

Public Transport Improvement



IEA Energy Efficiency
in Emerging Economies
Jakarta, July 17, 2018

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Coordinator for Smart Cities and
Sustainable Transport

AN UNSUSTAINABLE URBANIZATION PATH

1.2 Million
Traffic Fatalities

PEOPLE

3.7 Million Air Pollution premature deaths **3.2 Million** Physical Inactivity premature deaths

2%
of the land
but

CLIMATE

70%
of the CO₂
emissions

75%

FINANCE
Of the 2050
infrastructure is
yet to be built



DIFFERENT MODELS, VERY DIFFERENT OUTCOMES

Atlanta
USA



Population (1990)	: 2.5 million
Built-up area	: 4,280 km ²
Traffic fatality rate	: 9.7/ 100,000 pop.
Mode share	: Car 77%, Transit 3%, Biking 0%, Walking 1%

Barcelona
Spain



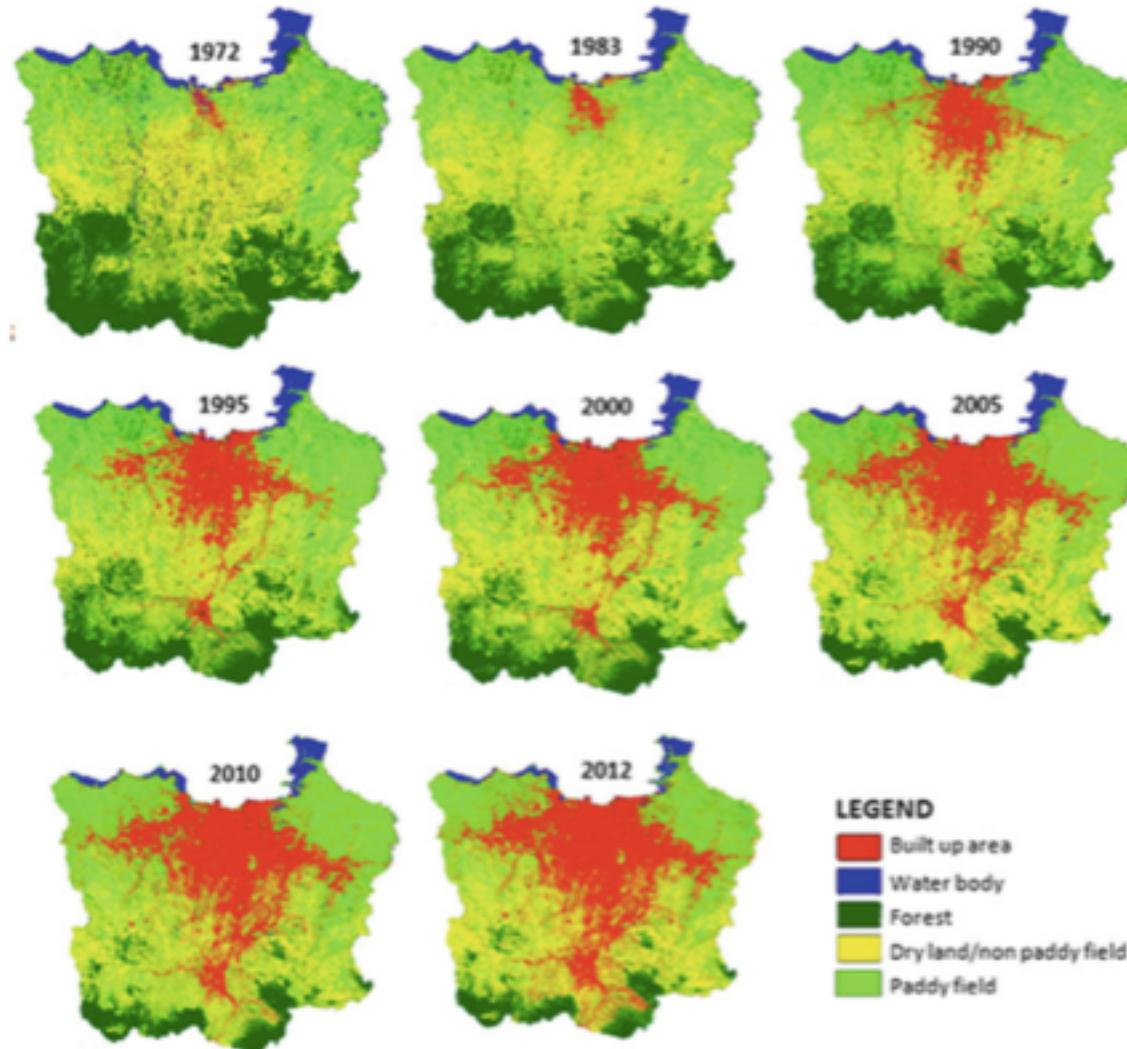
2.8 million
162 km ²
1.9/ 100,000 pop.
Car 20% Transit 33% Biking 12% Walking 35%

Source: Alain Bertaud (2012) Clearing the air in Atlanta: Transit and smart growth or conventional economics? in WRI Presentation on India Vision Zero



