

## Lessons from *Ecobici* for the Implementation of Public Bicycle Systems in Mexico

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- Mobility in Mexico City is the most important urban and environmental challenge today. Traffic congestion and poor air quality are symptoms of an ineffectively planned city with an inefficient public transport system. The solution requires a comprehensive visualization of a coherent public policy package and coordination between local and federal authorities.
- In order to tackle this problem, indispensable solutions such as extending the subway system, known as the Metro, and the construction of Bus Transit Rapid (BTR) lines or new train systems have been contemplated. However, the transformation of urban mobility also requires rethinking public space in order to make it more pedestrian- and cyclist-friendly.
- The transformation of the Mexico City transport model—which serves a large number of users, and suffers not only from poor planning, but is also lacking economic resources, has low fares and engages in practices of clientelism—will necessarily be a long-term process.
- The creation of *Ecobici* (Eco-bike) is one of the pieces in the puzzle of transforming urban mobility in the city and represented significant technical, implementation, political and cultural challenges. The system was conceived as a complement to public transport that would provide a practical solution. Today, *Ecobici*, after going through a complex planning and management process, has been embraced as a successful mobility alternative.

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## The First Decisions

In 2007, the head of the Federal District administration introduced a Green Plan for Mexico City. Intended to be a long-term project, it incorporated seven thematic linchpins: habitability and public space, air quality, waste management, comprehensive water management, climate change, energy, soil conservation and mobility. The latter included objectives aimed at improving mobility and air quality in the city. To address both issues, it was necessary to create a bicycle mobility strategy for Mexico City, comprised of different public policies, which in coordination would encourage the use of the bicycle as a form of alternative transport. The use of the bicycle would ultimately have positive impacts on the reduction of greenhouse gases, which would also help the city to reach its Climate Action Plan goals.

Opening a space for bicycles in a megacity like Mexico City was a complicated process requiring the construction of social consensus, which would on the one hand endorse the decision, and on the other, win over the first users of an alternative that formerly was only used by a small number of urban cyclists.

A program called *Muévete en Bici* (Move on a Bike) was the first action implemented as a way of sensitizing society regarding the use of the bicycle. This program consists of closing Reforma Avenue from Lieja Street to the Historic Center (10 km) on Sundays from 8:00 am to 2:00 pm for the exclusive use of pedestrians, cyclists and people using other non-motorized transport.

It was no coincidence that Reforma Avenue was chosen for this program, thus giving cyclists and pedestrians the opportunity to take back and democratize the streets for a few hours. It was a decision taken in order to send the community the message that public spaces, including the streets, belong to everybody. The program demonstrated that city streets can have multiple uses, and one of them is cycling as a means of fast and safe transport. Despite logistical and communication challenges, the program was inaugurated on May 13, 2007, just six months after the new administration took office.

The *Muévete en Bici* Program was inspired by two similar programs: *Ciclovía Recreativa* (Recreational Bicycling) in Bogotá, Colombia, and *Paseo de Todos* (An Outing for All) in Guadalajara, Jalisco State, Mexico. It now mobilizes more than one thousand civil servants: policemen, emergency services, institutions promoting sports and culture. The weekly street closures now cover 48 kilometers. This program paved the way for the public bicycle system to be established in the same area later on.

Many changes are necessary to promote greater cycling in cities: from the construction of bicycle lanes, signage and traffic lights for cyclists, to the amendment of traffic regulations and the implementation of a public bicycle system. The decision to implement a public bicycle system in Mexico City was strategic. Paradoxically, the idea was not initially recommended by local mobility experts or urban cyclist groups.

In both cases and for different reasons, the construction of bicycle lanes was recommended to the Mexico City government. At the beginning of the administration, consulting firms, such as the Institute for Transport and Development Policy (ITDP), presented a proposal for a bicycle lane network master plan, which included 600 kilometers of bicycle lanes in the city. The construction of bicycle lanes was the way in which other international cities in the world were able to increase bicycle use. The replication of this model in Mexico City was an initiative taken up by the local government and presented publicly together with the ITDP. The mobility and transport-consulting firms present in Mexico City, however, had no experience in public bicycle systems, and far less in megacities.

