



ARTICLE FROM THE BOOK:

**Cyclists & Cycling Around the World – Creating Liveable and Bikeable Cities**

Edited by Juan Carlos Dextre, Mike Hughes & Lotte Bech

Published by Fondo Editorial, Pontificia Universidad Católica del Perú, 2013

ISBN: 978-612-4146-55-8

## Quality of Life and Bicycles - How Curitiba has become one of the world's most liveable cities

By Fábio Duarte, professor at the Pontifícia Universidade Católica do Paraná, in Curitiba, Brazil

### Some data: urbanisation and quality of life

Latin American cities are one of the best places to enquire about the relationship between quality of life and urban spaces, as 82% of the population live in cities. South America has an urban population of 83%, the same rate as North America, and exceeds Europe, with 73%. East Asia, with highly urbanised cities such as Tokyo and Hong Kong, had only reached an urban population of 50% in 2010 (UN, 2011). However, more than the final rate, it is the rapid urbanisation that challenges the quality of life in the cities.

Measuring the quality of life in this context is a huge challenge. Direct and causal relations between family and per capita income and quality of life have been investigated by other methods, which include more flexible concepts, such as happiness – even though happiness may vary enormously from culture to culture (Graham, 2008).

Gallup Institute (Gallup, 2007) has shown that after urban insecurity, the presence of gangs and the quality of public transportation are the most important criteria influencing the degree of satisfaction with the city. On a global scale, after Sub-Saharan Africa, it is in Latin America, with 41%, where most people are dissatisfied with public transportation.

While the quality of public transportation is unsatisfactory, private motorisation increases. The Clean Air Institute (2011, item 4) argues that “it is possible that some Latin American countries may reach [the US] level of car ownership at the current projected rate of increase”. By 2030, the annual growth rate of car ownership in Argentina, Brazil, Chile, Dominican

Republic and Ecuador will exceed 3% (Dargay; Gately; Sommer, 2007), doubling the annual population growth rate, which has been 1.2% for the last decade, (UN, 2011).

The increase of motorisation has short- (deaths and injuries, stress) and long-term effects (pollution, respiratory diseases), which are negative for the collective quality of life. A coherent public policy should stimulate the use of public transportation and, most importantly, non-motorised vehicles, such as bicycles.

In order to understand the links between urban mobility, the use of public space, and quality of life, the city of Curitiba, in the south of Brazil, may be a good example. The city has gambled on creating a vast bicycle network in order to improve the quality of life of its population. It started this ongoing approach in the 1980s, when most of South American cities had virtually no concern with bicycles. In this chapter, I would like to show you how innovative this approach was. Despite some big challenges the city is still keen on embracing bicycles again as an important transport mode, both technically and politically - it is still a good case study for Latin American cities.

### **Buses, pedestrians and bicycles: towards a friendly urban mobility**

In the 1970s, Curitiba decided to face the mess of uncontrolled bus operators who were the only alternative to increasing private motorisation. The basic idea was to structure urban growth along mass transportation axes; and the highest population densities would be allowed only along these axes. The logic was putting people where transportation infrastructure is. After several studies, the municipality has chosen to use buses as the modal for mass transportation.

Bus corridors and dedicated lanes, trunk-and-feeder network of bus lines, integrated fares for the different lines, physical integration at terminals, and pre-paid fares to speed the boarding procedures became what is now known as BRT – bus rapid transit. This system has been adapted and implemented in different cities around the world. In the beginning of 2000, Bogotá, a major Latin American city, brought many innovations to this system and showed that BRT can carry as many passengers as a light rail system. Transmilenio, Bogotá's BRT, has become the new benchmark, and in recent years Curitiba has adapted some of its innovations.

Nevertheless, there is one aspect of Curitiba's BRT that remains remarkable: how to keep the pedestrian scale even along mass transportation corridors, and even when it carries more than 2 million passengers per day.