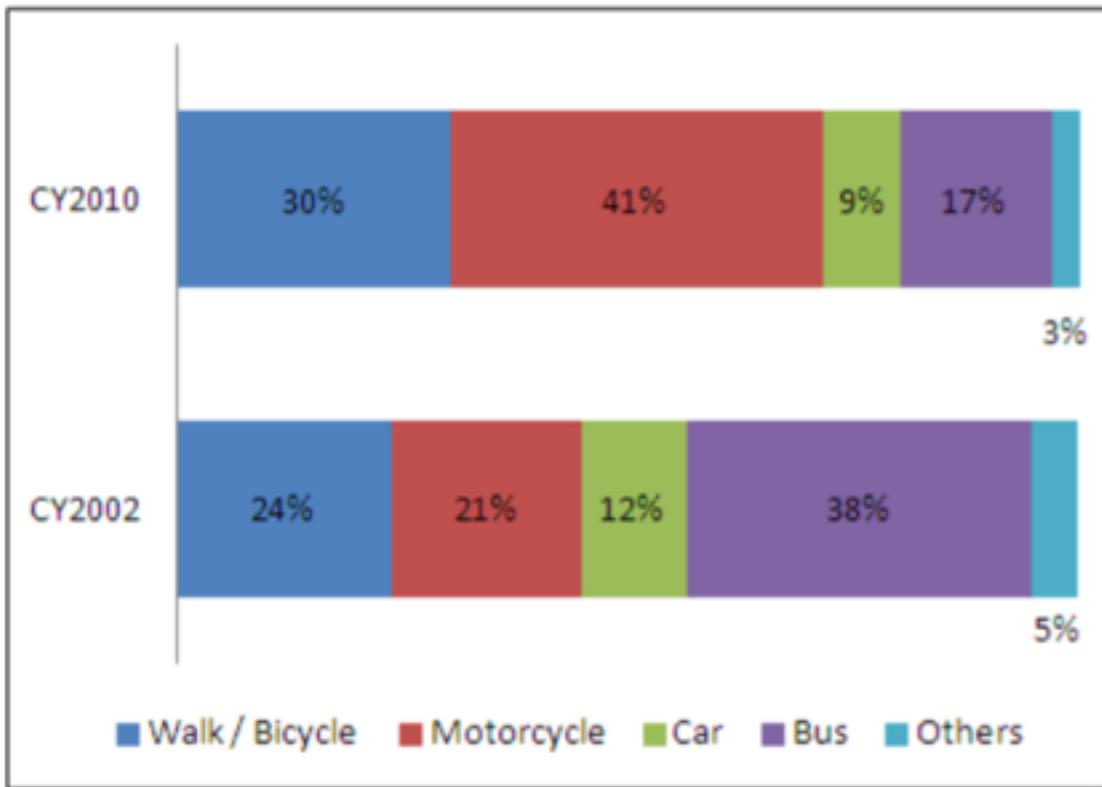
WORLD RESOURCES INSTITUTE

Urban Development - Jakarta



Source: Rustiadi, E., et.al, Jabodetabek Megacity: From City Development Toward Urban Complex Management System, 2015

Mode Share in Jabodetabek



Source: STRAMP Person Trip Survey, JUTPI Commuter Survey in JUTPI Final Report, 2012

Efficiency

Jakarta foots US\$5b annual bill for traffic jams: Minister



News Desk

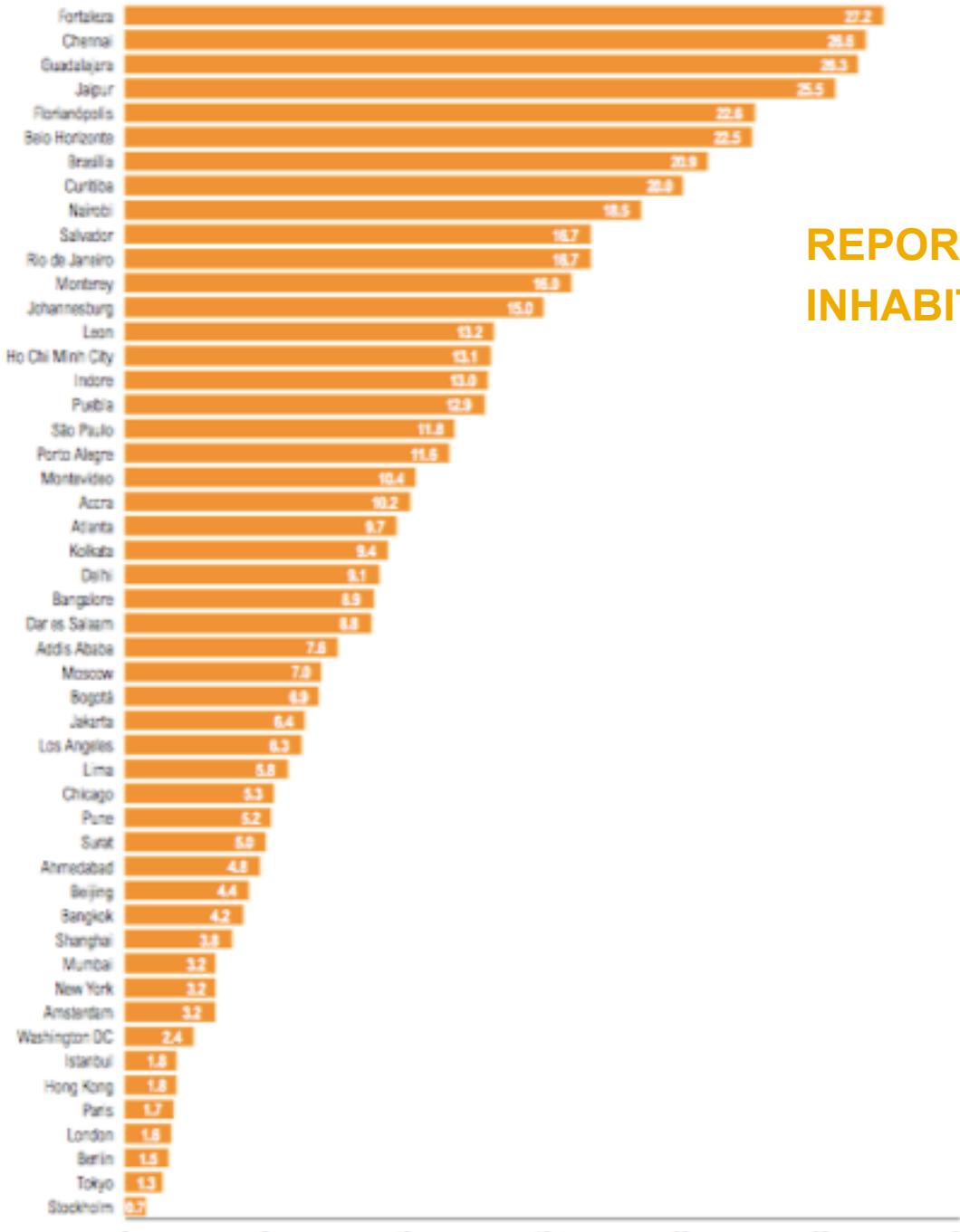
The Jakarta Post

Jakarta | Fri, October 6, 2017 | 03:59 pm

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REPORTED FATALITY RATE PER 100000 INHABITANTS

