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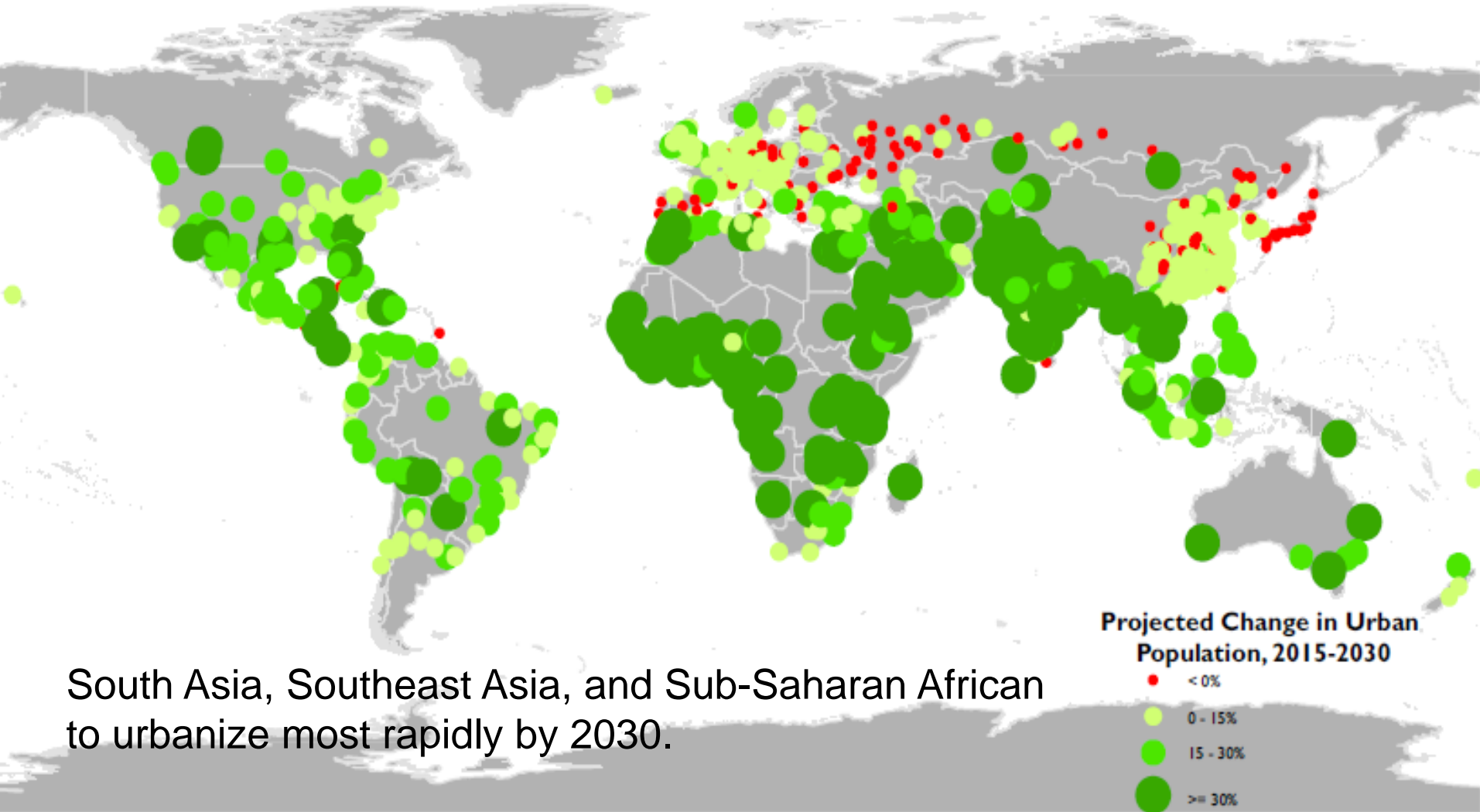# URBAN TRANSPORT IN DEVELOPING COUNTRIES
Balancing Accessibility with Aspiration

Dr. Anjali Mahendra, WRI Ross Center for Sustainable Cities, World Resources Institute

Expert Group Meeting on "Special Needs and Challenges in Developing Countries for Achieving Sustainable Transport", UN DESA, UN Headquarters, New York
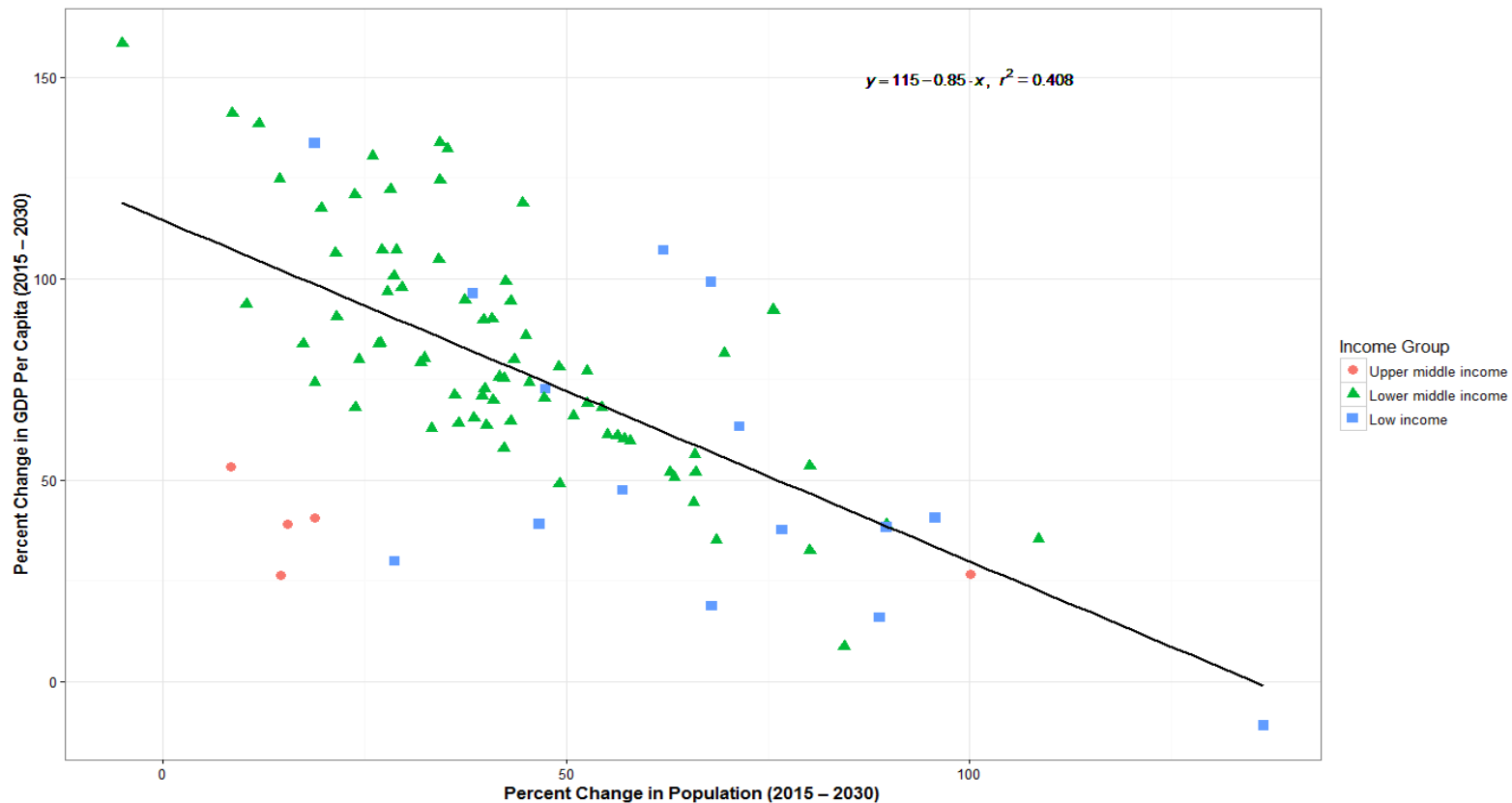
May 10, 2016

