Rethinking Mobility and Transportation in Curitiba: Building a Case for Promoting Financing Sustainable Urban Mobility
How to combine existing fragmented concepts for the mobility and transport sector with a view to sustainable mobility in urban areas?
PLANNING
INNOVATION

- MASTER PLAN
  - 1966
  - Population 490,000
  - Changing growth patterns

- STRUCTURAL CORRIDORS
- TOD concept

- ENVIRONMENTAL PRESERVATION PARKS

- FEATURES
  - Transfer: Direito de Construir
  - IPPUC
  - Waste Recycling
  - Creation RPPNM
  - Hibribus
  - Urban Intervention

- CREATION INTEGRATED TRANSPORT NETWORK

- BRIEF HISTORICAL PROCESS
EMISSION INVENTORIES

3,52 Million TCO$_2$eq

Gas Oil: 29%
Gas Oil: 96%
Gas Oil: 94%

Diesel: 35%

2008 IPCC

2012 GPC

2013 GPC

2,88% 93 Thousand TCO$_2$eq

75%

2,53% 93 Thousand TCO$_2$eq

83%

2,25% 93 Thousand TCO$_2$eq

84%

4,13 Million TCO$_2$eq

Energy

Waste

Stationary Energy

AFOLU

72%

75%

Transport

Waste

93 Thousand TCO$_2$eq

0%
CLIMATE AGENDA - ACTION PLAN AND STRATEGIES

Curitiba Forum on Climate Change – SMMA, IPPUC, URBS, UEXP, FUNDAÇÃO BOTICÁRIO, FGV-PR, SPVS, UP, UFPR, PUC-PR, FIEP
2009

Inventory of sources of absorption (sinks) of greenhouse gases
2009, 2011

Emission GHG Inventory

Vulnerability Studies Report
2012, 2014

Working Group to develop the Municipal Plan
Decree nº 894/2018

Proposal of the Municipal Plan for Mitigation and Adaptation to Climate Change - short, medium and long term actions - JUN 2019

Definition of indicators

Mobilize various segments of society to agree on goals and build a common agenda for Curitiba

Draft Law to be forwarded to the City Council

Implementation
VULNERABILITY STUDIES REPORT
INITIATIVES
ELECTROMOBILITY AND ALTERNATIVE FUEL

1. ALTERNATIVE FUEL BUSES
HYBRID, BIODIESEL AND ELECTRIC
1500 FLEET OF BUSES
3.8% PUBLIC TRANSPORTATION

ELECTRIC CAB
Economy 60%
Autonomy 300km

ELECTRIC CAR
13 units
Reduce 5 tonCO2eq
C40 - CURITIBA CITY CLEAN BUS DECLARATION OF INTENT

We, the undersigned cities, are committed to reducing emissions from the transportation sector and improving air quality through the introduction of low and ultimately zero emission buses in our fleets.

CURITIBA GOAL

Increase to 11% by 2020 the percentage of the public bus fleet that uses vehicles with alternative fuels, such as biodiesel, hybrid-plug-in and electric technologies.
Economic Complexity

- Products are made with knowledge
- Diversity of knowledge across individuals and on their ability to combine this knowledge \(\Leftrightarrow\) complex webs of interaction
- Two kinds of knowledge: explicit and tacit
- The problem is that crucial parts of knowledge are tacit and therefore hard to embed in people. **Because it is hard to transfer**, tacit knowledge is what constrains the process of growth and development
- the complexity of an economy is related to the multiplicity of useful knowledge embedded in it
- Economic complexity, therefore, is expressed in the composition of a country’s productive output and reflects the structures that emerge to hold and combine knowledge
- Increase economic complexity is necessary for a society to be able to hold and use a larger amount of productive knowledge
Exports of Curitiba Metropolitan Region (2016)

- Cars: 14.8%
- Delivery Trucks: 8.1%
- Tractors: 5.9%
- Sawn...: 3.5%
- Soybeans: 4.3%
- Coated Flat-Rolled Iron Products: 2.1%
- Hand Saws: 0.7%
- Other Iron Products: 0.5%
- Valves: 4.1%
- Engine...: 3%
- Liquid Pumps: 1.9%
- Insulated Wire: 0.9%
- Refrigerators: 0.9%
- Data...: 0.8%
- Harvesting...: 0.6%
- Low-voltage Protection...: 0.2%
- Air Pumps: 0.2%
- Construction: 0.2%
- Soybean Meal: 2.4%
- Animal...: 0.5%
- Cellulose Fibres Paper: 0.8%
- Paper Containers: 0.4%
- Rubber Tires: 0.8%
- Tanned Equine and Bovine Hides: 0.4%
- Non-woven Textiles: 0.3%
- Seats: 0.2%

56.4%
Industry Space for Curitiba Metropolitan Region (2014)

Total monthly wages: US$ 1.1 billion

Public Administration
US$ 260 MM/ month

Processing Industry
US$ 161 MM/ month

Trade
US$ 83 MM/ month
Product Space for Curitiba Metropolitan Region (2014)

Machines
29 / 125

Transportation
7 / 34
GREEN ECONOMY - CIRCLE ECONOMY

**Energy**
The Energy section considers energy consumption and efficiency within Curitiba.

**Ecosystem**
The Ecosystem section considers the current and future provisions made for air quality, water quality and resilience in Curitiba.