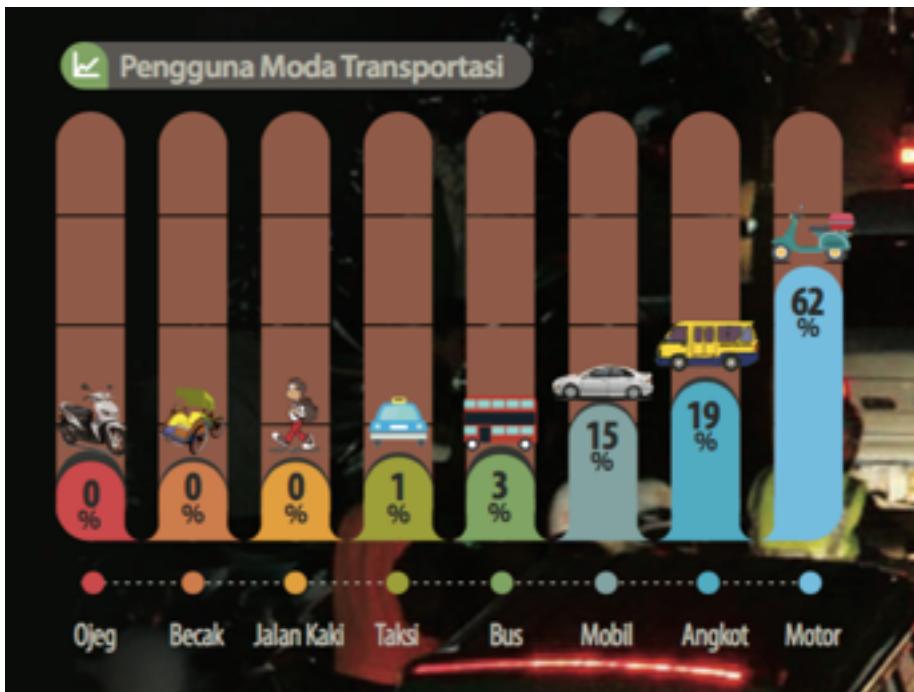
Source: Cities Safer by Design. World Resources Institute



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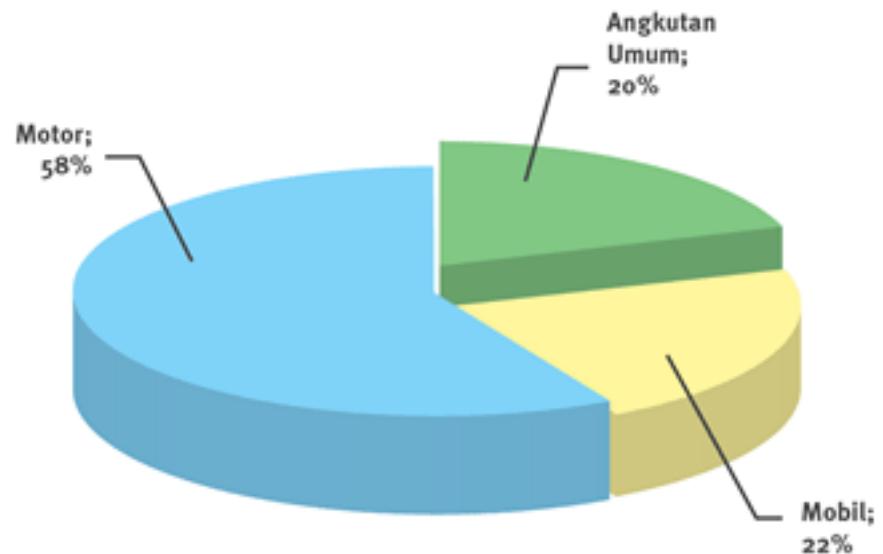
Mode Share

Bandung



Source: Bandung Urban Mobility Project

Semarang



Source: Survey ITDP & IGES 2017 in <http://www.itdp-indonesia.org/blog/mengapa-harus-brt/>

What do we want from an City's Transportation System?

Source: EMBARQ India Presentation on BRT System, 2014

A good urban transport system should be

- Efficient
- Safe
- Accessible
- Affordable
- Provide a high quality of service
- Be Environmentally Sustainable and
- Contribute to the desired Urban Form of the city

What are the technology options for Mass Transit?

Source: EMBARQ India Presentation on Integrated Transport Systems for Cities, 2013

Alternative Analysis

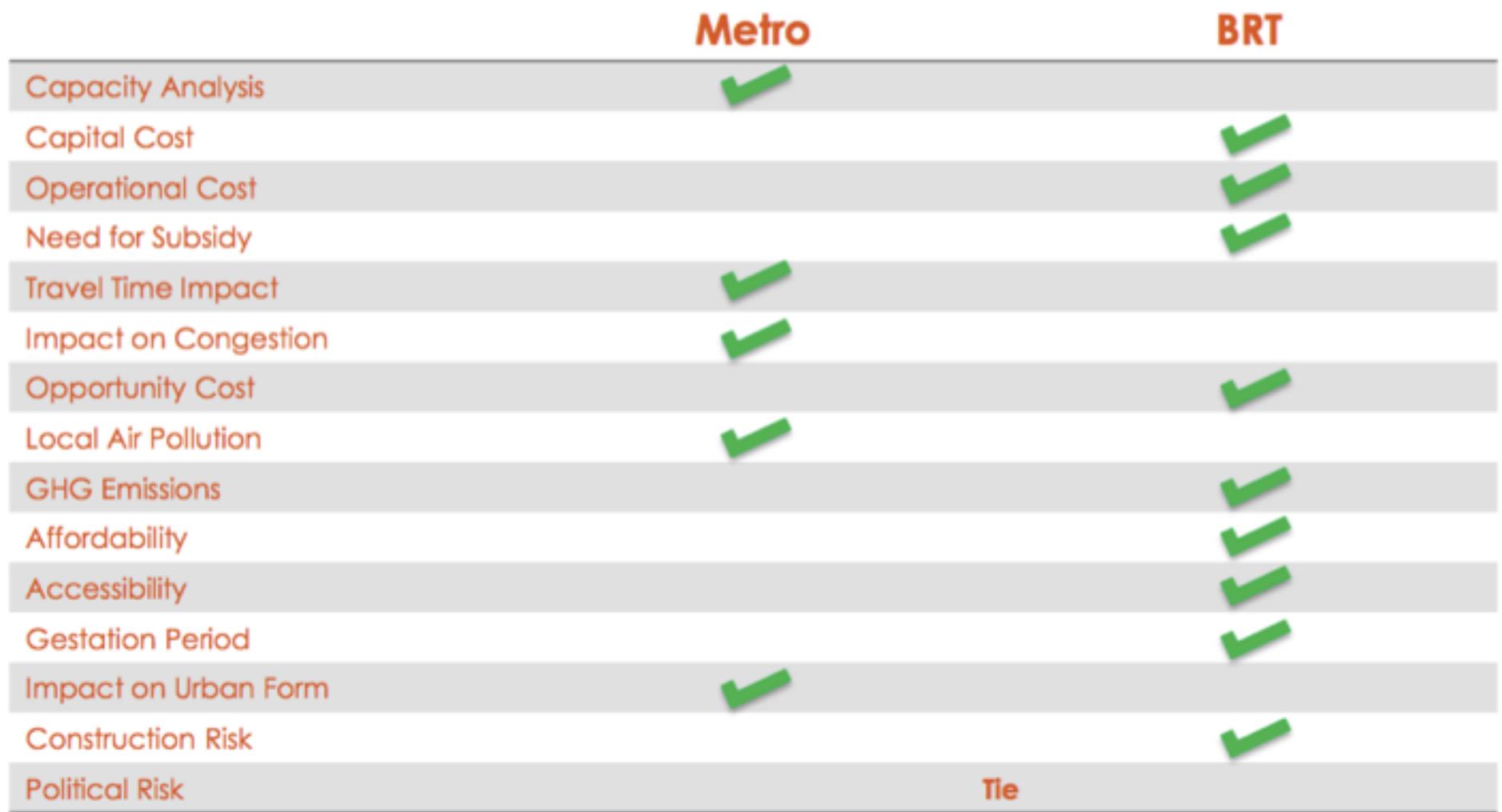
Characteristic	Bus lanes	Light Rail - Tramway	Heavy Rail - Metro	Bus Rapid Transit - Metrobus
Space Required	2-4 lanes Existing Roads	2-3 lanes Existing Roads	New Right of Way – Elevated or Underground	2-4 lanes Existing Roads
Flexibility	High	Limited	Low	High
Impacts on Traffic	Mixed	Mixed	Reducción de Congestión (?)	Mixed
Integration with Feeders	Easy	Difficult	Difficult	Easy
Level of Service (Frequency, Occupancy)	Low	Good	Muy Good (corredor denso)	Good
Safety	Low	Buena	Muy Buena	Good
Emmissions	High	Low	Low	High Medium
Reliability	Low	Medium (bunching)	Goood	Medium
Transfers /Walking	Low	Medium	High	Medium

