

Green Urbanization in Asia

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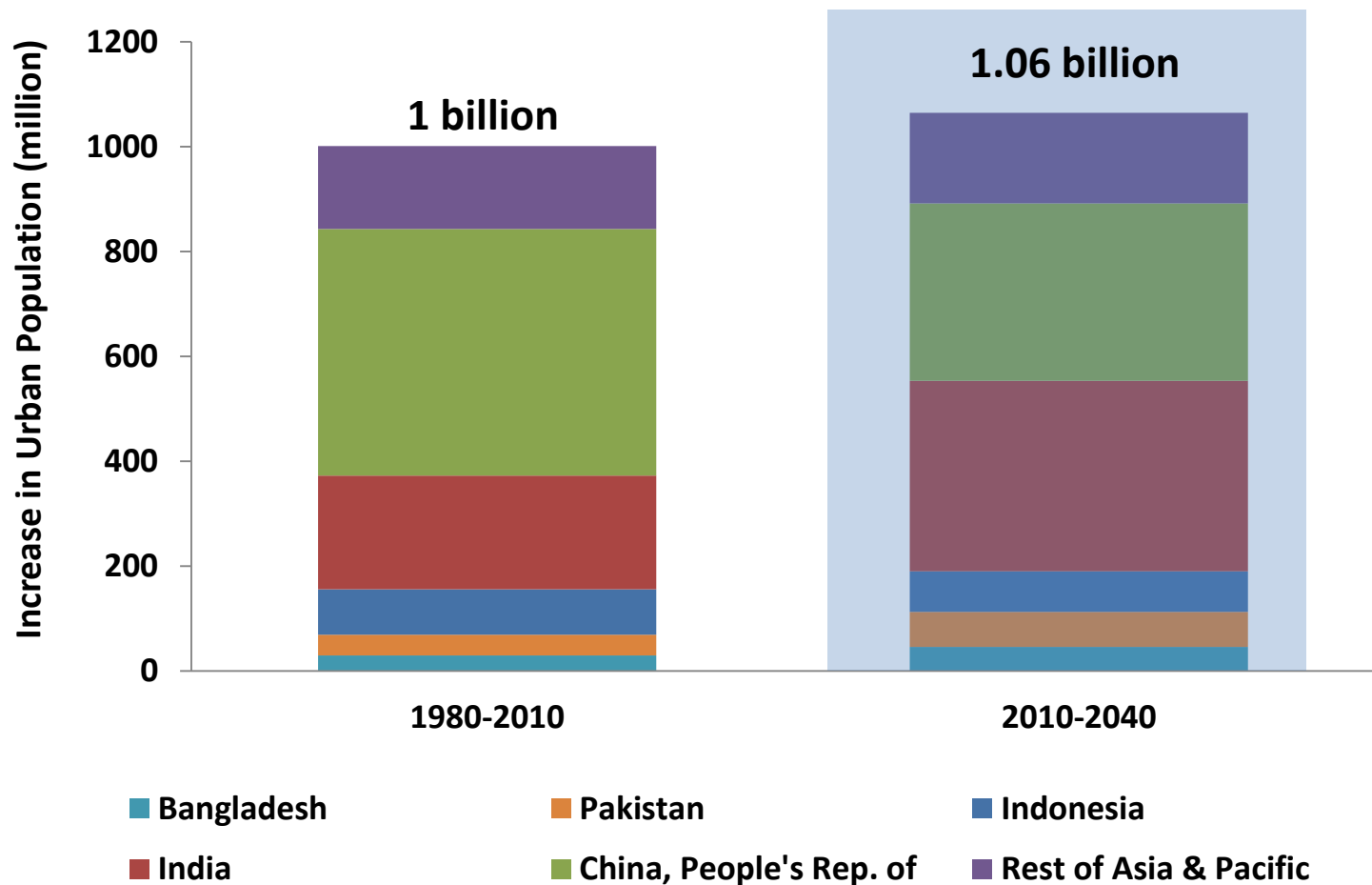
Asian Development Bank

Main Messages

- **Asia's urbanization is unprecedented & unique in several aspects**
- **... leading to enormous challenges, including environmental degradation**
- **But urbanization can help!**
- **To ensure a win-win scenario, green urbanization policies shall exploit unique features of Asia's urbanization and late comer's advantage**