PROJECTED URBANIZATION FROM 2015-2030

South Asia, Southeast Asia, and Sub-Saharan African
to urbanize most rapidly by 2030.

**Projected Change in Urban
Population, 2015-2030**

- < 0%
- 0 - 15%
- 15 - 30%
- >= 30%

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INVERSE RELATIONSHIP BETWEEN URBAN POPULATION GROWTH AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA AND SOUTH ASIA

$y = 115 - 0.85 \cdot x, \ r^2 = 0.408$

Income Group
- Upper middle income
- Lower middle income
- Low income

X-axis: Percent Change in Population (2015 – 2030)
Y-axis: Percent Change in GDP Per Capita (2015 – 2030)

Paved roads occupy a smaller share of urban land in Africa than elsewhere—and usually drop off abruptly beyond the city center

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Global Stock of Motorized Vehicles

2.5 billion more people in cities by 2050

3 or 4 billion??

2 billion

1 billion

250 million

1970   2010   2030   2050

Source: Sperling and Gordon, 2009. 'Two Billion Cars: Driving Toward Sustainability.'
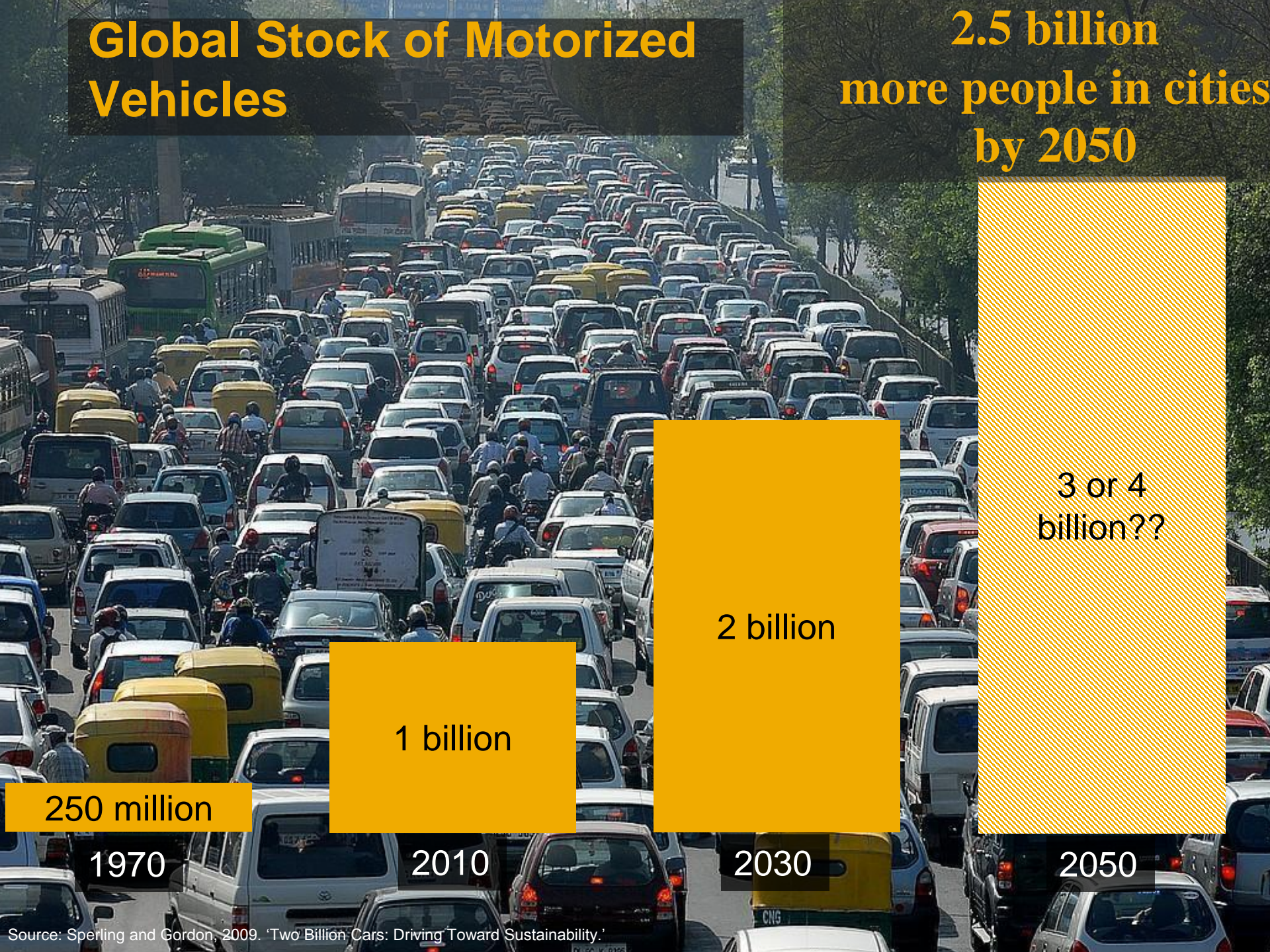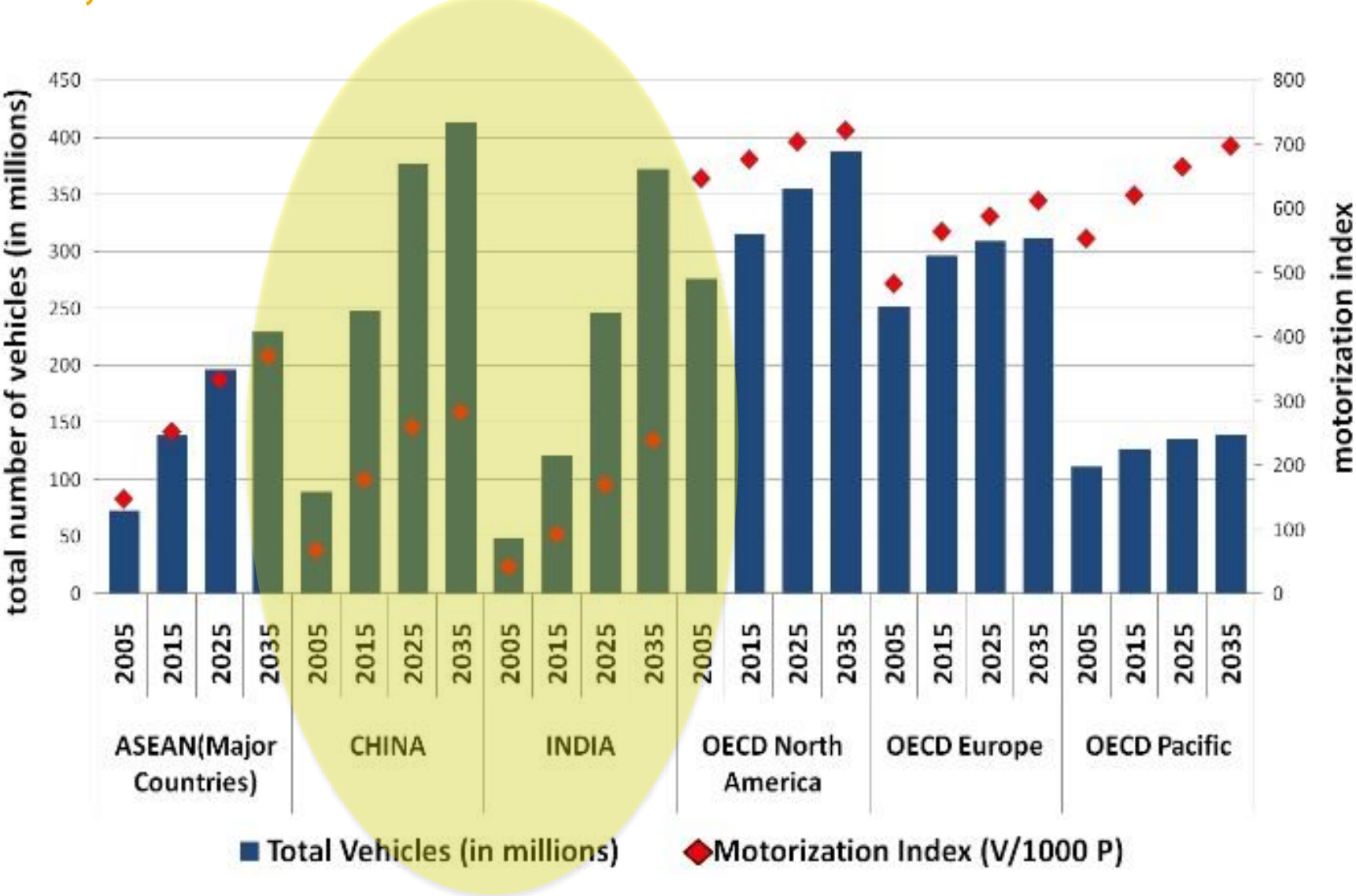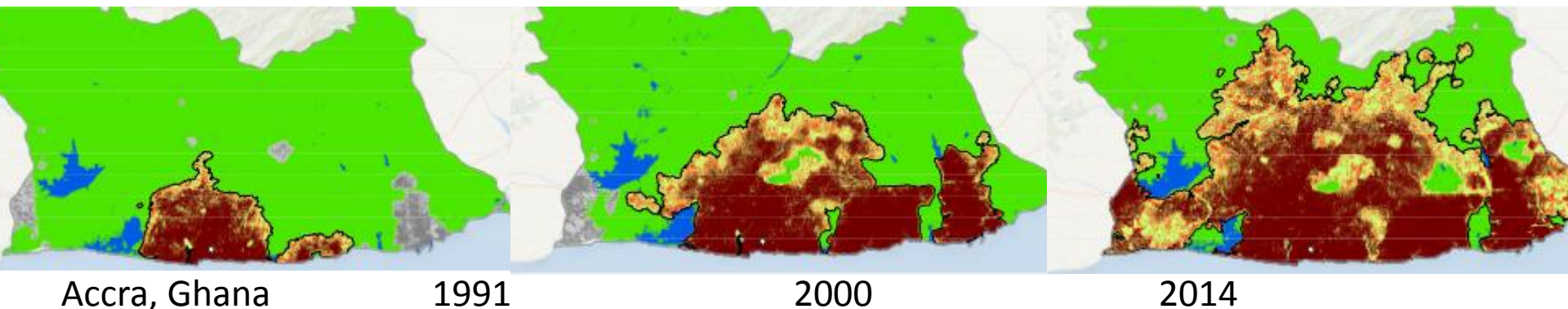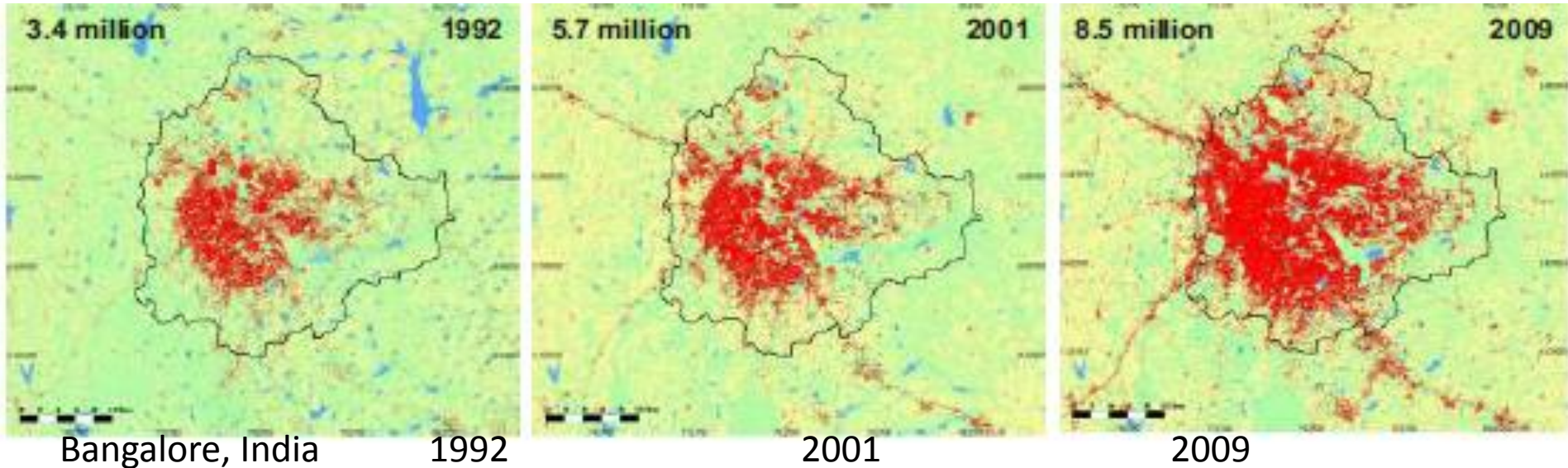
ASIA TO HAVE ABOUT HALF OF GLOBAL VEHICLES BY 2030, SAYS ADB