Source: Adapto por el autor de Halcrow Fox, 2000, L. Wright and K. Fjellstrom, 2003, y V. Vuchic in WRI Presentation on Mass Rapid Transit Options



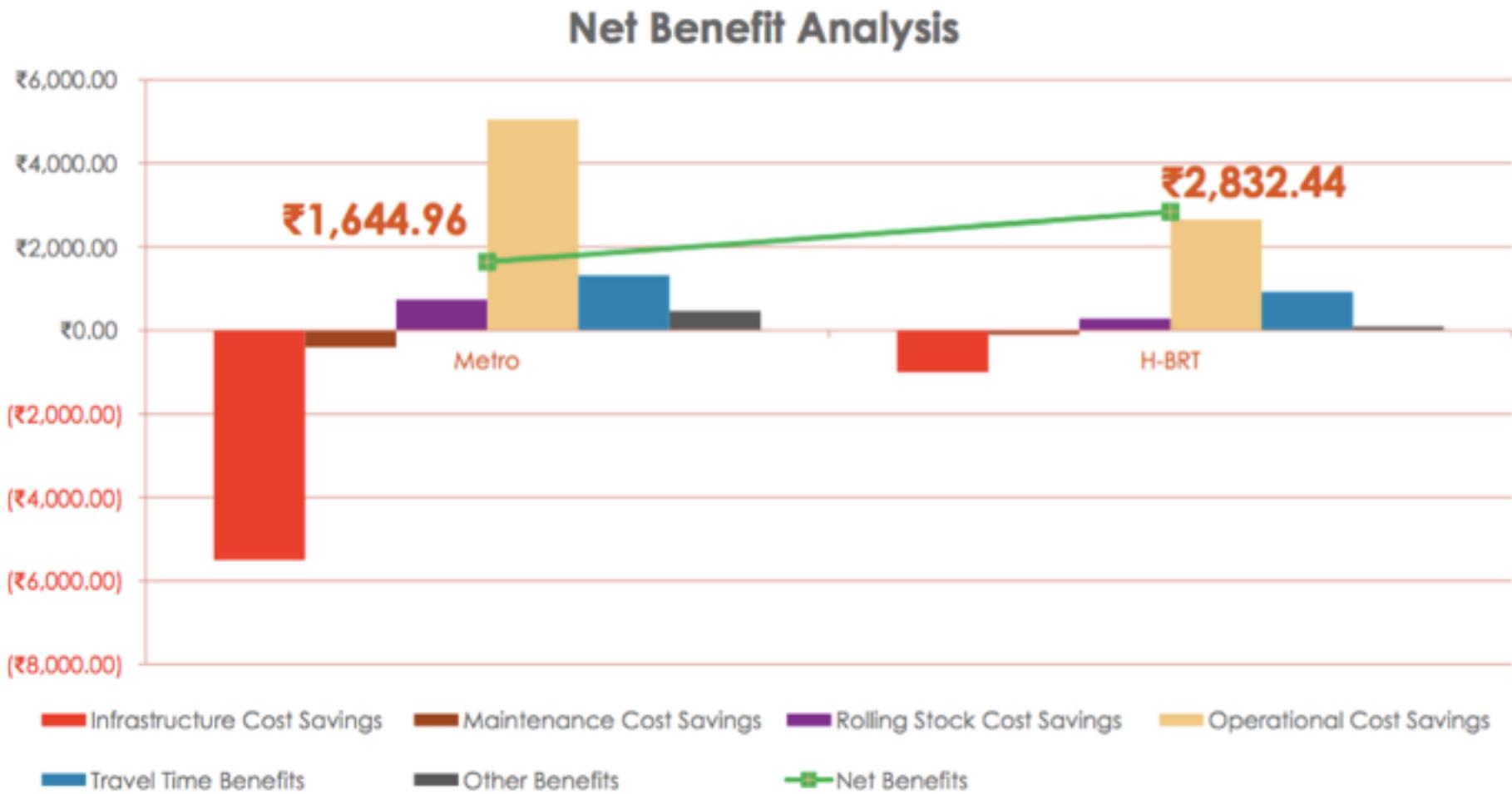
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Alternative Analysis



Source: EMBARQ India Presentation on Integrated Transport Systems for Cities, 2013

Alternative Analysis



Source: EMBARQ India Presentation on Integrated Transport Systems for Cities, 2013



