

## **SP 2007-04 - ABSTRACT**

### **EVALUATION OF RECENT TRANSPORT SUSTAINABILITY POLICIES IN BRAZIL**

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#### **PURPOSE**

The purpose of this study was to analyze and summarize the background to three main policies on urban transport implemented in Brazil – public transport regulation (and BRT construction), vehicle emission control and traffic safety - by seeking out both their virtues and their limitations. These topics were chosen because they are major issues besetting developing countries and also due to the importance of Brazil as a special case – given its size and socioeconomic characteristics. The study encompassed the period extending from 1960 to 2008<sup>1</sup>.

#### **MAIN FINDINGS**

##### **PUBLIC TRANSPORT REGULATION AND BRT CONSTRUCTION**

Public transport regulation in Brazil has led to the creation of a broad and dynamic corporate sector, which began to adopt advanced management procedures and operational organization. Encouraged by a considerable urban population growth combined with the growth of the Brazilian bus industry, the sector responded adequately to an increasingly high demand. In practice, medium and large Brazilian cities began to rely on services offered through the support of extensive space and time coverage, of high and medium reliability and delivered by vehicles with reasonable quality for a developing country. However, the regulation policies, as well as the characteristics of demand and the weakness of the state, have led to huge ownership concentration, with many companies owning more than 1,000 buses and a few companies owning 10,000 buses out of the 120,000 buses used throughout system. These conditions also allowed the emergence of geographical monopolies protected by long-term contracts with clauses that ensure economic and financial balance. Conditions also allowed the lowering of service levels in peripheral areas.

Except for Curitiba, no other Brazilian city managed to organize and operate a broad and integrated rapid bus corridor system. In the other cities – São Paulo, Belo Horizonte, Goiânia, Recife, Fortaleza, Campinas and Manaus – the integrated network was limited and productivity low. During the oil crisis period (1970s and 1980s) several bus corridors were built. In the following period, implementation decreased. Given the size of major Brazilian cities and the demand for public transport passengers, the end result was mediocre: By 2007 the existing bus corridors in Brazil amounted to no more than 3% of the road system and most of the corridors did not carry even 200,000 passengers per day. Some factors may account for these poor results.

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The first can be explained by the Brazilian Federal Government's withdrawal from the urban public transport arena, spurred by the 1988 Constitution. The extinction of federal agencies in charge of transport issues seem to have affected the cities lacking in financial resources, which had to grapple with many difficulties in setting up projects on their own.

A second reason is related to the Brazilian model of public transport regulation. If, on the one hand, the rules enabled professional services to be rendered, on the other hand bus companies in large cities were afforded the legal grounds to resist changes in their operating conditions. This resilience appears to have been one of the most important barriers to the integration of systems and implementation of rapid bus corridors. When faced with the uncertainties brought about by changes in operation, profitability and market share, entrepreneurs made many projects impracticable.

Third, the policies supporting automobile use continuously enacted between 1960 and 2008 and accompanied by inadequate bus transportation increasingly helped to undermine the image of public transportation in Brazil. Additionally, given the growing number of automobiles in Brazilian cities, bus priority was seen as an obstacle to traffic flow, resulting in the risk of political clashes with a middle class increasingly influential in the decisions of the country's public policies.

Considering these facts and the downward trend in the use of public transport and increased use of private transport (cars and motorcycles), we can say that the days of rapid bus corridors in Brazil, following the climax with the Curitiba experience (and a few isolated cases of good quality corridors in other Brazilian cities) are numbered. And the prospect of new major projects is shrinking.

#### **VEHICLE EMISSION CONTROL**

The policy to reduce vehicle emissions in Brazil by means of technological changes made to vehicles started in 1986 (PROCONVE program) and achieved its objectives insofar as light vehicles are concerned. Today, these vehicles roll off the assembly line producing very low emission levels, similarly to those of European countries and the USA. Since the previous fleet was highly polluting, the "average" vehicle plying Brazilian roads still emits high amounts of pollutants by comparison (although well below those of decades ago), but this will be greatly reduced within the next ten years.

