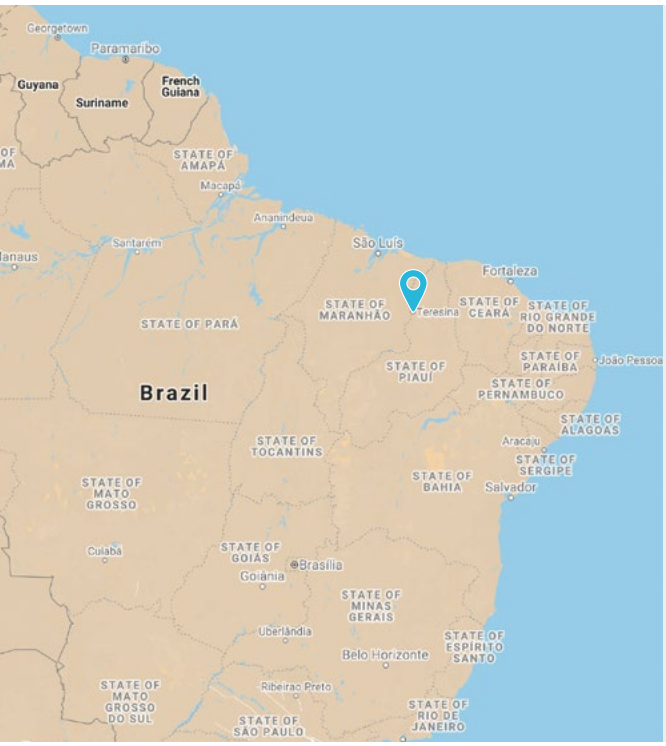
Teresina, Brazil

Partner city

Status of the project: **ongoing technical assistance**



Basic Information

Urban area: **1,392 km^2**

Population: **1,203,922** | Growth rate: **1.21%**

Type of city: **Region capital city**

GDP per capita: **USD 6,729**

Modal Share

- **Formal public transport: 21.3%**
- **Walking: 32.6%**
- **Cycling: 11.8%**
- **Private cars: 24.8%**
- **Private motorbikes or 2-wheelers: 5.8%**

National GHG emissions per capita: **5.12 (tCO_2eq)**

Exposure to climate change: **MEDIUM**

Context

Teresina is a low-density agglomeration of 1.2 million inhabitants, located in the north-east of Brazil. The city is located at a crossroads near major cities of the north coast of the country, notably Fortaleza and Sao Luis, which contributes significantly to its economic development. However, the city suffers from urban sprawl, which increases travel time, costs and reduces the efficiency of public transport.

The 2008 Master Plan for Transport and Urban Mobility states that 1.91 million trips are made per day in the greater Teresina, standing out on foot (32.6%), followed by private car trips (24.8%), and municipal public transport (21.3%), with less representation, bicycle (11.8%) and motorcycles (5.8%). Therelatively low share of public transport illustrates existing issues related to efficiency, accessibility and affordability of public transportaccessibility but also affordability issues. Public transport in Teresina is currently provided by about 100 bus lines, as well as a BRT system under development. This network is operated by 4 main companies with a total fleet of 550 vehicles. This network is supplemented by 8 alternative service routes, operated by 45 vehicles from minor operators organized under the SINTRAPI (Alternative Passenger Transport Operators Union).

During the last year, the current "conventional" bus system) has gradually been replaced by the new Integrated BRT System. This evolution redesigns the bus routes, previously classified into (i) radial, (ii) circular, and (iii) *diametrais* (from one side of the city to the other, going through the city center) all converging to the Central Business District, and leading to overlapping itineraries and a saturation of some segments in the system.

The Integrated BRT System introduces a new feeder-trunk system, operating with a set of feeder lines the connects neighborhoods to zone terminal, and trunk lines (BRT) departing from terminals to city center or linking terminals. It divides the city in 4 main zones (South, Southeast, East, Center-North -Teresina doesn't have West zone inside the municipal jurisdiction), each zone with 2 bus terminals, and the CBD has 4 unloading terminals. The bus route concession was allocated by zone, and each operator holds the concession for the set of routes of a zone.