Source: WRI Presentation on Traffic Safety for Bus Priority System, 2017

BRT IMPACTS

Travel Time

\$142m saved

in Metrobus Line 3 in Mexico City

Traffic Safety

\$288m saved

in avoided traffic injuries and fatalities
in Bogota's Transmilenio

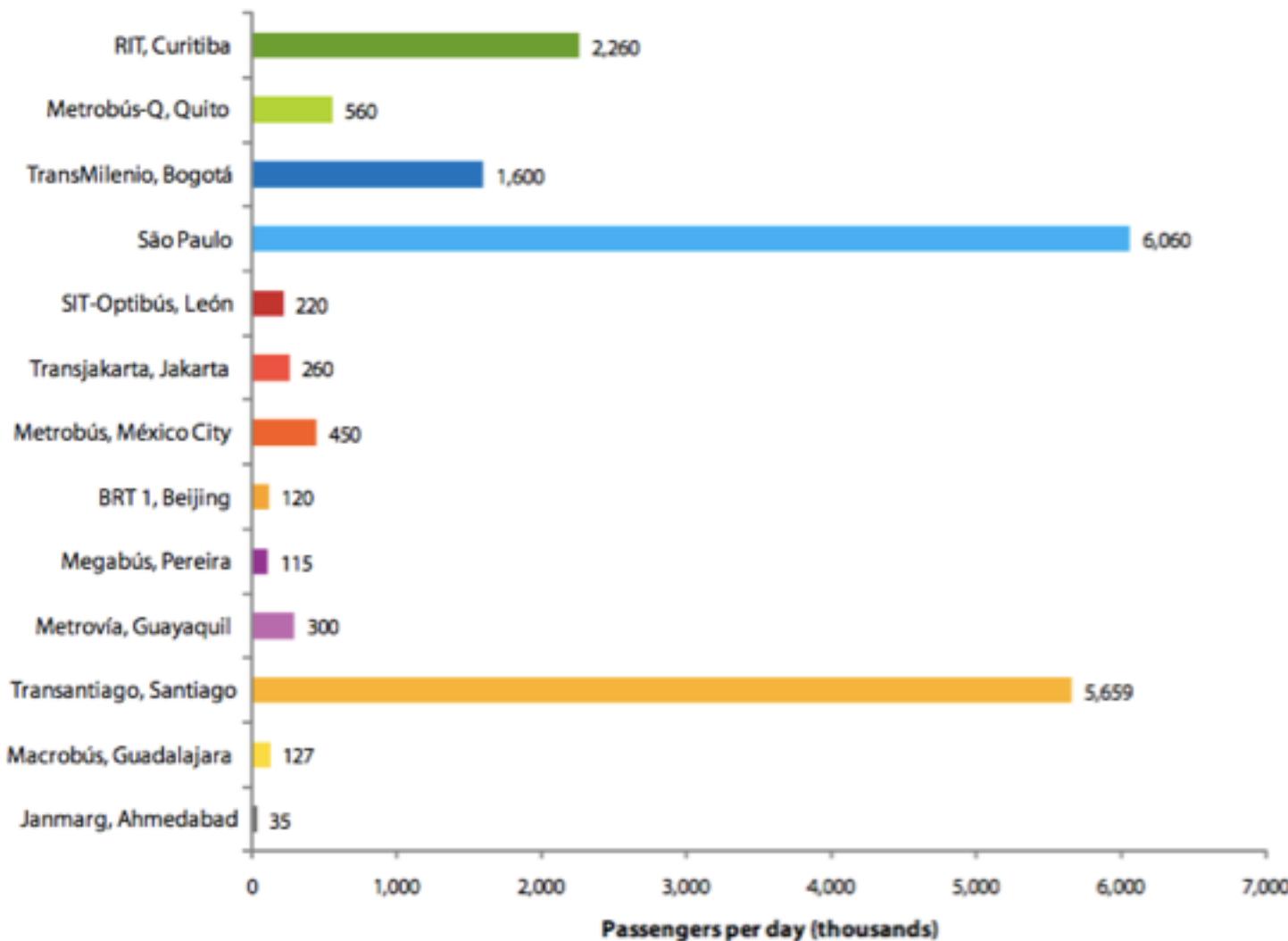
Greenhouse Gases

\$392m saved

from Metrobüs in Istanbul

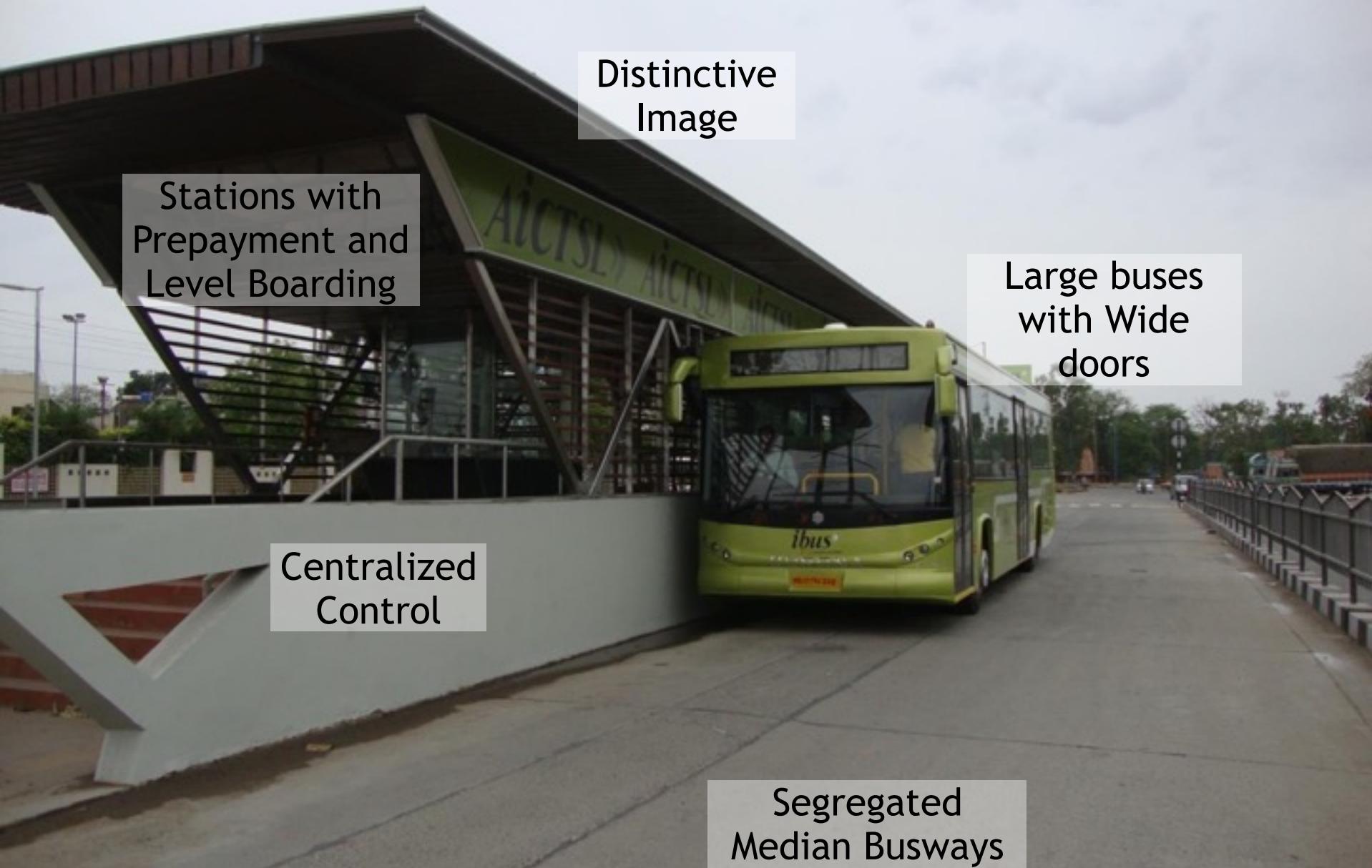


TOTAL PASSENGER OF BRT (2009)