Furthermore, for over a decade groups of urban cyclists had been demanding that the city government not only create a cycling infrastructure, but also provide safety measures for urban cyclists. For these groups, it was top priority to have separate lanes for safer cycling. They thus concentrated their proposals on the creation of bicycle lanes, regulations, and the development of a new street culture that would include bicycles as a form of transport.

However, the significant investment needed to create designated bicycle lanes required a massive user base



that did not exist at the time. How could those users be generated? Do bicycle lanes per se generate users? Do the distances traveled in Mexico City allow for the use of private bicycles on a massive scale? The answers to these questions were far from simple and *Ecobici* was designed to be part of the solution to expand the use of bicycles in the city. The creation of a system that would address a stretch of the journey in areas of the city with a high transport demand was the way to transform bicycling as an option for a minority into an option for the masses.

Institutionally, the Department of Transportation and Thoroughfares (SETRAVI by its acronym in Spanish) should have been in charge of developing a new transportation program. However, during that time SETRAVI, now called SEMOVI was planning a series of ambitious transportation projects for the city: several BRT lines, Metro line 12, zero emissions corridors, and the replacement of taxis and minibuses, among other projects. Having coordinated the implementation of *Muévete en Bici* and having integrated the city's Green Plan, the Department of the Environment was given the task to develop the first public bicycle system in Latin America.

The creation of the system would prove to be an interesting challenge in terms of public policy, financing and communication.

### The Challenge of Creating *Ecobici*

Creating a public bicycle transport system in one of the largest megacities in the world involved a two-year process of meticulous planning (2008-2010) which included the following aspects:

- Budget allocation. The city had a budget of 75 million pesos to get the system going. However, it was necessary to ensure a sustainable source of funding to be able to maintain the system in the medium- and long-term.
- Selection of the area in which to set the system up. It was necessary to identify an appropriate area in which the urban dynamics and mobility structure could be modified, where pedestrians, cyclists, and motorists could exist side-by-side, and also interact with other forms of public

transportation such as the subway system and the bus rapid transit (BRT) system known in Mexico City as *Metrobus*.

- Design of a new infrastructure for cyclists (bicycle lanes, traffic lights, and signage) was needed to offer safety and comfort to both system users and urban cyclists.
- Convince motorists to share lanes with cyclists and provide pedestrians, cyclists, and motorists the necessary safety during the introduction of a new street lane user.
- Convince citizens that the system was a good solution for the city. Some community members were concerned about the possible lack of safety that could emerge near the bicycle stations; others disagreed with the elimination of parking space on streets. Others considered that it was an inadequate idea for the city.
- Modify the traffic regulations in order to incorporate the bicycle as a new form of transportation with new rights and obligations for all.
- Establish a mechanism for automatic access to the system, as well as ensure an accessible price that would promote massive use of the system as well as functioning as a means of asset control to avoid the loss of bicycles.
- Design an inclusive, attractive and aspirational image for this new form of mobility that would facilitate a wide and diverse range of users to access the system.
- Train the capital city traffic authorities to consider, protect and guide the new street users.
- Ensure a funding-scheme for several years, which, combined with private resources, could ensure the system's continuous existence and expansion.

### The *Ecobici* Implementation

*Ecobici* was only one part of the Mexico City's bicycle mobility strategy, designed as a comprehensive



response to the city's environmental, social, economic, and health crisis. The plan also included the Sunday street ride *Muévete en Bici*, night rides, a bicycle school, the "bicycle officers" program, construction of bicycle lanes, setting up bicycle parking and signage, as well as ongoing public communication campaigns, street education and citizen participation. The goal of all these actions was to create suitable conditions to position the bicycle as a viable and safe alternative for daily transport.