Source: Fabian, B. (2012)

URBAN EXPANSION CREATES CHALLENGES FOR TRANSPORT ACCESSIBILITY

Bangalore, India   1992   2001   2009

Accra, Ghana   1991   2000   2014
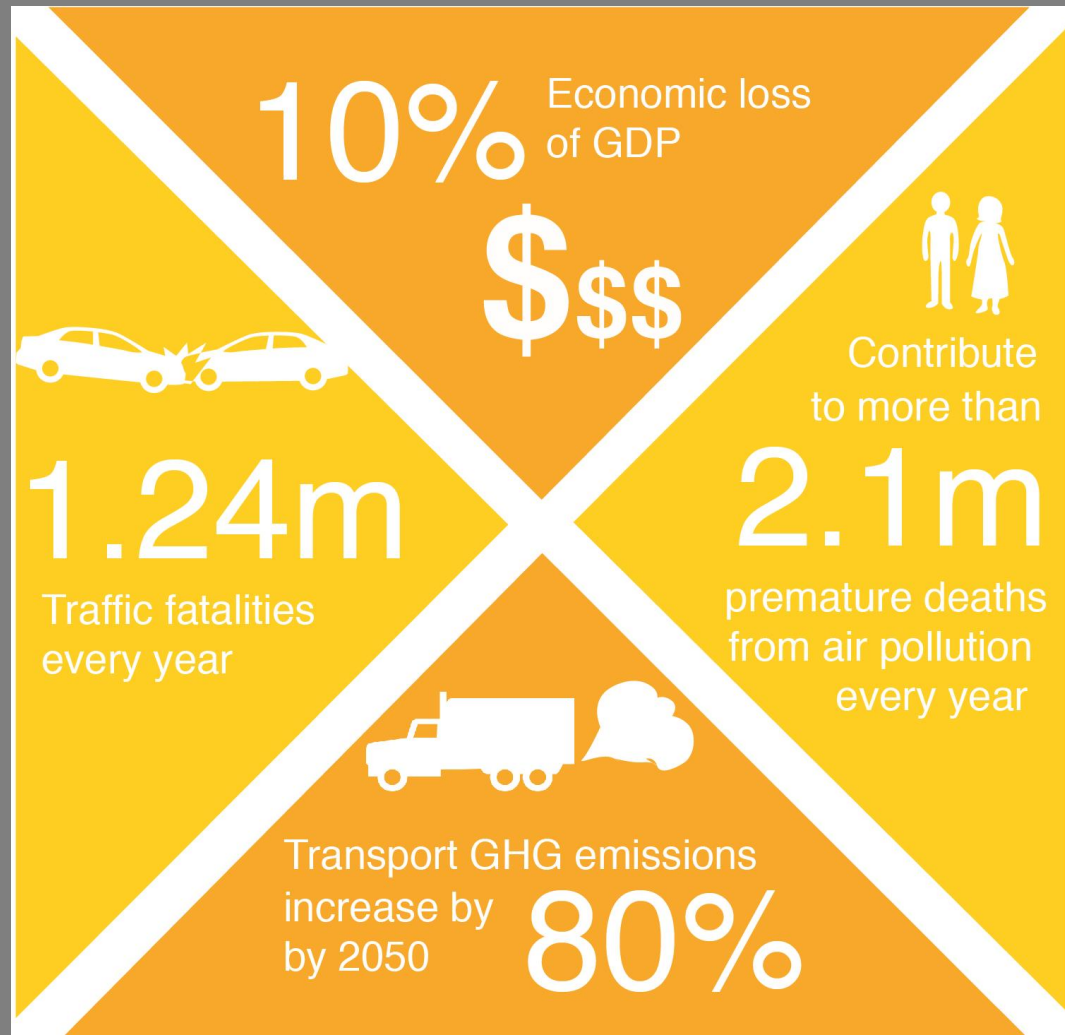
On average, **4-fold to 6-fold increase in urban land cover expected** between 2000 and 2050, in developing countries.

Sources: IIHS (2011) for Bangalore and Solly Angel, New York University (2016) for Accra

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BUSINESS AS USUAL URBAN TRANSPORT SCENARIO

40-50%
of fatal crashes happen
in urban areas

50%
of traffic deaths are
pedestrians
and vulnerable users,
including **the poor**

10% Economic loss of GDP
$$$

1.24m
Traffic fatalities
every year

Contribute
to more than
2.1m
premature deaths
from air pollution
every year

Transport GHG emissions
increase by
by 2050 **80%**

Data source:
IEA.(2012). Energy Technology Perspectives: Tracking Clean Energy Progress. OECD/IEA, Paris.
UNEP (United Nations Environment Programme). (2011). Towards a Green Economy - Transport:
Investing in Energy and Resource Efficiency.
World Health Organization. (2013). Global status report on road safety 2013: supporting a decade
of action
Silva, R. A., et al. (2013). Global premature mortality due to anthropogenic outdoor air pollution
and the contribution of past climate change. Environmental Research Letters, 8(3), 034005.

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LIMITED AVAILABILITY OF RELIABLE, HIGH QUALITY TRANSPORT LIMITS ACCESS AND PRODUCTIVITY