Source: Modernising Public Transport, WRI

BRT COMPONENTS



Distinctive
Image

Stations with
Prepayment and
Level Boarding

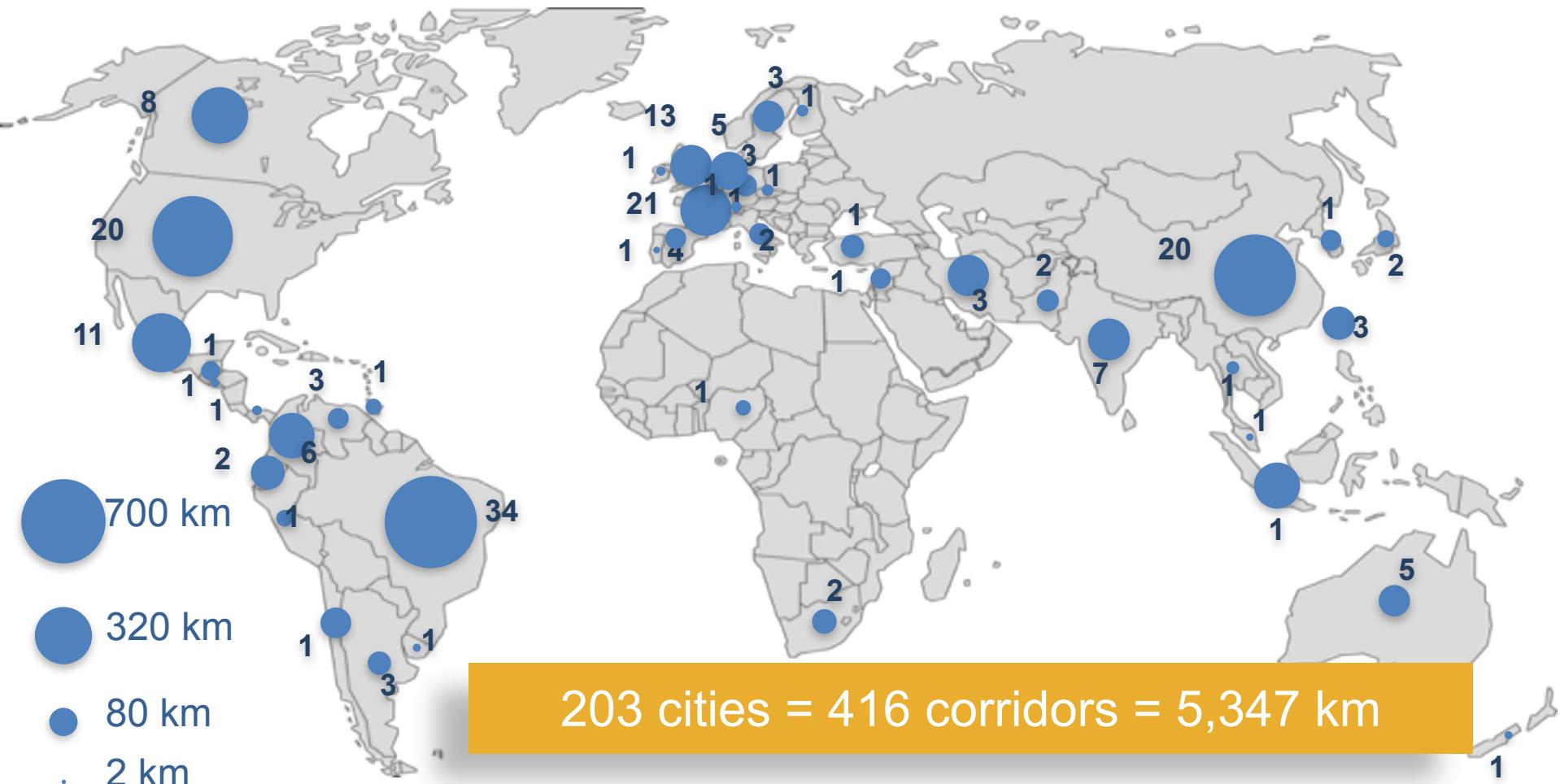
Large buses
with Wide
doors

Centralized
Control

Segregated
Median Busways