# PLANO DIRETOR CICLOVIÁRIO DE CURITIBA

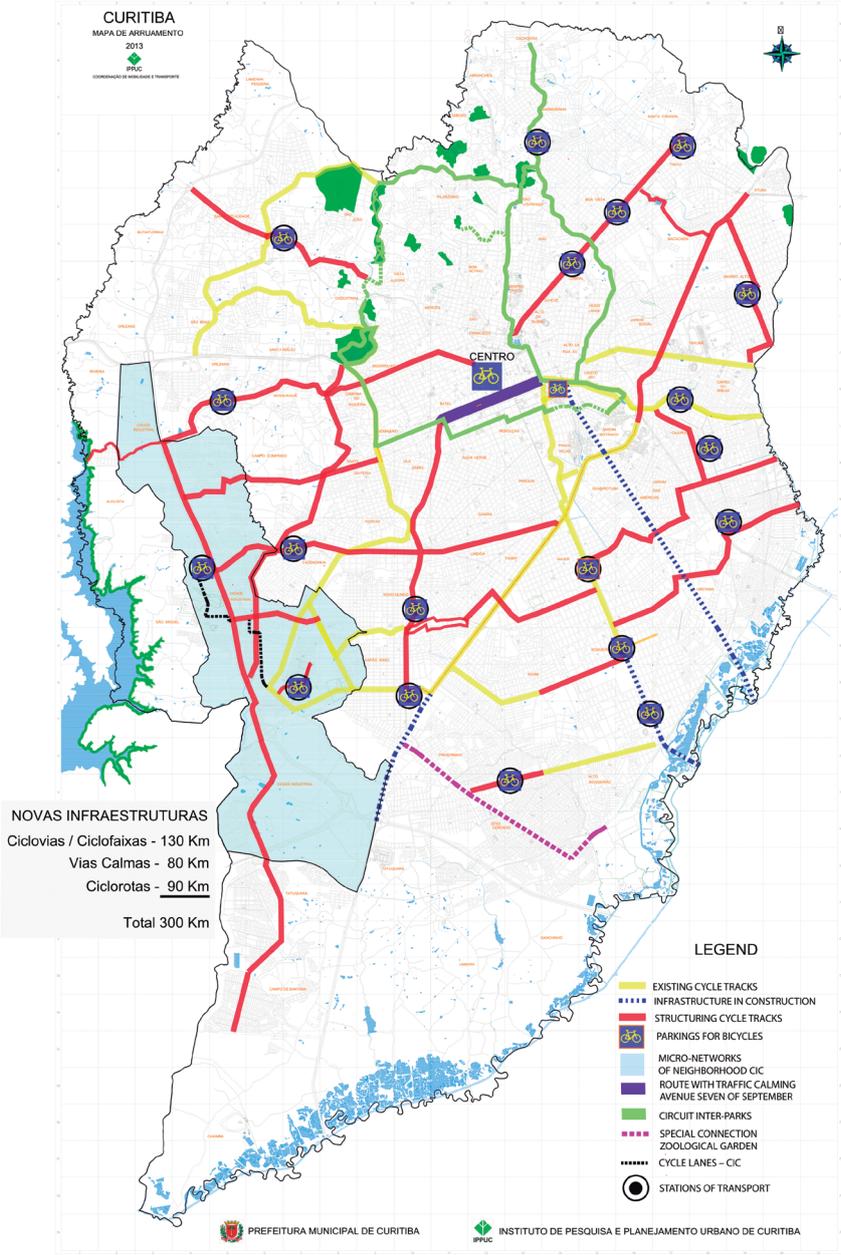


Figure 1: Bicycle network map. Source: JPPUC 2013

Instead of putting BRT in the middle of wide avenues, where all traffic – buses and fast car lanes – are bundled together, Curitiba has decided to split the traffic in three different roads. The peripheral roads, with three traffic lanes and no parking, are for fast traffic (up to 60km/h), with semaphoric crossings each 100 meters to 150 meters apart. The central road is divided into three parts: in the centre are the two BRT lanes, one in each direction – sometimes a third lane only for overtaking buses; this central corridor is flanked, in each direction, by a narrow walking passage, a parking lane, and one or two slow traffic lanes.

This scheme keeps the pedestrian scale. When crossing the corridor, pedestrians feel more comfortable with the slow traffic and know there is a walking passage to guarantee their safety before crossing the other segment.

Along all BRT axes a special land use zoning enforces the presence of commercial and service businesses in the basement of residential buildings. This compulsory mixed use environment keeps the street alive all day long.

In the 1980s, Curitiba started another range of improvements towards friendly urban mobility. The city created the first bicycle path in the country, in a workers' neighbourhood. Today, the city has the longest bicycle network in the country, with more than 100 kilometers of bike lanes and bike paths and another 200 km have been planned to be added as shown in figure 1.