**Society**
The Society section considers current and future provisions made for both mobility and circular jobs.

**Business**
The Business section considers the presence and importance of various circular business models, such as remanufacturing, reuse and repairing and covered a range of topics including reuse, recycling and the sharing economy.

**Resources**
The Resources section measures how efficiently resources are being used, reused and recovered in Curitiba.
CIRCLE ECONOMY

DASHBOARD CURITIBA

- Energy: 17
- Ecosystem: 63
- Society: 25
- Business: 29
- Resources: 21

BIG OPPORTUNITIES, SPECIALLY IN THE FOOD AND TRANSPORT SUPPLY CHAIN
• First Technology Center of Hybrid and Electric Vehicles – FIEP System.

• Center comes to accelerate the modernization of industries in the country, specially Great Curitiba, and train professionals through short, medium and long-term courses, as well as technical, undergraduate and post-graduate to electromobility and hybrids.

• Companies that are already working on the theme, as is the case of Copel, Itaipu , Renault and Bosch.

• A survey by the Paraná Traffic Department (Detran) showed that in the last two years, Paraná registered a 146% increase in the number of car registrations driven by electricity.

• Paraná, the first state to implement an electrovia in Brazil.
### CURITIBA 2035

**Vamos juntos construir a Curitiba do futuro?**

**ROADMAP 1 • CURITIBA 2035**

**Áreas Temáticas** | **Patores Críticos** | **Ações** | ** Médio Prazo 2021 – 2027** | **Longo Prazo 2028 – 2035** | **Visões**
---|---|---|---|---|---
**Gestão** | | **Curto Prazo 2017 – 2020** | | |  
**Infraestrutura** | | | | |  
**Legislação** | | | | |  
**Políticas Públicas** | | | | |  

**EDUCATION AND KNOWLEDGE**
**ECONOMIC DEVELOPMENT**
**MOBILITY AND TRANSPORTATION**
**HEALTH AND QUALITY OF LIFE**
**ENVIRONMENT AND BIODIVERSITY**
**COEXISTENCE IN A GLOBAL CITY**
**SECURITY**
**PLANNING AND URBAN MANAGEMENT**
**GOVERNANCE**

Source: [http://www.curitiba2035.org.br/](http://www.curitiba2035.org.br/)
Some Advances

- Portal № 616 of the Ministry of the Cities.
- Establishment of a Working Group to study, analyze, debate and propose actions aimed at the introduction of clean technology in public transportation in Brazilian municipalities.

- Participants:
  Ministry of Industry, Foreign Trade and Services - MDIC
  Ministry of the Environment - MMA
  City Hall of Belo Horizonte - MG
  City Hall of Curitiba - PR
  City Hall of Salvador - BA
  City Hall of São Paulo - SP
  National Bank for Economic and Social Development - BNDES
  National Front of Mayors - FNP
  Forum of Secretaries and Public Officials of Urban Mobility
SOME ADVANCES

• **Goals:**

  Align federal strategies with those at the local level

  Analyze and propose the inclusion of new clean technologies in business models for the concession of collective public transport services

  Analyze and propose financing policies for the acquisition of clean vehicles and the implementation of corresponding public transport infrastructure

  Disseminate knowledge and results
CHALLENGES
1. Mobilize various segments of society to agree on goals and build a common agenda for Curitiba AND MAKE IT HAPPEN.

2. Restructure the city's economic matrix to be based on a low carbon economy.

3. Achieve economies of scale for solutions
Opportunities for CURITIBA
CLIMATE OF OPPORTUNITY

GREEN ECONOMY

TRANSPORTATION

GOVERNANCE

SOLID WASTE

FOOD SYSTEM

ENERGY

FUNDING

BUILDINGS
Considering the values of the city and all the existing assets we can consider the hypothesis that Curitiba can be an exporter of sustainable solutions in urban mobility.

Build a new model to the public concession of public transportation that ends in 2025, supported by an ecosystem of innovation in urban mobility.
Thank you.

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