Teresina Municipality Town Hall, the local counterpart, has the mandate and responsibility to finance mass public transport infrastructure. It has authority to borrow from international finance sources. Systems and procedures are partially in place to monitor, evaluate and report on urban transport.

The project supported by the MobiliseYourCity partnership implements an Open Innovation approach which aims at (i) identifying the key issues of the transport system management and (ii) developing relevant digital solutions that can address those issues and scale up strategy.

The specific objectives of the Project are to:

- Provide a rapid assessment of the current public transportation system of Teresina;
- Co-identify and prioritise the main issues faced by the public transportation system;
- Identify solutions and technologies which could address those prioritised issues, including blockchain;
- Provide methodology and resources to prototype pilot projects;
- Lesson learned from the pilots, documentation and definition of the pilot implementation strategy.

The technical assistance contributes to institutional strengthening by tackling trust issues between all the stakeholders of the mobility sector through data and technological solutions.

Support from the Partnership

Technical Assistance: Pilot Project development

Funded by: EUROCLIMA+

Funding amount: EUR 500,000

Implemented by: AFD through the project

Local counterpart: Teresina Municipality Town Hall, Secretary of Planning and Coordination (SEMPLAN)

Supported activities:

- Install the blockchain platform and promote its use by the actors involved in the Teresina transport system
- Implement a public transport governance system based on co-management and the opening of data and processes whereby the municipality, companies, users and the treasury interact in a collaborative way

Status of implementation

Project start: Q4 2019

Expected project completion: Q1 2022

Completed outputs:

- Signature of a MoU between Teresina and AFD
- Finalization Diagnosis
- Finalization Setup of The Open Innovation
- Finalization Pilot Conception
- Finalization Proof of concept

Next expected outputs

- Scale-up strategy

Core impact indicators baselines

Indicator	Baseline - 2020
Total annual transport related GHG emissions (Mt CO_2eq)(Brazil)	1,070.08 Mt CO_2eq
Annual transport related GHG emissions per capita (kg CO_2eq)(Brazil)	5,120 kg CO_2eq / capita
Air pollution Mean urban air pollution of particulate matter (in µg PM2.5) at road-based monitoring stations	13 µg/m³ of PM2.5
Road safety Annual traffic fatalities in the urban area, per 100,000 inhabitants	22.8 fatalities / 100,000 hab

Highlights

Efficient data analysis of public transport reduces information inconsistencies and enables service improvement

Inefficient data management and analysis in Teresina's transport system made it very difficult to implement traffic reorganization policies, due to information inconsistencies among different stakeholders preventing collaboration to adjust to their diverse interests. The pilot project aims at optimizing the infrastructure built for the BRT system through an information system that improves decision-making and reduces information inconsistencies between the different Teresina public transport system's stakeholders. The use of this platform is also intended to improve the levels of traffic norms infringement of private companies in terms of fines and infractions committed, in addition to providing better traceability of the process.

Despite the pandemic bringing challenges to the project, participants successfully adapted to the new conditions

The project was impacted by the COVID-19 pandemic, causing a change in diagnostic methodologies (workshops that were face-to-face became virtual), the availability of the mayor's office team was greatly reduced, and public transport went into crisis with the drop in demand, which generated more problems of trust with operators and citizens. However, over the course of the months, the public, the consulting firm and the operators began to adapt to the change brought about by the pandemic. An example of this is the participation of more than 14 teams in the #MOVETERESINA challenge to create the platform prototype, for the open innovation methodology. The three proof-of-concept solutions can be replicated in other cities.

Three teams were chosen as a result of the open innovation challenge

The #moveteresina challenge was held in March and three projects were selected to enter the proof-of-concept (prototype) development phase. The selected teams (Jaegers, Prontuário do Busão and OpTIME) proposed the following projects:

- Development of a data visualisation software, based on public databases, to help citizens understand the challenges related to mobility and propose solutions
- Digitalisation of existing processes within the companies operating the bus lines, and development of dashboard performance indicators for decision support
- Development of a software for better planning of bus routes