them, there was little definition of the quality of services and the oversight was spotty at best. Perhaps the most important result of these regulations was the obligation for operators to organize in the form of cooperatives with at least 20 members (Balassiano and Braga, 1999).

At the municipal level, further rules were issued in 2001, requiring operators to sign up to operate a set of defined routes, either joined in cooperatives or individually. This attracted some 6,000 operators to sign up. But as had happened in the metropolitan region, little practical change occurred. The most notable was the obligation to tie the authorized vehicles to the routes defined by the government, through the establishment of a standard visual design for vehicles on each route (see Figure 1 below). Unfortunately, without proper monitoring, these rules contributed little to improve the services and reduce conflicts on the road. Around 3,000 vehicles continued the illegal operation.

Bus companies started to expand their operations with mini-buses equipped with air conditioning and charging a higher fare than conventional buses. This fare was also slightly higher than that charged by vans. These services were encouraged and regulated by transport authorities. But the authorities did not have the inclination to regulate informal transport in the way it was operating, where there was direct competition with conventional bus service. Furthermore, bus company owners came to the conclusion that without adequate specific regulation, the van service would tend to deteriorate and lose quality over time. This in fact occurred, but not enough to significantly reduce the problems of competition for passengers.

Figure 1: Standard visual design for vehicles – municipal routes

Volkswagen kombi at a stop



Citroen van



Photo: By authors.

General considerations

In 2005 the state government presented the Master Plan for Transportation in Rio de Janeiro. This plan took four years to develop and, based on a detailed origin-destination survey, presented a diagnosis of the situation and formulated alternatives to rationalize the transport system in the metropolitan region. These alternatives took into account the state's capacity for investment over a ten-year horizon. The study estimated that vans accounted for just over 8 per cent of all trips made in the metropolitan region, including those on foot and by private car, a figure that rose to 18 per cent considering only public transport. The study further highlighted the difficulty of estimating the fleet and number of users precisely, but presented a rough estimate of 1.6 million passenger trips per day by a fleet of around 13,000 vehicles in the entire metropolitan region (Central, 2005).

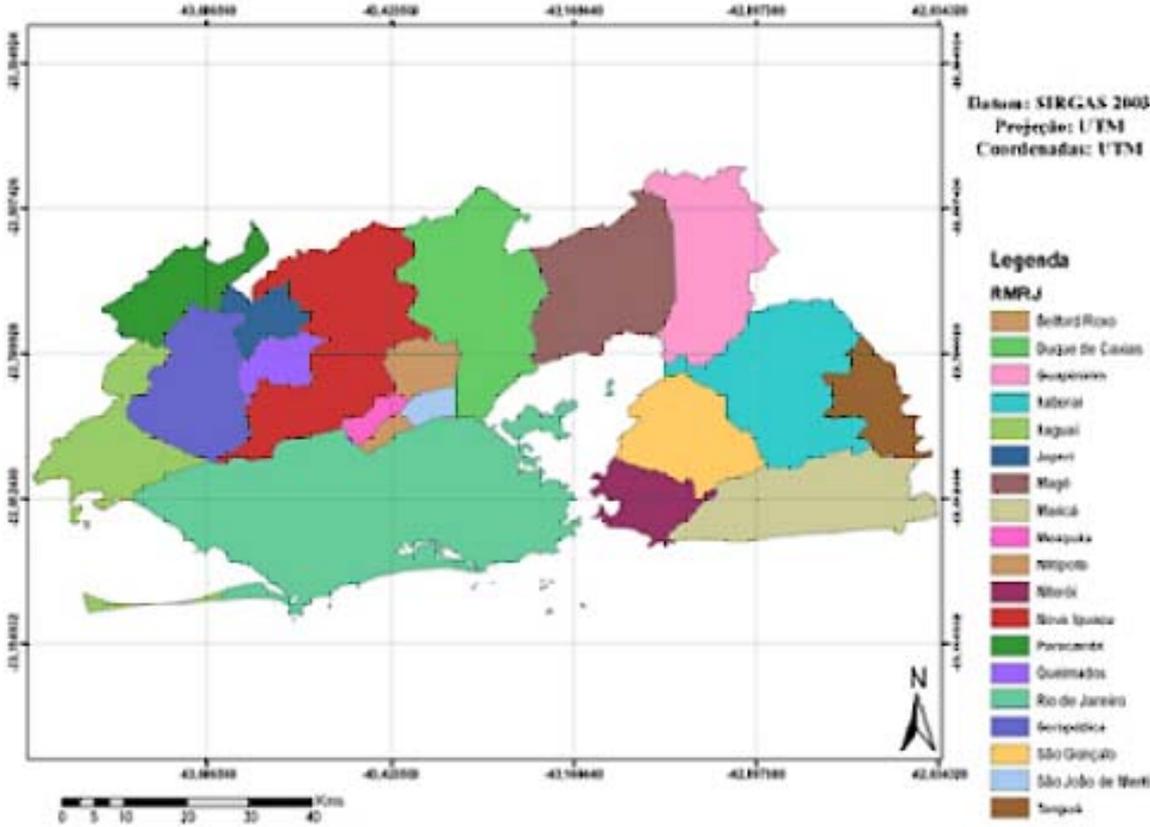
Although different authors have advocated the need for integration of the transport systems as a way to optimize operations and permit more rational control, in practice this has not occurred in Rio de Janeiro (Balassiano, 1998; Cervero, 1998; Cervero 2000; Lindau and Kuhn, 2000). There are many benefits to be gained from rationalization: increased operational efficiency; reduced costs; optimization of the supply of services in relation to demand; increased reliability of the system; reduction in waiting and trip times; lower energy consumption and pollution levels; and attraction of new users to the system. The next section presents a panorama of the current situation, highlighting that over the past decade plus, the van operation scenario has not significantly changed.