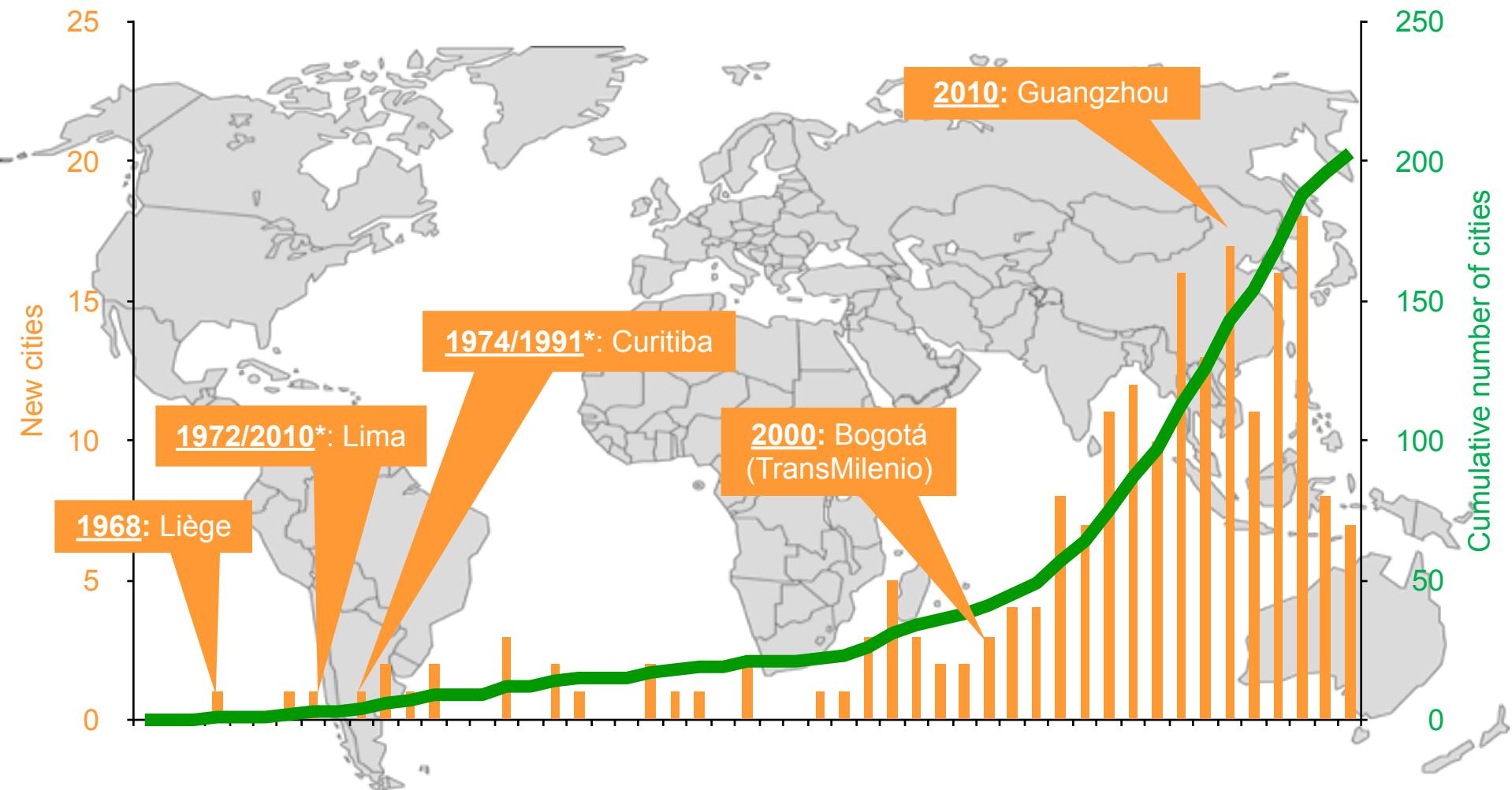
BUS PRIORITY SYSTEMS IN THE WORLD

- # of cities and length (km) per country



BUS PRIORITY SYSTEMS IN THE WORLD

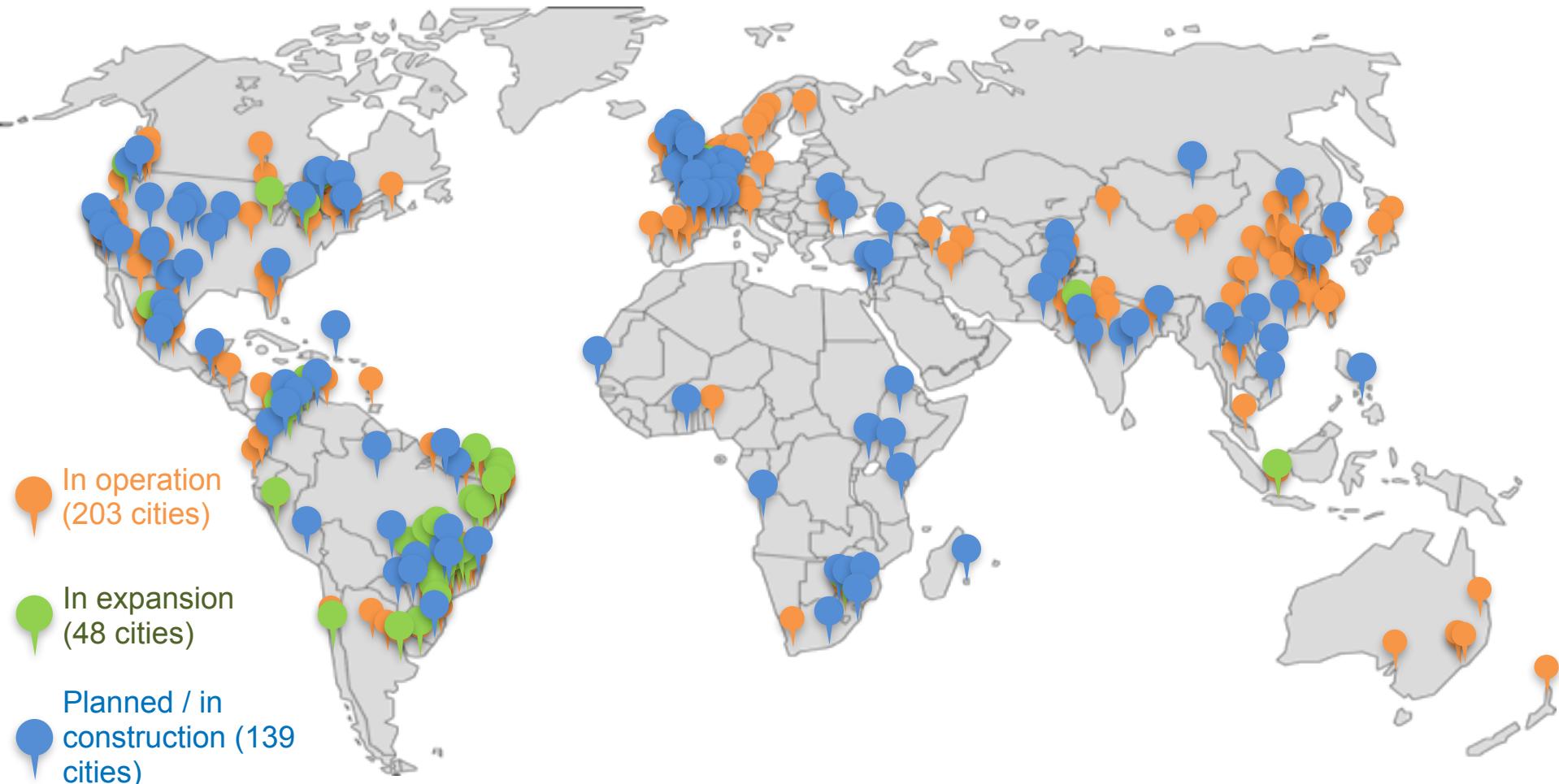
- Evolution of the number of cities per year