With regard to heavy vehicles, the distance between the goals and achievements to date is higher and in only one decade the country will be able to achieve the desired levels. As regards motorcycles, since their specific purpose program (PROMOT) only came into force in 2003, the results are still modest. Despite the advances, there will still be serious problems ahead in terms of NOx emissions in Brazil (linked to the use of diesel) and the formation of ozone in large cities. Diesel use also implies high yields of particulate matter, which will only decline substantially when the sulphur content in diesel fuel is significantly reduced.

Concerning greenhouse gas emissions, Brazil found in ethanol a means to drastically reduce CO<sub>2</sub>, given the fact that its full production and use cycle is "neutral" in terms of carbon (sugarcane growth absorbs CO<sub>2</sub>). Since few tracts of land are currently occupied by sugarcane crops, one can envisage that there will be sufficient space for the ethanol production required by the "flex-fuel" fleet likely to dominate Brazil in the next 20 years. The prospect remains, however, of high CO<sub>2</sub> emissions through the use of gasoline (in the next ten years) and diesel (indefinitely).

Unlike the PROCONVE program, discussions about vehicle inspection have been characterized by serious clashes of competence, especially between the Federal and state authorities and no comprehensive inspections were initiated.

Two factors appear to have been decisive for the success of this policy. Firstly, the environmental theme

lost its "problem" status and acquired the status of "issue", thus mobilizing government, society and private sector similarly to what had already been taking place for some time in industrialized countries. In fact, this phenomenon unfolded swiftly in Brazil, unlike other topics addressed in this study i.e. traffic safety, which has remained strongly attached to the ideas of "inevitable price of progress" and "fatality". Secondly, acceptance by multinational automotive industries – even if reluctant at first – has proved crucial. Arguably, this compliance may have been due to their vision of Brazil as an important car exports hub and the understanding that the country should therefore follow global emission trends.

### **TRAFFIC SAFETY**

The 1997 Traffic Code introduced important changes related to safety, such as driving under probation, lower limits for blood alcohol levels, higher fines and the possibility of having the drivers' license temporarily suspended. After its promulgation an important reduction in the number of traffic deaths has occurred, as well as a decrease in the mortality rate. Several reasons can be pointed out to explain such phenomenon.

Formerly, the traffic municipalisation. Until the end of 2005 there were already 717 towns that formally acceded to exert control over their local traffic (replacing state authorities). They totalled 62% of the country's population and 76% of the national fleet of vehicles. Municipalisation increased the availability of human resources (traffic engineers and local traffic police) and material resources, namely vehicles, signalling and speed control equipment, and the majority used to offer traffic education programs for a wide variety of learners. It is noteworthy that in three major Brazilian cities – São Paulo, Belo Horizonte and Porto Alegre – there has been a continuous decrease in traffic accidents.

However, it has been verified that after the first years, the number of deaths has increased again (from 17 per 100 thousand inhabitants to nearly 20 per 100 thousand inhabitants). They appear to be related to both the relaxing of traffic enforcement and the exponential increase in motorcycle fleet, encouraged by federal authorities in face of their supposed role in providing a better transport means to low-income people. In the near future, the expected expansion of both automobile and motorcycle fleets may place extra challenges to maintain the positive benefits brought about by the new 1997 Traffic Code.

### **CONCLUSION**

When the three policies are compared it seems clear that Brazil treated in different ways the transport-related consequences of its fast urbanization and motorization processes. The bus prioritizing policy had its good moments in the 70's – fueled by the energy crisis – but eventually failed to confront the competition of the automobile, in face of the disempowerment of public transport users and the increasing economic and political interests backing the automobile industry. The policy on vehicle emission control for automobiles was the most successful one, benefited by the new status of the environmental problem as a "social question" and the interest of the multinational industries in having Brazil as an export-base for compact vehicles. However, increasing car, motorcycle and truck fleets will keep the air quality problem at the top of the list. The road safety policy was irregular and flawed as in all developing countries – weakened by the concept of "inevitable price of progress" – but appears to have gained new strength with the approval of the new traffic code in 1998, despite the irresponsible release of motorcycle use lessened the positive results on road traffic mortality.