Current Stage and Trends of Informal Transportation Services

Substantial investments are being made in Rio de Janeiro to improve transportation infrastructure. The commitments assumed to host the Olympic Games in 2016 and to hold some matches of the FIFA World Cup in 2014 require a major upgrade of the mass transit systems.

In the specific case of informal transport, the regulatory authorities say they want to improve this service and ‘formalize’ it. The systems in operation are being regulated differently in the city and metropolitan regions (see Map 1 of Rio de Janeiro below). As discussed in the above section, in both cases this strategy has not yet made much headway towards greater integration of vans with the regular system. During September 2010 to December 2010, local stakeholders were interviewed as part of a field survey carried out by COPPE (Transport Engineering Program). This survey gathered information to support a PhD thesis examining the potential of integration between van services and the new BRT corridors under construction in Rio, to improve mobility during the FIFA World Cup - 2014 and the Olympic Games – 2016. Some information obtained during this field survey will be mentioned later in this chapter.

Map 2: Metropolitan Region of Rio de Janeiro



Source: Rio de Janeiro State Transport Secretary.

Regulation in the metropolitan region

In 2008 the state government issued new regulations for ‘low-capacity transport’, based on the issuance of permits to individual operators. The regulations covered vehicles operating in the urban areas of the metropolitan region (excluding the city of Rio de Janeiro). These permits are granted for different regions defined in advance and by the specific route. Each operator can only obtain permission to operate one vehicle and the permits can only be delegated to individuals (as opposed to legal entities – cooperatives or companies), through a

Figure 2: Design defined to vans in metropolitan areas – state regulation



Photo: DETRO – Rio de Janeiro State Transport Secretary.

public tender process. The stated principles for issuance and continuing validity of the permits are safety, efficiency, generality, punctuality, regularity, continuity, publicity, on-going modernization, fare moderation and courtesy of service. This complementary service is not allowed to compete with buses and the fare has to be at least 10 per cent higher, as a way to characterize better service quality. The vans must have a capacity of at least 16 passengers and be air conditioned. Both the drivers and the vehicles have to satisfy a set of rules to assure that the driver is properly qualified and the vans meet the safety standards for carrying passengers on public roads. Figure 2 shows the design defined for vans by current state legislation.

As already discussed, in the previous section, despite the efforts to formalize these services, the great majority of vans continue to operate informally, because the rules are not fully obeyed. Under this state regulation, a total of 639 vans have been licensed. However, according to information from the main actors involved in informal transport, the total fleet in operation in the entire state (excluding the city of Rio) is around 3,500, revealing the continuing situation of prevailing informality.