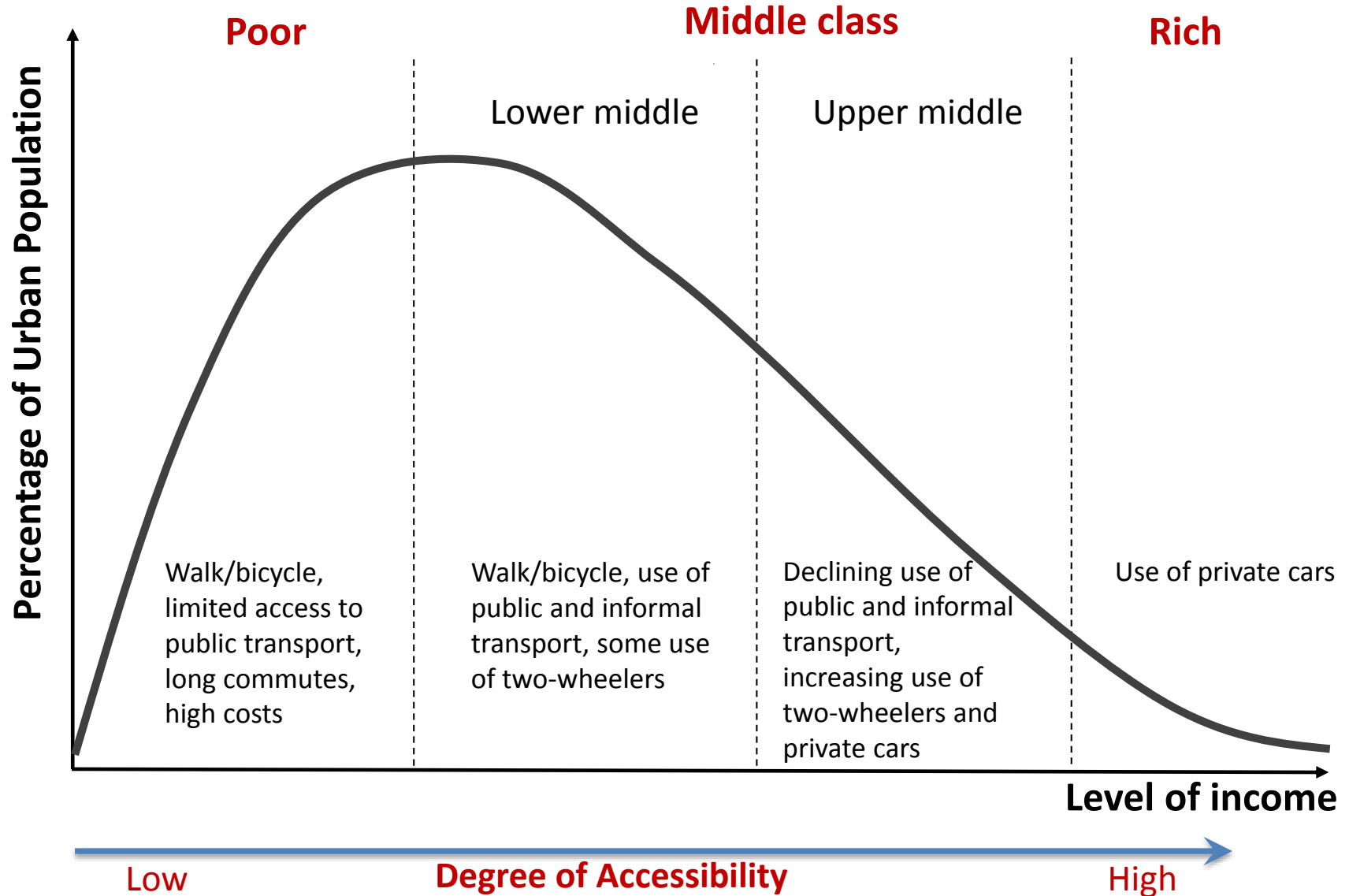In Nairobi, 70% walk or take the matatu to work limiting access to opportunity

28% matatu 14%

42% walk 8%

…limiting access to opportunities

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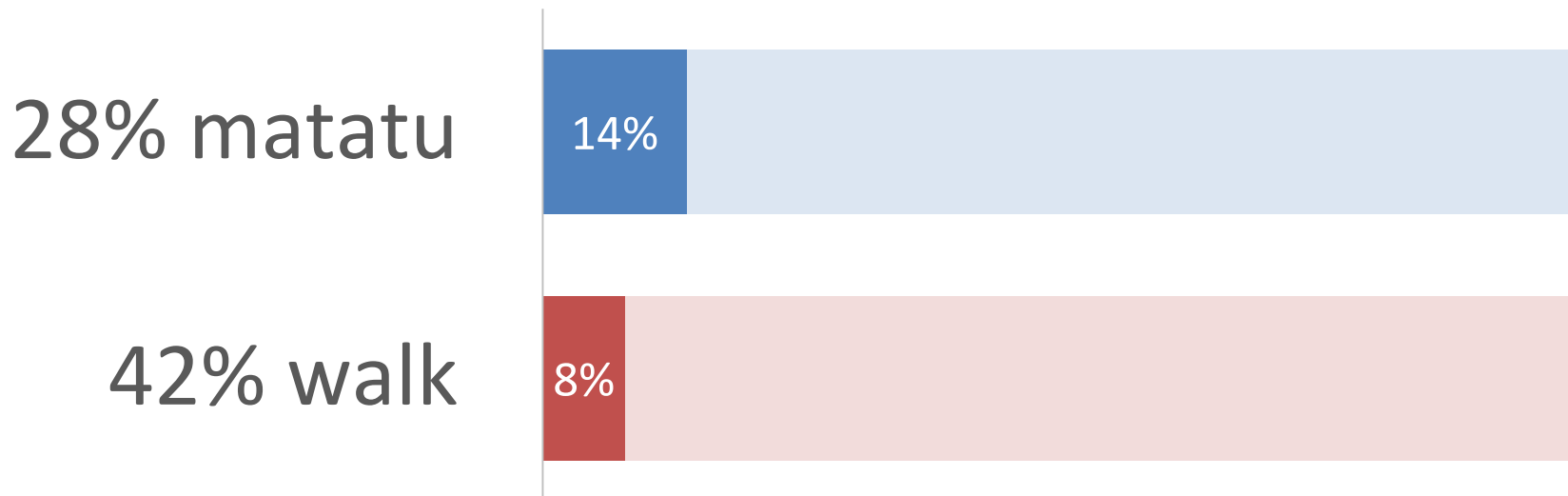
OVERLAPPING DIMENSIONS OF ACCESSIBILITY

- *Proximity*, how far is the nearest transport service?

- *Affordability* of the transport services?

- *Reliability,* will the service be available when the user needs it?

- *Quality*, is the service safe, comfortable?