*Ecobici* was inaugurated on February 16, 2010. By the end of the government administration in December 2012 the system had been through three phases, 275 bicycle stations had been installed with a total of 3,700 bicycles. The subsequent administration added 171 bicycle stations and 2,500 bicycles, reaching a total of 6,565 bicycles that now serve more than 200 thousand users who have made more than 35 million trips. If the current administration maintains the pace of the previous one, by 2018 the system will be working with at least 8,700 bicycles.

*Ecobici* turned out to be a practical and efficient means of transportation. A 2014 survey on user habits conducted by the Department of the Environment (SEDEMA by its acronym in Spanish) and the Center for Mexican and Central American Studies (CEMCA by its acronym in Spanish) found the following:

- 62% of the users are men and 38% women
- The average age of users is 34.7 years
- 87% of users are in either part-time or full-time employment
- 85% of the users live in Mexico City and 15% in the State of Mexico
- 62% of the points of departure are the users' home
- 45% of the most frequent destinations are the users' office
- 87% of trips made by *Ecobici* are combined with other means of transport

- 82% of users have noticed changes in their quality of life (44% are more relaxed, 38% save money, 36% have improved physical condition, 26% have more time)
- 62% of users often use the bicycle lane on Reforma Avenue
- 59% of users did not commute by bicycle before using the *Ecobici* system
- 56% of users have access to a private bicycle at home
- 66% of users also own a car
- The average trip takes 12 minutes
- Peak usage of the *Ecobici* system takes place at 2:00pm

### **Factors determining the success of *Ecobici* that may be used as an example for other Mexican cities**

Certain factors were decisive to ensure the success of the new individual bicycle transport system in Mexico City. Although the systems in Paris and Barcelona were used as a reference, the specific conditions of Mexico City required the development of a tailor-made program. It was necessary to create an alternative that apart from coexisting with the other modes of transport and accommodating to the current situation of mobility in the city, would be able to innovate and transform urban design and the use of public space step by step.

At the beginning, citizens were highly skeptical about this initiative. Often when the government comes up with innovative projects, the community tends to have a negative experience. Projects are not always financially solvent and often fail because they are far too ambitious, lack appropriate planning, the implementation is poor, or long-term perspective is lacking. In addition, Mexico City mobility policies are highly sensitive politically speaking and opposition parties were extremely critical of this initiative. They argued that the use of the bicycle would generate more traffic, that it would be unsafe for users, that it



was too expensive, that it was not a real solution to mobility, that cycling culture did not exist in Mexico City, and so on. Far from hindering the project, criticism and political pressure strengthened it. The barriers to the project were solved one by one, not from a discursive or marketing point of view, but at the level of the formulation of the proposal and its actual implementation. Based on this experience, the following ten keys to the success of the public bicycle system in Mexico can be listed:

### **1. The Planning Process**

The system's planning period, comprised of almost two years of study, reflection, design and creativity, was very important for the analysis of all the facets that the introduction of a new form of transport represented. This process included the participation of international experts, the dedicated staff of the Department of the Environment, as well as the city government's finance and planning departments. Due to the short duration of local government (three years) in Mexican municipalities the planning process is greatly reduced which hinders extensive planning. In order to develop public bicycle systems, Mexican municipalities must begin to make plans from the very early stages of an administration. Fortunately, re-election has already been approved at a local government level in Mexico. Local authorities will be drawn to these types of projects, which, if they are implemented properly, will give them greater visibility for their re-election campaigns, and will consolidate them during their second term.

### **2. What aspects should undergo a bidding process or how to contract?**

Throughout the world there are several models for the implementation and management of public bicycle systems. As follows, those that have been implemented in Mexico will be described:

#### ***Public-private model with street advertising: Ecobici***

In the case of Mexico City, it was decided that there would be an international public bidding to select a private company that could implement a mixed

service model in which, as in Barcelona or Paris, the city government would purchase the assets for the system (bicycle stations, bicycles, and spare parts), and a private company would operate the system with high tech software, offering the possibility of paying for part of the maintenance costs with resources from a street advertising concession. The bidding in Mexico City was won by Clear Channel Outdoors, the company that created the first public bicycle system in France. Their experience from other cities contributed to the development of the system in Mexico. The financial model in this case consisted of a government contribution of public funds combined with the concession of 150 outdoor advertising clocks (for Phase I) and eight publicity screens (for Phase II) which pay for 25% of the operation. The 400-peso monthly user fee also helps to cover the cost of the system.