Regulation in the City of Rio de Janeiro

The city authorities started implementing new regulations in 2010. To date vans have been licensed to operate over two routes serving only part of the city's West Zone (the new licensing scheme is expected to be concluded until the end of 2011). Unlike the state government's rules for the metropolitan region, the municipal government requires the formation of cooperatives to operate in each area and route put out to tender. As of this writing, around 200 vehicles have been licensed under this new system. The rules require the vans to operate over determined routes in complementary form to regular lines served by buses and mini-buses, so as to avoid direct competition.

Therefore, besides the roughly 6,000 vans enrolled in 2001, now there are another 200 that have obtained permission to operate within the city limits under the new licensing scheme. But just as in the state sphere, these numbers do not reflect reality. According to interviews conducted with staff of the Municipal Transportation Secretary, bus company managers, van operators and users, along with field survey observations during four months at the main points where vans operate, there are some 11,000 vehicles operating in the city in 2010.

Operation of drug gangs and militias²

A development of particular concern to the authorities is the participation of drug gangs and militias formed by off-duty and former police officers in controlling some van cooperatives (both authorized and unauthorized). The presence of drug traffickers dates from shortly after the outset of the cooperatives, due to the perceived need for muscle in the cutthroat competition in the unregulated van market. The militia involvement began at the end of the 1990s with the hiring of moonlighting policemen to provide security for cooperatives. Besides protecting against robbery of fare money, these policemen helped negotiate the bribes often demanded by inspectors and on-duty policemen at roadblocks set up to suppress illegal transport.

As time passed, some of these policemen identified the operation of vans as a good way to earn extra money while off duty. They began acquiring vans and became operators, especially in communities where militias had driven out the drug gangs and taken over their criminal activities, such as (besides drugs) distribution of cooking gas canisters, provision of clandestine cable TV hook-ups and protection of merchants. This is currently one of the most serious problems faced by the authorities, because the 'owners' of the vans are also associated with the lucrative drug trade. Many vehicles are used to transport drugs and dealers in their travels, making for a tense situation and heightened risk for passengers.

General observations on the current situation

From the above discussion it can be seen that the problems identified previously in operating the van transportation system will not be overcome unless transport authorities take a more comprehensive vision of how to effectively integrate this system with the higher-capacity ones. This is particularly urgent at a moment when new transport corridors are being established and the reorganization of the whole system is imperative.

It is evident from past experience that the authorities have failed in overseeing van services. As a consequence, this is hampering the initiatives undertaken so far to integrate this system so as to ensure improved transport in a chaotic region like Rio de Janeiro. There are various aspects that remain unresolved, among them:

- regulated vans operate only over some segments of the authorized routes, just as informal operators do;
- vans do not obey the stopping points established, again characterizing informal operation;
- fares do not in practice follow the existing regulations;
- poorly maintained vehicles continue operating in the main corridors;
- vans compete with buses in specific areas of the city and metropolitan region, resulting in excess supply; and
- competition for passengers at stops causes conflicts and traffic congestion.

The current fleet of vans operating is slightly larger than that estimated in 2004 by the Transport Master Plan. The fleet stands at about 15,000 vehicles (including licensed and

2. Rio's slum communities are largely controlled by organized gangs of drug traffickers, who also engage in other illegal activities such as protection. In some of these communities, however, militias formed of off-duty and former police officers have forcefully displaced the drug gangs and taken over most or all of their criminal activities. There is currently a major effort underway by the state government (which in Brazil has primary responsibility for public safety), in cooperation with the municipal and federal government (including the military) to establish a permanent legitimate police presence along with public services in slum communities. So far this effort has had some notable successes.

illegal vans), according to field survey observations and interviews. It is estimated that vans currently account for about 5 per cent of the passengers carried by mass transit systems. Other means include: buses, 88 per cent; metro, 3 per cent; suburban trains, 3 per cent and ferry, 1 per cent. Only 45 per cent of the vans passengers are carried by legally 'formalized' vans. To a certain extent there is a captive market for van services, because many commuters prefer the greater comfort and speed of vans (unlike buses, once full for rush-hour commutes they do not have to stop to take on new passengers at every stop). This is particularly true in places where access is difficult or where bus service is deficient.