- *Quantity,* how frequent is the service and does the capacity match demand?
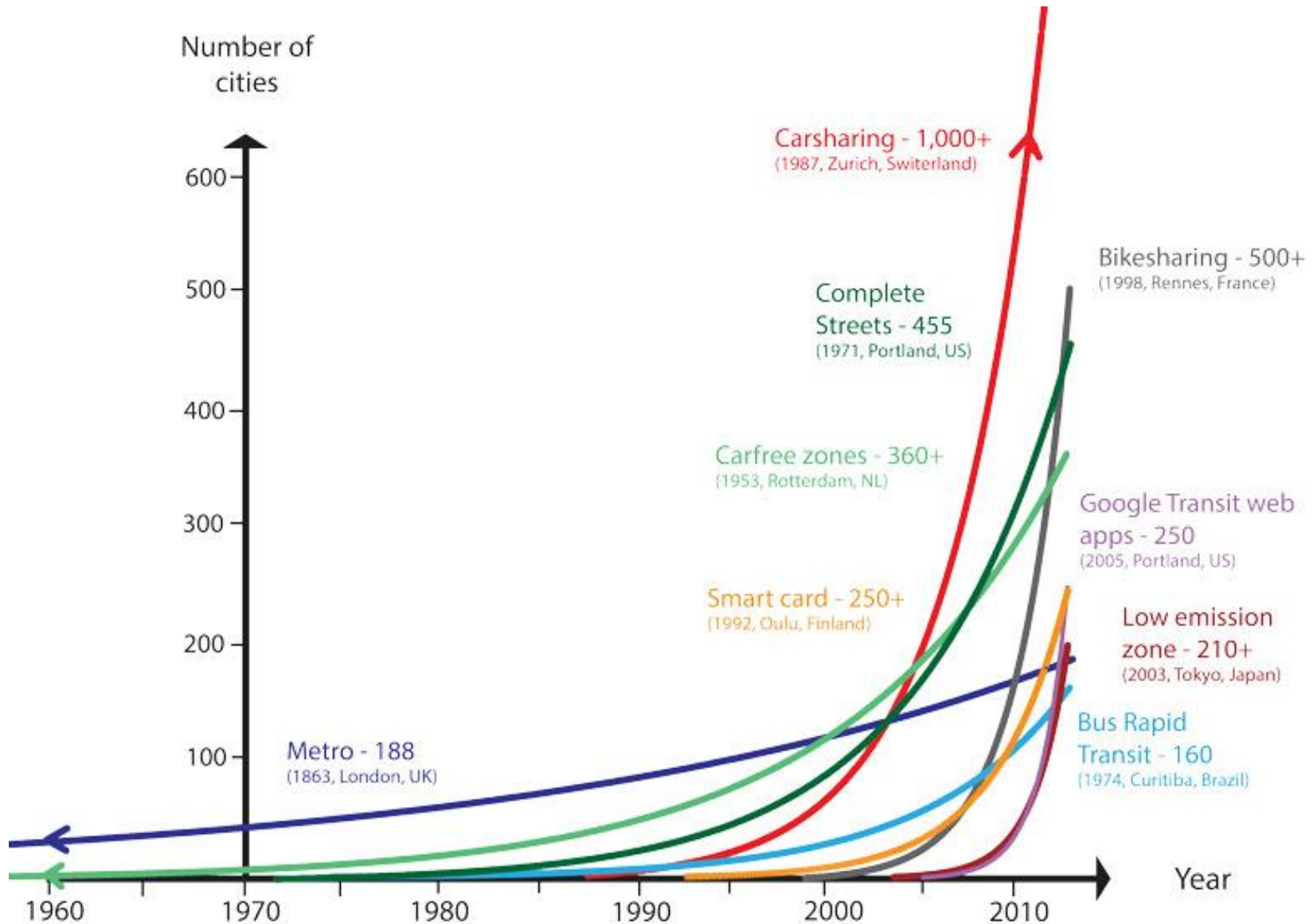
URBAN TRANSPORT OPTIONS BY INCOME CLASS

Poor **Middle class** **Rich**

Lower middle Upper middle

Percentage of Urban Population (y-axis)

Walk/bicycle, limited access to public transport, long commutes, high costs

Walk/bicycle, use of public and informal transport, some use of two-wheelers

Declining use of public and informal transport, increasing use of two-wheelers and private cars

Use of private cars

Level of income

Low **Degree of Accessibility** High

Source: Adapted from CODATU and AFD (2014) by Mahendra, A. Draft not to be used without permission.

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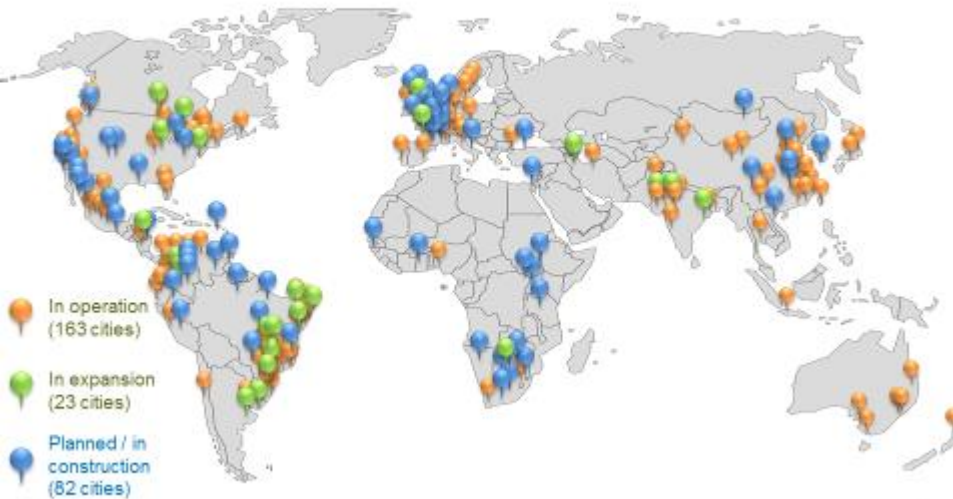# ROOT CHALLENGES IN DEVELOPING COUNTRIES

- Rapid, unmanaged motorization and declining non-motorized accessibility

- Lack of integrated planning:

  - across transport modes (public, private, informal, non-motorized, and freight)

  - across land use, transport, and economic development sectors → leads to urban expansion, problem of last mile access and loss in productivity

- Misaligned sectoral plans and conflicting government policies at national and local levels

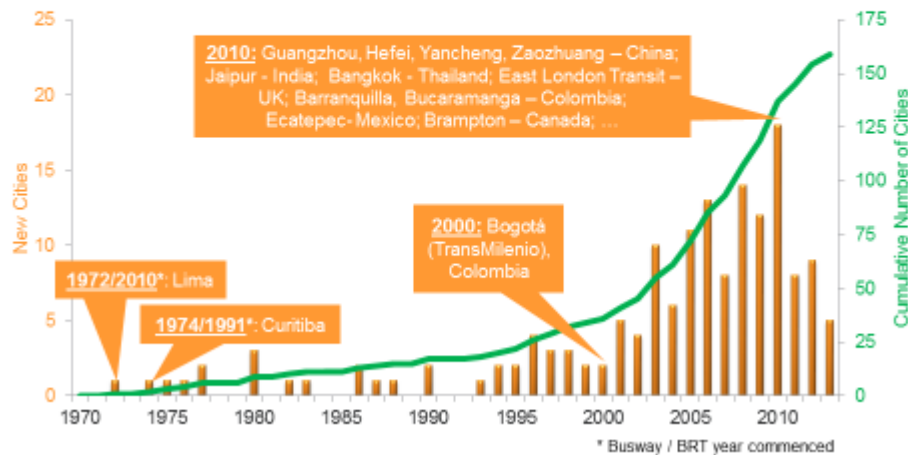- Financing gap

NEW TRENDS ON THE RISE

Number of cities

- Carsharing - 1,000+ (1987, Zurich, Switerland)
- Bikesharing - 500+ (1998, Rennes, France)
- Complete Streets - 455 (1971, Portland, US)
- Carfree zones - 360+ (1953, Rotterdam, NL)
- Google Transit web apps - 250 (2005, Portland, US)
- Smart card - 250+ (1992, Oulu, Finland)
- Low emission zone - 210+ (2003, Tokyo, Japan)
- Metro - 188 (1863, London, UK)
- Bus Rapid Transit - 160 (1974, Curitiba, Brazil)