- Advantages: the private company's experience in other cities of the world, state-of-the-art technological development, ongoing innovation, not depending on yearly public funding fluctuations since the company funds part of the system, the possibility to demand a top level service, and the fact that it favors the continuity and transcendence of the system regardless of local authority turnover.
- Disadvantages: it implies the installation of street advertising, and due to lower public investment, more street advertising is required to reach possible users.

#### ***Public-private model without street advertising: MiBici***

In the case of the city of Guadalajara, the *MiBici* System is based on a contracting model of the Jalisco State government granted to a private company that purchases the assets and operates the publicly funded system.

- Advantages: it does not require the use of public space for street advertising.
- Disadvantages: funding depends entirely on the government. Unstable financial flows may affect the operation of the system. It is thus more vulnerable to changes in government.



### **Public Model: Huizi**

In the case of the city of Toluca, the *Huizi* public bicycle system was inaugurated in November 2015. The system is fully operated by the municipal government, which invested in the initial purchase of the infrastructure, and the City Council performs maintenance and public dissemination. With the recent change in municipal authorities, the system has wobbled. In less than five months, the new municipal president changed the system's name and announced that it would be free-of-charge for all users who would only need to present their ID. This makes the system quite vulnerable to theft. In addition, since it is free-of-charge, its maintenance and continuity depends exclusively on the public budget without any user commitment.

- **Advantages:** although the cost of the infrastructure is the same, the system is operated at a lower cost since local government staff are in charge.
- **Disadvantages:** the system risks having poor maintenance. At the beginning, the new municipal president declared that the system was too expensive to maintain and might be discontinued. Its expansion is more difficult since all the investment depends on the public budget and it has no long-term financial plan. If the quality of the service declines, users may stop making use of it. Since customers are not required to register and the system is free of charge, which makes it vulnerable to abuse.

As these kinds of public policies become more widespread, other initiatives and new generations of technology have emerged that aim to establish themselves in Mexico. *Bewegen* or *CapitalBike* for instance offer systems based on hybrid and electric bicycles, and *SmartBike* has developed its own technology for electric bicycles, which have already complemented the public bicycle system in Barcelona.

### **3. Phased Implementation and System Size**

A public bicycle system cannot go through a pilot phase. However, it should be implemented in phases involving a minimum number of bicycles and

bicycle stations in order to provide a flexible and assessable service in each area of implementation. It is very important to define the size of the system, especially at the beginning. It should be large enough to be able to assess the impact of the desired transformation, but small enough to be able to correct any errors that might occur.

Phased implementation allows for the program to be launched and a few months later adjust the number of bicycles per station and relocate some of the stations that prove to be inefficient. In addition, phased implementation also allows for urban intervention in zones where the project is being implemented, such as the construction of bicycle lanes, the setting up of bicycle stations and signage, as well as a dissemination campaign based on activities engaging the community in the decision-making and in the use of the system.

### **4. Site Selection**

Considering the immensity of Mexico City, in fact any city, it is of crucial importance to choose the right site with which to start a project of this kind. The selected site must have mixed land uses in order to generate a large number of trips at different times of the day (and not only in specific time brackets); involve the relevant traffic police force for training, and easily monitor their performance; and the site must interconnect with multiple forms of transport in order to favor multimodality. In the case of Mexico City, the bicycle project was installed in areas with subway stations, BRT, an electric transport system, taxis and transport corridor zones. The site should also include calmer traffic zones so that bicycles can coexist with vehicles.