Many authors have discussed the advantages and disadvantages of informal transport in various cities of the world. Among the advantages are the provision of low-cost transport in specific areas and the generation of jobs and income for a significant portion of workers unable to find equal paying jobs in the formal labor market. The disadvantages include air and noise pollution, more traffic congestion, dangerous driving, traffic conflicts and poor maintenance, among others (Cervero and Golub, 2007; Golub et al, 2009). As shown, despite the particularities of Rio de Janeiro, the same pros and cons are present here as elsewhere. Some vans serve areas not well served by regular public transport (such as slums, as previously mentioned) and in a couple of routes those services contribute to improve mobility for the poor. In the case of the city of Rio de Janeiro, the estimate is that 9,000 vans (including licensed and illegal vans) provide around 15,000 jobs while the same number of regular buses (including minibus services) provides 35,000 jobs. Despite the problems identified in van services operations, the number of jobs provided to a specific segment of the population is significant. Based on the interviews conducted, the history of informal transport in Rio de Janeiro and the perspectives for structural changes in the mass transit system in the next five years, the next section analyzes the specific outlook for the van segment's role in the overall system.

Challenges to be faced – Prospective scenario

In light of the situation of informal passenger transportation in Rio de Janeiro depicted in the preceding sections, it was important to consult the main actors involved in providing these services, as already touched on. To do this, unstructured interviews were conducted with the aim of establishing a general panorama of the present situation and to build a desired scenario. The information obtained from different stakeholders brought evidences of the current instability within the informal transport market.

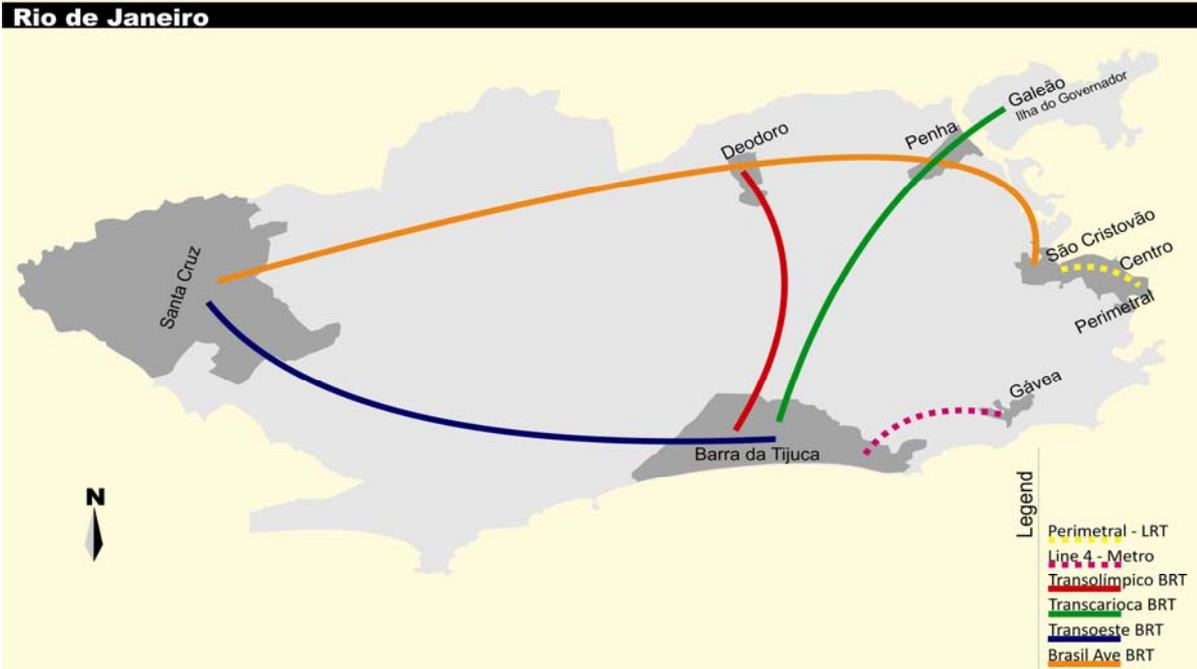
Two main aspects influenced the structuring of the scenario according to most people interviewed: the holding of several matches of the 2014 FIFA World Cup in Rio de Janeiro and the city's hosting of the Olympic Games in 2016. These two events have required a commitment from all levels of government as well as private enterprise to make significant investments in infrastructure, including the improvement of mass transit systems. This will be also an opportunity for Brazil to showcase itself as a modern, prosperous society. Trying to control and regulate illicit van operations is likely tied to this bigger political agenda. It is also expected to engender a high level of participation from different socio-economic parts of society, thus influencing the structure of a desired future scenario for the transport sector.

