Implementing sustainable mobility solutions

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The City

• Population of BH
  2.4 million inhabitants

• Population of RMBH
  5.7 million inhabitants

• 6.3 million trips a day

• 2.5 trips / inhabitants / day
Transport System

• Public transport by bus:
  293 lines, 3 thousand buses, 1.8 million passengers/day

• Metropolitan train:
  28 km, 19 stations, 200 thousand passengers/day

• City car fleet:
  1.5 million cars – BH + 1 million – RMBH
City Strategic Planning

Vision 2030

Belo Horizonte: city of opportunities, sustainable and with quality of life

Ensure mobility and accessibility in the urban environment through integrated networks, transport demand management and quality of public transport services
The transportation sector is responsible for about 70% of the total CO$_2$ emissions.

Goal: to reduce the greenhouse gases emissions by 20% until 2030.
BH 2002/2012: increase in travels and larger participation of the individual modes*

2002: 2.7 millions of tpd

- Buses
- Cars
- Motorcycles
- Bicycles
- Others

2012: 4.1 millions of tpd

- Buses
- Cars
- Motorcycles
- Bicycles
- Others

<table>
<thead>
<tr>
<th>Mode</th>
<th>Change 2002/2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buses</td>
<td>- 8%</td>
</tr>
<tr>
<td>Cars</td>
<td>+ 116%</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>+ 649%</td>
</tr>
<tr>
<td>Bicycles</td>
<td>+ 7%</td>
</tr>
<tr>
<td>Others</td>
<td>+ 154%</td>
</tr>
<tr>
<td>Total</td>
<td>+ 53%</td>
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</tbody>
</table>

The public transport had a strong loss over a decade, **falling from a 57.6 % share in 2002 to 34.6% in 2012**

The participation of **cars rose from about 1/3 to about 50%**, being the most widely used modal in 2012

* excluding walking trips
PlanMobBH – Starting Point
Unsustainable Tendencies

Average travel time in minutes

Public Transport
Automobiles
Non Motorized
General Average
Fundamental Objectives of PlanMobBH

- Reduce the Number of Fatalities in Traffic
- Reduce the Increased Trend of Greenhouse Gases Emission
- Reduce the growth in the use of individual transportation (auto and motorcycle)

Increase the percentage of trips by foot (emphasis on trips up to 2km)
Increase the percentage of bicycle trips (emphasis on trips up to 8km)
Increase the current number of trips on public transport
The 4 pillars of the City Sustainable Urban Mobility Plan (PlanMobBH)

- **Integration between Land Use Policy and Transportation**
- **Priority to public transport and its continuous improvement**
- **Stimulation of non-motorized modes of transport**
- **Encouraging a more rational and innovative use of the car**
Structuring initiatives for sustainable urban mobility in BH

Urban Operation ACLO

Regional Plans: New Centralities

TOD Projects
Structuring initiatives: MOVE, the BRT of Belo Horizonte

23 km of exclusive lanes with two-way traffic, 5 integration stations at the edges and 40 transfer station along the corridor, transporting about 500,000 passengers/day.

Decrease in the number of bus trips in the morning peak hour:
- Hospital region: -54%
- Downtown: -32%
- Antonio Carlos Av.: -27%
- Cristiano Machado Av.: -25%

Travel time reduction in the morning peak hour:
- Venda Nova: -53%
- Pampulha: -45%
- Vilarinho: -25%
- São Gabriel: -20%

Number of passengers per business day:
- Projected: 427000
- Actual: 485000
BRT – Bus Rapid Transit and Exclusive lanes for buses

Present status (2017)
• 23 km BRT;
• 12 km exclusive bus lanes;
• 7 integration stations and 36 transference stations;

Forecast (2030)
• 150 km BRT;
• 54 km exclusive bus lanes
• 11 integration stations.
Electric Bus (2018)

- **Test** of electric buses with a self-sufficiency higher than 250 km (each charge) – 80% of an average urban bus route;

- Performance evaluation.

- Operational costs evaluation.
Stimulating non-motorized modes

Build a walking network integrated with the public transport and urban projects that brings improvements for pedestrians
30km/h Zones

Proposal for Downtown Area

- Reduction of car speed in order to guarantee the pedestrians and cyclists safety.

- The red patterned areas indicate the selection of regions where the 30 zones will be implemented.
Pedala BH – Bike routes project

Cycle infrastructure implementation plan:

- (2020): 411 km
- (2030): 1,000 km
Pedala BH – Bike routes project

40 bicycle sharing stations in downtown Belo Horizonte and near touristic spots.
Rational Use of Automobiles

Transportation demand management through coherence and integration of measures and modes of transport, resulting in a change of the predominant culture.

Incentive to transport alternatives

- TOD
- Public Transportation
- Bicycle
- Walking

Discouraging the use of private transport

- Speed limit reduction
- Management of parking areas
- Restriction of circulation areas

Trip distance

Mitigation potential

Start

Gradual intensification

Triggers
Expected Results

Modal Split (2012–2030)

Traffic Jam Costs – R$ Billions

<table>
<thead>
<tr>
<th>Year</th>
<th>Public: planned</th>
<th>Private: planned</th>
<th>Non-motorized: planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>1,891,60</td>
<td>10,29</td>
<td>11,12</td>
</tr>
<tr>
<td>From 2021 to 2025</td>
<td>0,29</td>
<td>6,94</td>
<td>3,35</td>
</tr>
<tr>
<td>From 2026 to 2030</td>
<td>11,12</td>
<td>5,665,45</td>
<td>9,09</td>
</tr>
<tr>
<td>From 2020 to 2030</td>
<td>23,30</td>
<td>14,20</td>
<td>9,09</td>
</tr>
</tbody>
</table>
Thank You

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Municipal plan for greenhouse gases emissions reduction – PREGEE

Emissions projection (millions tCO2e/year)
Evolution of some Mobility Indicators

Unsustainable Tendencies

- Cars Fleet
- Bus Demand
- Population
- Transit Accidents
Structuring initiatives for sustainable urban mobility in BH

MOVE: the BRT of BH
23 km + 12 kilometers of exclusive bus lanes

30 km/h zones: attempt to keep road traffic speed down to a safe level

Pedala BH: 80km of bike lanes + 40 shared bike stations

Less street parking areas and more quality space for pedestrians