### **5. Naming the System**

More than just giving it a name, the system requires a brand: a name and an image that reflect the system's intention as a whole, as well as its identity. This is a great challenge. The *Ecobici* brand was developed by professionals and has been enormously successful. A brand was created, with all its content and value that communicates ecological, sustainable, healthy and fun state-of-the-art attributes. The *Ecobici* brand has become an icon of Mexico City. In order to develop the brand, innovative and participatory methods



can be resorted to, such as contests in design schools or voting on social networks, always under the guidance and supervision of communication professionals, since once the system is launched, its name and logo will be permanent (at least that is what is advisable).

## 6. Bicycle Lane Network

The implementation zone should have the possibility of incorporating enclosed bicycle lanes on its largest avenues in order to facilitate distance mobility and user safety, as these traffic routes represent strong barriers to the use of bicycles since due to their high-speed traffic they are perceived (and actually are) dangerous. In the case of Mexico City, a model bicycle lane was constructed on Reforma Avenue, dividing the implementation zone into two. This allowed it to become the benchmark for the future replication of the system and to provide user safety and comfort. The more bicycle infrastructure involved in the system, the more users it is likely to have.

## 7. Ongoing Maintenance

It is common to think that public bicycle systems are simple to implement. However, ongoing maintenance is the greatest challenge, since frequent use tends to quickly deteriorate the bicycles. In Mexico City, on average each bicycle is used for 10 trips per day, an intensive use that requires considerable maintenance. If users are to continue to trust the system and to keep on feeling attracted to it, this effort must be continued.

## 8. Secure Registration

The cost of using the system may be economical. In Mexico City, the cost is 400 pesos per year, and in Guadalajara it is 365 pesos per year. The full identification of the users is one of the keys to ensure the responsible use of the infrastructure and to avoid theft. In many cities around the world, bicycle theft is a constant factor. Mexico City has achieved one of the lowest rates of bicycle theft and vandalism in the world since in order to be able to access the system users must provide a debit card, credit card or telephone bill.

## 9. Ensuring User Safety

The most important challenge a public bicycle system faces is to generate user trust and ensure their safety. A fatal accident involving the public bicycle system weakens credibility in the proposal, particularly in its initial stage. Developing appropriate bicycle signage, slowing down traffic in the area, implementing an extensive communication campaign, as well as ongoing training and supervision by the Traffic Police Department is of key importance. In addition, in the case of Mexico City, *Ecobici* was one of the first bicycle systems in the world to provide all its users with insurance for related medical costs.

## 10. Customer Service

A public bicycle system goes beyond placing bicycles on the street. Providing quality service to the users is one of the main factors of success: ensuring bicycle availability as well as spaces to return the bike at each station (a constant balance between the bicycle stations), 24/7 customer service, easy processing to obtain the membership card, and creating a video guide for the use of the system, as well as training users how to use the bicycles within the bicycle lanes is a complex process that must function well for the system to grow and keep its users satisfied.

## Conclusions

After six years of implementing the *Ecobici* system, it should be considered a model public policy to be replicated throughout the country. Middle-sized Mexican cities have favorable geographic, meteorological and urban conditions for the use of the bicycle.

Among the first public bicycle systems in the world, *Ecobici* was the 7<sup>th</sup> largest system at its launching in 2010. Six years later, these systems have proliferated in hundreds of cities around the world. In China alone there are more than 10 cities with systems larger than *Ecobici*.

Unfortunately, in Mexico this public policy has not been replicated at the same speed. Although it is recognized as a desirable solution, there are some barriers that prevent the implementation of



public bicycle systems in the country such as: lack of vision of local authorities and lack of will power to undertake and manage complex projects; the misperception that public bicycle systems are cheap in addition to low municipal budgets; a lack of work teams trained to implement a project of this nature; and the proliferation of companies or initiatives without experience that rather than offering a comprehensive system, seek only to sell bikes or adapted technologies without a comprehensive proposal. These are important obstacles that middle-sized cities are facing in Mexico and that should be overcome as soon as possible.

Finally, the field of action for these types of bicycle systems is very broad in Mexico. It is important to analyze their potential for intercity mobility, internal mobility on university campuses and business complexes, and as a way to explore archeological zones and touristic sites, among many other options.



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