In the specific case of urban transit, various projects are in the final structuring phase and others are already being implemented. These new projects include four bus rapid transit (BRT) corridors (three of them operating entirely in the West Zone), plus a new subway line connecting the South and West Zones and two light rail transit (LRT) lines operating in the downtown area, in the port district, which will be revitalized, as has occurred in other cities

that have hosted the Olympics. Map 2 shows a schematic presentation of the new public transport infrastructure that will be built up to 2016.

With respect to van services, there are proposals under way to regulate these services more effectively. According to some actors interviewed, there is good potential in this system that can be exploited, especially in the area of integration, using van routes as feeder lines to increase the capillarity of regular bus and rail lines in the city, with positive reflections in the entire metropolitan region. Some experts assume that van services can respond to almost 15

Map 2: Schematic presentation of the new transport infrastructure



Source: Elaborated by the authors .

per cent of the demand for public transport. The likelihood of success for this estimate assumes that political decisions expressed by the federal and local governments to improve public transport will prevail in the case of Rio.

A desired scenario ‘Golden Medal’ is described below, based on the perspective to improve the collective transportation system and on the interviews conducted. Actions needed and main barriers are also detailed.

Gold Medal Scenario

There is political desire of the federal government to show case Rio de Janeiro as an example of a city that can provide high quality public transport. This will be imperative when having foreign tourists visiting the city during the FIFA World Cup and the Olympic Games. One of the main hindrances to be overcome is the capacity of local authorities to keep oversight of public transport under control. This also means that investment in specialized training for those involved with traffic control and transport systems management will be necessary. Law enforcement is another aspect to be carefully considered by transport authorities.

- **General characterization of the desired scenario:** In this scenario there will be effective and sufficient oversight, increasing the probability of operation without predatory competition between vans and buses. The van fleet will consist mainly of well-maintained vehicles. There will be a strategy to integrate all the transport systems, including vans, based on recognition by public officials of the potential of vans to improve the operation of the overall network. The fares will be integrated with a single ticket with a defined cost for each trip, valid for payment on conventional buses, BRT and LRT lines, suburban trains, metro and ferries. The use of this ticket will streamline boarding and alighting and facilitate payment by passengers who need to use more than one means of transport in their commutes. A new institutional model will induce the municipal and state governments to work in integrated and coherent form to regulate and monitor the various transport modes. This will make it easier to integrate the operation of these modes with a unified set of rules for vans. In this scenario specific integration terminals will be built, offering services, commerce and passenger support, as part of the new mass transit structure. These terminals will provide essential connections between different transport modes and help reduce travel times.
- **What needs to be done:** To achieve this scenario, transport authorities must consider long run strategies. Municipal and state planners have to work based on uniform policies, having in mind that the transport network should operate in an integrated manner. A strategy to oversee the whole system must be developed. Predatory competition between buses and vans must be avoided. Vans must be a safe alternative to travel. Terminals should be designed to bring comfort to users and to facilitate integration among all transport modes. Environment impacts generated by transport systems (mainly air and noise pollution) have to be reduced based on long run strategies incorporating pre-determined emission levels targets. Good information to all users regarding public transport alternatives must be easily available. In parallel, the quality of public transport must be improved. Higher capacity transport systems have to operate based on a trunk-feeder scheme where vans are integrated and running good quality services.
- **Main barriers:** The political pressure to implement short run projects can jeopardize the need to carefully plan the transport network. Users must be convinced that trips with integration can be an acceptable option resulting in travel time reductions and increased comfort. The difficulty to oversee the transport network could be a problem. The low investment capacity of the municipality to implement high quality transport services is a further barrier.