Year

1960 1970 1980 1990 2000 2010

TECHNOLOGY-DRIVEN TRANSPORT INNOVATIONS
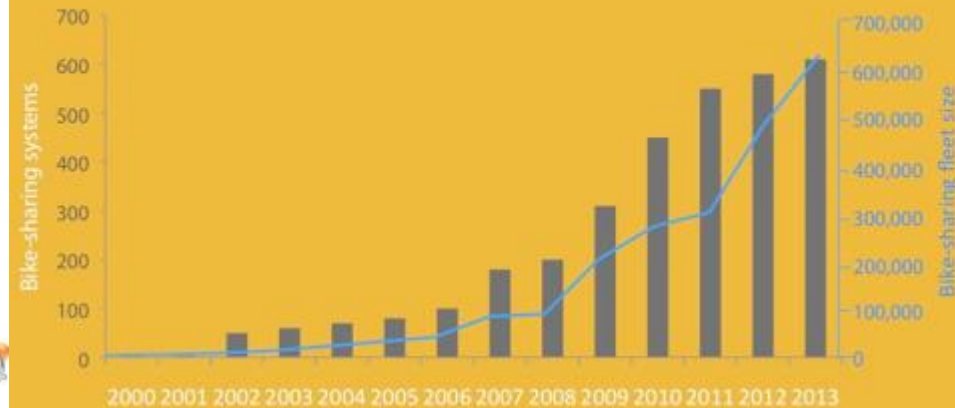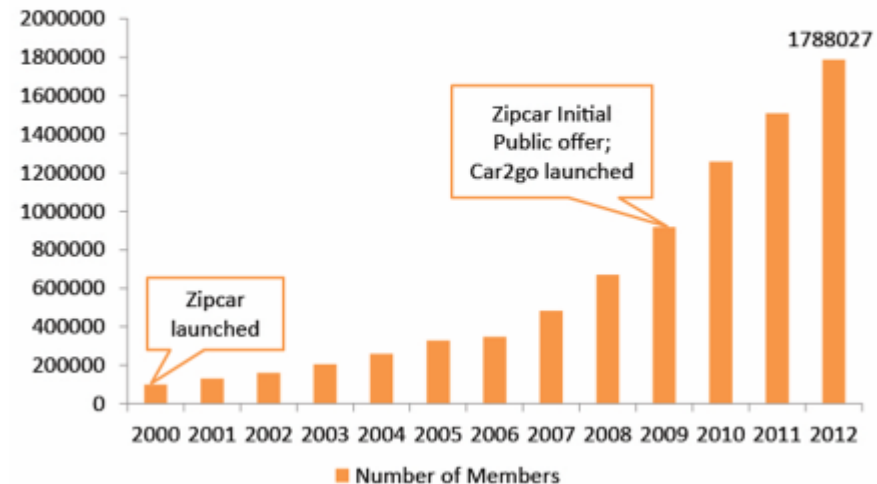
VEHICLE DEMAND MANAGEMENT SCHEMES EXPANDING

LATIN AMERICA
- 10 — Vehicle Travel Restriction (1989-2010)

EUROPEAN UNION
- 226 — Low Emission Zones (2002-2013)
- 5 — Congestion Pricing (2007-2013)
- 1 — Vehicle Travel Restriction (1982)

CHINA
- 7 — Vehicle Travel Restriction (2008-2012)
- 4 — Vehicle Quota Systems (1994-2012)

SINGAPORE
- 1 — Congestion Pricing (1975)
- 1 — Vehicle Quota Systems (1990)

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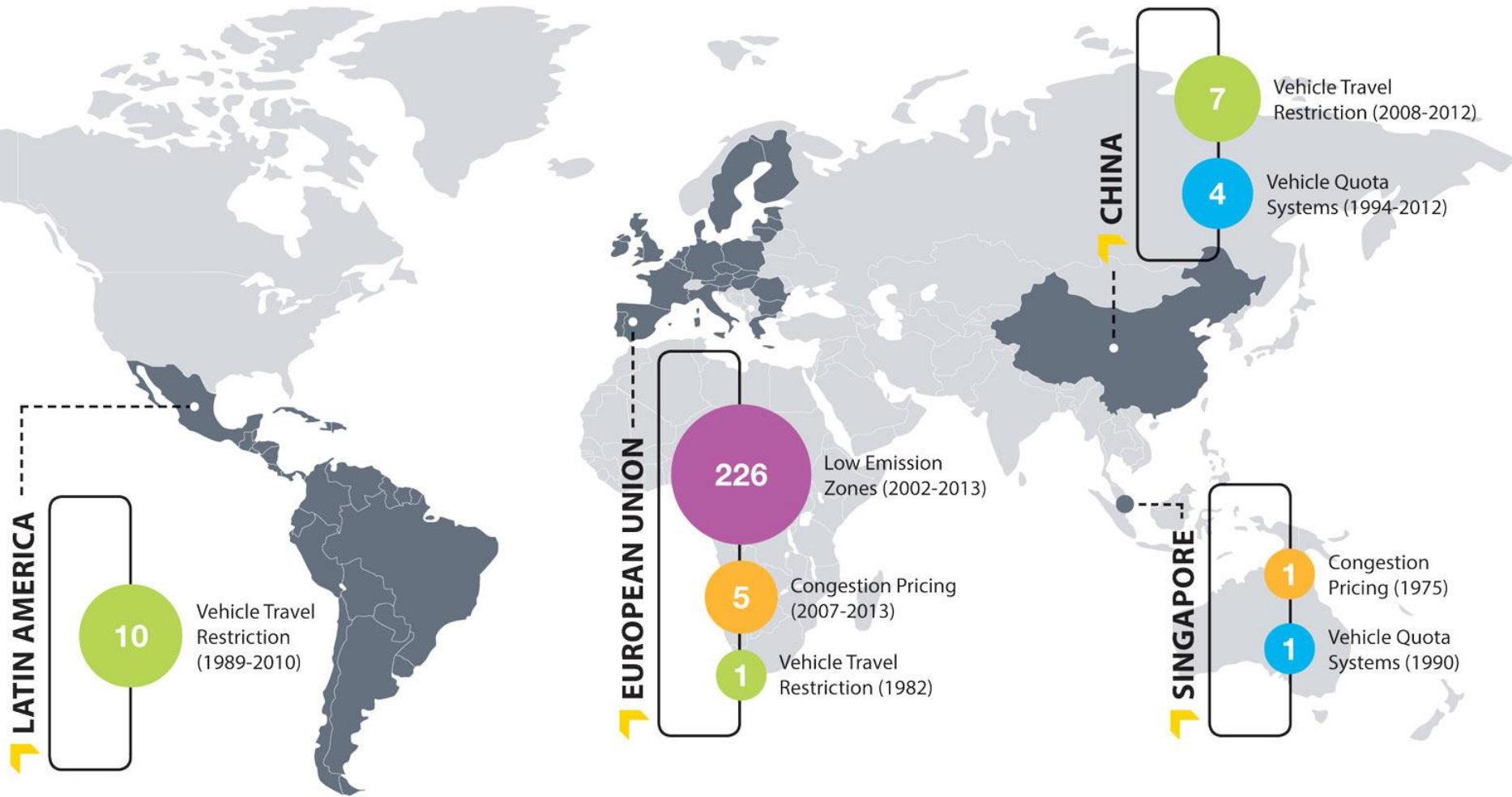
BUS RAPID TRANSIT WITH TRANSIT ORIENTED DEVELOPMENT