* Busway / BRT year commencement

source: BRTData.org, March 2016

BUS PRIORITY SYSTEMS IN THE WORLD

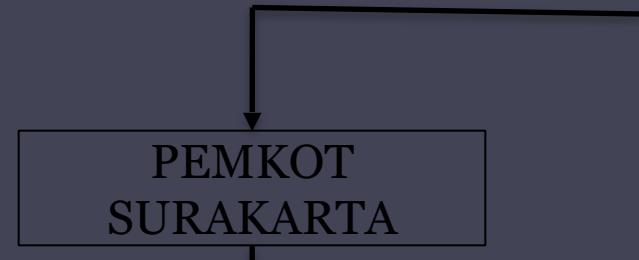
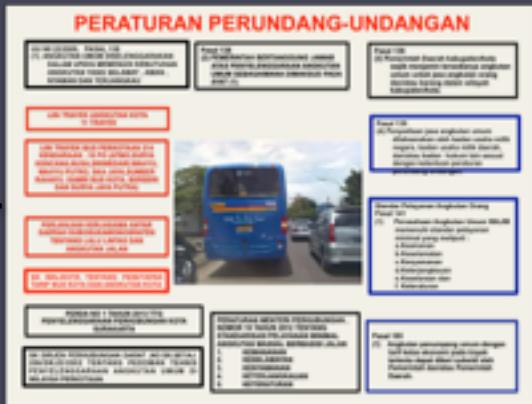


source: BRTData.org, April 2016

Planning Phase



SISTEM PELAKSANAAN SARANA ANGKUTAN UMUM MASSAL/BATIK SOLO TRANS KOTA SURAKARTA TAHUN 2009-2015



DISHUB/KOMINFO

BLUD
TRANSPORTASI

PT DAN KOPERASI

1. 16 PO BUS DAN 350 ANGKOTA MEMBENTUK KONSORSIUM DAN MELEBUR MENJADI PT UNTUK BUS KOTA DAN KOPERASI UNTUK ANGKOT

2. KOTA SURAKARTA BEKERJA SAMA DENGAN PT (BUS KOTA) DAN KOPERASI (ANGKUTAN KOTA) UNTUK MENGOPERASIKAN BATIK SOLO TRANS KORIDOR 1-14 (PEMBERDAYAAN OPERATOR LAMA)

Source: Department of Transportation (Dishub) of Surakarta Presentation on Rencana Pengembangan Batik Solo Trans Kota Surakarta, 2017



INFRASTRUCTURE DESIGN



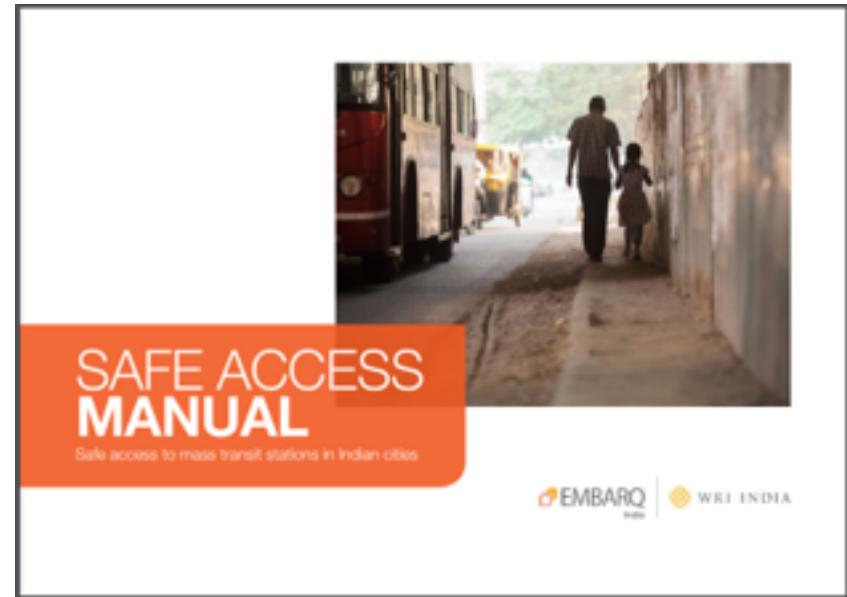
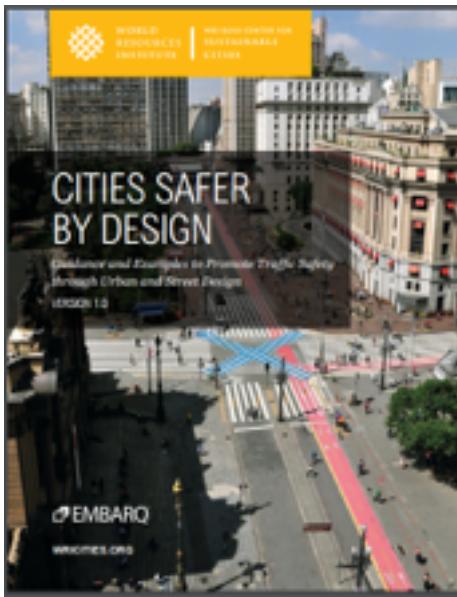
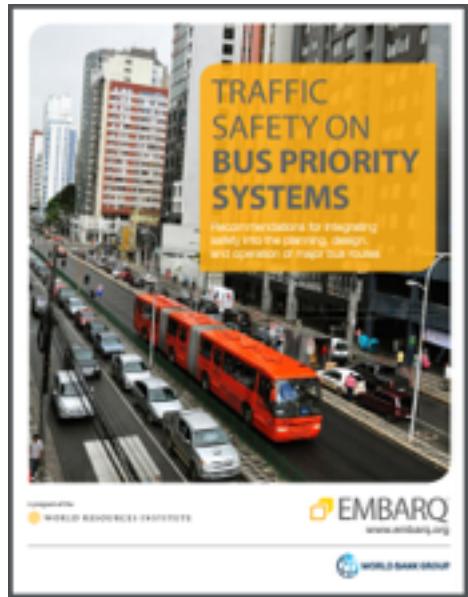
Source: WRI Presentation on Traffic Safety for Bus Priority System, 2017

INTEGRATION WITH NMT



Photo: EMBARQ / EMBARQ Brazil

WRI'S WORK ON ROAD SAFETY AND TRANSPORT



Source: WRI Presentation on Traffic Safety for Bus Priority System, 2017

PUBLIC OUTREACH



OUTREACH MATERIAL





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THANK YOU!!!