In this chapter I would like to highlight some qualitative aspects of this network. In the 1980s, when Curitiba started the implementation of its bicycle network, the very idea of considering a bike as a vehicle was a bit awkward. The first bike paths in Curitiba shared the sidewalk space with pedestrians. This model is still used in some bike paths under construction. But in the 1980s and 1990s the city was trying to find some alternative models to expand its bicycle network. And here comes a clever idea: if bikes are more flexible than motorised vehicles, why should its planning always follow the road pattern? The municipality then found two forgotten urban spaces: free areas along railroads and along urban rivers.

In Brazil, railroads are under federal administration. For safety reasons, along the railroads, a 10 - 30-meter wide strip must be left unoccupied. Historically an important center for rail transportation in the south of the country, Curitiba still has more than 30 kilometers of railroads crossing some densely urbanised areas.



**Figures 2 and 3:** The municipality is remodeling its BRT corridors, and is implementing bike lanes along some of them, and installing bike racks near by the so called tube stations.



If, on the one hand, all the land along the railroads must be kept unoccupied for safety reasons, on the other hand, this area remains as an empty space in the very core of the city. The municipality decided to use this unoccupied area to build bicycle paths, which reach some cities in the metropolitan area.



**Figure 4 and 5:** In the 1980s Curitiba launched its bike routes project. Today the bike routes network has 120km. In its first phase, the municipality implemented the bike paths in areas with no other possible use, for example, as along the railways.



**Figures 6 and 7:** In the 1980s the city implemented its most used bike paths network along urban rivers, linking the municipal parks.



Also in the 1980s and 1990s, the city started creating several parks. Known as a rainy and cold city (by Brazilian weather standards), Curitiba did not have many public spaces and only one central park. The municipality then started creating parks, from a botanical garden to thematic parks dedicated to the major immigrant population which formed the ethnic background of the city, such as the Polish and the Ukrainian parks. More than a leisure facility, all these parks have as a primary function to control floods, in areas commonly affected by the flooding of the dozens of rivers which crisscross the city. During some decades, as in different parts of the country, the public administration decided to channel and to pave these rivers.

In this context two clever ideas were put in place. Firstly, almost as a symbolic gesture that this approach to the urban rivers ought to change, some parts of Curitiba's main river, called Belém, were kept open and a bike path was built along it.

This bike path links some of the main parks of the city. The underlying logic of it is that, as most of these parks were created to control floods, rivers should be considered part of the urban structure. The municipality built some other bike paths even over canalised rivers; and created a bicycle network linking the recently built parks. With this approach, the municipality tried to create a friendly city, where a family could bike together to visit the parks using a safe bicycle network.

## Contemporary challenges and general considerations

The first decade of this century must be seen as a dark period for bicycles in Curitiba: an abandoned bicycle network, virtually no new bikes path created, no general bike plan issued. Over the same period, Curitiba became the most motorised city in the country, with almost one vehicle for every two inhabitants. Something had to be done. And it was.

Different groups of users started pressing society to see the bicycle as a valuable form of transport, and pressed the municipality to reconsider the bicycle in its General Plan, issued in 2004. Under such social pressure, some new projects have been implemented. The first of them was the creation of a cycling circuit in the downtown area; the problem is that it was opened only on Sundays, and leads to nowhere – despite the presence of many cultural facilities nearby. Symbolic of the poor quality of this project, the new municipal administration abandoned it in the beginning of its term, in 2013. The second is the implementation of the first bike lane along the BRT corridor and bike racks in almost every bus terminal, in order to facilitate the integration between buses and bikes, and improve the quality of public transportation. By the end of 2012, the city implemented a bike share system, which has been discontinued 6 months later for a broad revision. And for the first metro line, in the project stage, all stations will have a bike park.

In 2013, a new municipal government took place. In his inauguration day, the new Mayor rode on bicycle to the City Hall. Nine months later, the Municipality presented the main guidelines of its plans to enhance the modal partition of bicycles in the city.



**Figures 8 and 9:** The bike share system



In four years, around 40 million dollars should be invested in bicycle infrastructure in the city, for remodeling the exist 100km of bike paths, and add other 200km; implementing bike parks in all bus terminals, and bike racks in all parks; and implementing micro bike networks in the industrial district. (The proposed bike network, see Appendix)

It is true that the example of Curitiba, a city with 1.8 million inhabitants, is atypical by Latin American standards. In Brazil, only 6% of the cities are over 100,000 inhabitants; and 4% in Argentina and Bolivia, according to the respective governments. However, if a city of 1.8 million inhabitants has done it, a smaller city also can do it.

**Fábio Duarte**

duarte.fabio@pucpr.br

**Photo credit**

The pictures are the authors, 2012 except where it is stated otherwise