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GURGAON RECLAIMS ITS STREETS
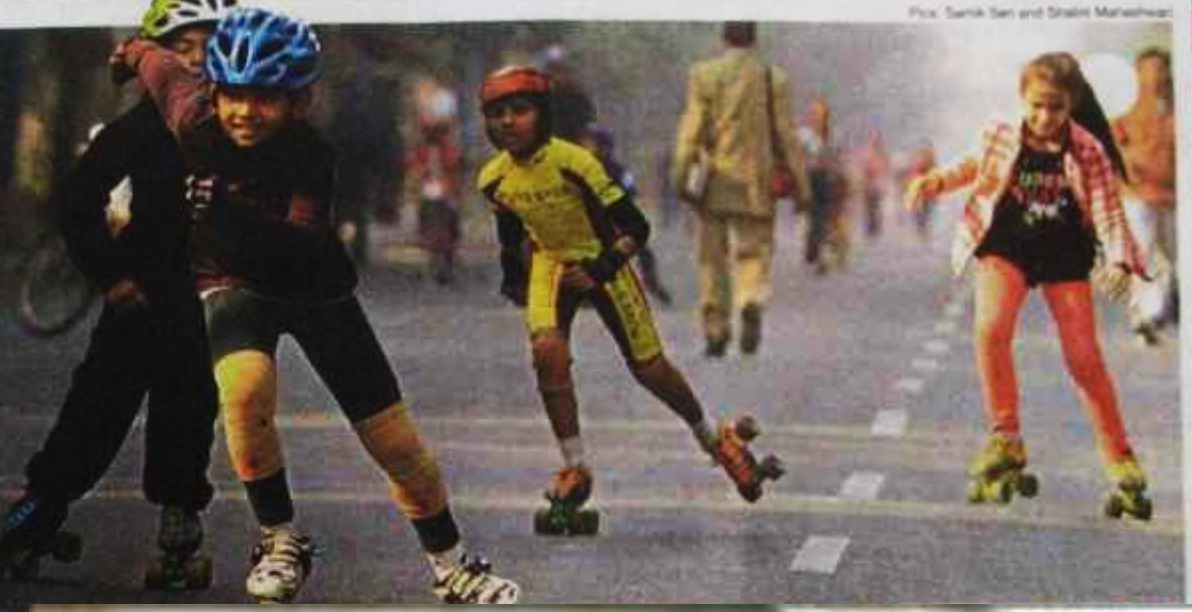
gty.im/
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By
Hindustan

RIDESHARING: UBER, LYFT, SIDECAR…

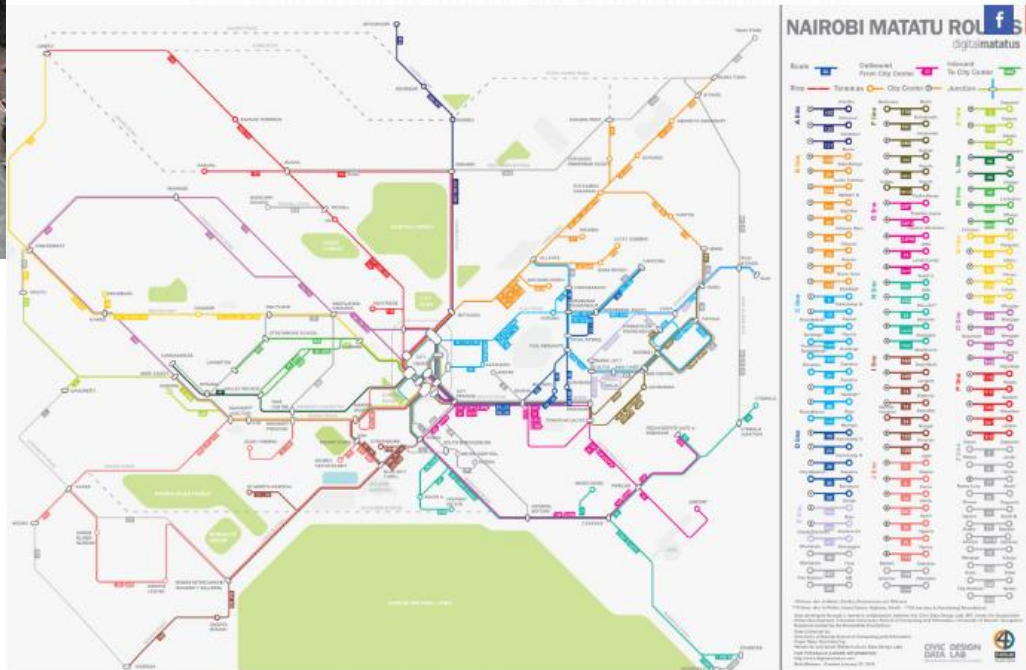Bhubaneshwar, Coimbatore: Your uberAUTO Is Arriving Now

EFFORTS TO INTEGRATE INFORMAL TRANSPORT

Digital matatus project – mapping of matatu routes in Nairobi, Kenya -- 2014

Fare setting and regulation for 50,000 autorickshaws in Chennai, India -- 2013

STRATEGY FOR CHANGE – FOUR SETS OF ACTIONS TO IMPROVE URBAN ACCESS

- Enhance accessibility for all by **investing in public, shared and non-motorized transport**; manage vehicle use and ownership

- Establish **national government policy and incentives** for integrating urban transport planning across modes, and across land development, economic development, and environmental plans

- Tap into **national, international, and new land-based sources of financing** and limit dependence on subsidies for operations

- Enhance **performance** and **governance** of the urban transport system using **technology**; integrate technology driven innovations with appropriate regulation

THANK YOU!

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