Conclusions

The analysis carried out in this study highlights the problems imposed on the market by the operation of informal transport systems in unregulated competition with conventional systems. The enforcement of regulations by local transport authorities did not succeed. Thus, informal operators found market niches to operate and compete with regular transport. This fact is not unique to developing countries. However, there is evidence that in well-structured markets where conventional systems operate under minimum quality standards and exercise political influence over regulatory agencies, it is harder for informal systems to remain in the market. On the other hand, if the regular bus system is not properly structured to assure efficiency and quality of service, informal systems can attract a considerable number of riders looking for alternatives better suited to their commuting needs.

Passenger transport by vans in Rio de Janeiro, which was more competitive ten years ago, is currently showing signs of weakness on some routes because of recent changes imposed on

conventional systems. Formal transport must deliver good quality services during the games (2014–2016). There is pressure from authorities to renew fleets, increase the system capacity and improve planning and operation on the road. On the other hand, the establishment of a regulated environment for these van services does not necessarily mean successful operation. While at first the process of regulation brings them into the formal system, providing a degree of legal security, the imposition of strict rules combined with the new costs incurred to provide the service reduces the possibility of operating profitably and diminishes operational flexibility (Cervero, 1998).

In the specific case of Rio de Janeiro, the government regulatory bodies still do not carry out sufficiently comprehensive strategic planning or oversight to assure accurate numbers and a grasp of the implications of the modal split. In light of the concerns over the safety of passengers and drivers, there is also a need for better control of aspects related to the operational efficiency of vans, especially proper maintenance.

The information obtained from the interviews with transport authorities, users and operators of buses and vans, as well as other actors, demonstrate that the current situation of informal transport is unstable. The current stage of restructuring the passenger transport system with the implementation of new BRT systems presents an opportunity to effectively integrate vans with buses and other higher-capacity modes. The main problems identified, especially those related to regulation enforcement and transport network oversight, must be overcome. Political decisions together with coherent administration from transport authorities should contribute to improve service levels.

References

- Araújo, A.M., C.A. Bandeira and R. Balassiano (1999) 'Sistemas de transportes de baixa capacidade: Custos percebidos pelo operador' in XIII Congresso Nacional da ANPET, novembro 1999, São Carlos
- Balassiano, R. (1996) 'Transporte por vans - O Que considerar no processo de pegulamentação?', *Transportes* 4 (1 e 2): 87–105
- Balassiano, R. (1998) 'Planejamento estratégico de transportes considerando sistemas de média e baixa capacidade', in *Transporte em Transformação II, Chapter 9*, Makron Books, São Paulo
- Balassiano, R. and M.G.C. Braga (1999) 'Buses and vans – Assessing public transport competition in Rio de Janeiro – Brazil', Sixth International Conference on Competition and Ownership in Public Land Transport, September 1999, Cape Town
- Bauman, R.J (1998) *Globalização: As Conseqüências Humanas*, Jorge Zahar Editor, Rio de Janeiro
- Central (2005) 'Plano diretor de transporte urbano da região Metropolitana do Rio de Janeiro', Relatório Síntese, Companhia Estadual de Transporte e Logística, Rio de Janeiro
- Cervero, R. (1998) *The Transit Metropolis*, Island Press, Washington, DC
- Cervero, R. (2000) 'Informal transport: Mobility options for the developing world', Report prepared for the United Nations Commission on Human Settlements (Habitat), Nairobi
- Cervero, R and A. Golub (2007) 'Informal transport: A global perspective', *Transport Policy* 14 (6): 445–457
- Golub, A., R. Balassiano, A. Araújo and E. Ferreira (2009) 'Regulation of the informal transport sector in Rio de Janeiro, Brazil: Welfare impacts and policy analysis', *Transportation* 36 (5): 601–616
- Hobsbawm, E. (2007) *Globalização, Democracia e Terrorismo*, Companhia das Letras, São Paulo

- Lindau, L.A. and F. Kuhn (2000) 'Sistemas prioritários para onibus: Tendências decorrentes da prática européia no limiar do século XXI', *Revista dos Transportes Públicos* **22** (2): 81–90
- Sant'Anna, R.M. and R. Balassiano (2000) 'Organização funcional do transporte alternativo: Evolução e possíveis cenários futuros', *Engenharia de Tráfego e Transportes 2000: Avanços para uma Era de Mudanças*, XI Congresso Panamericano de Engenharia de Trânsito e Transporte, November 2000, Gramado, pp.415–428