Asia's urbanization is unprecedented

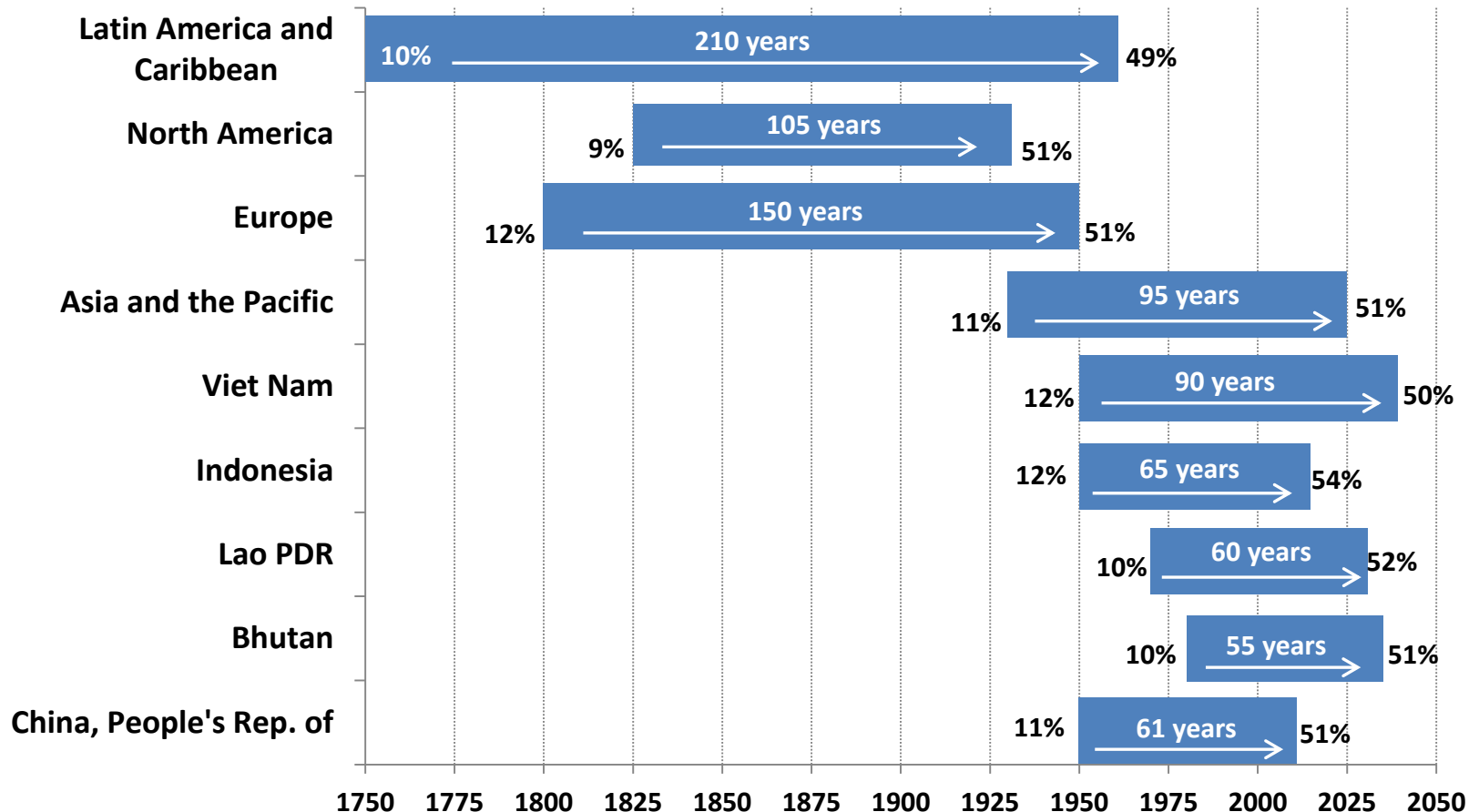
Increase in Urban Population in Asia and the Pacific (millions)



Source: ADB estimates using UN(2012).

Unique feature 1: very fast speed

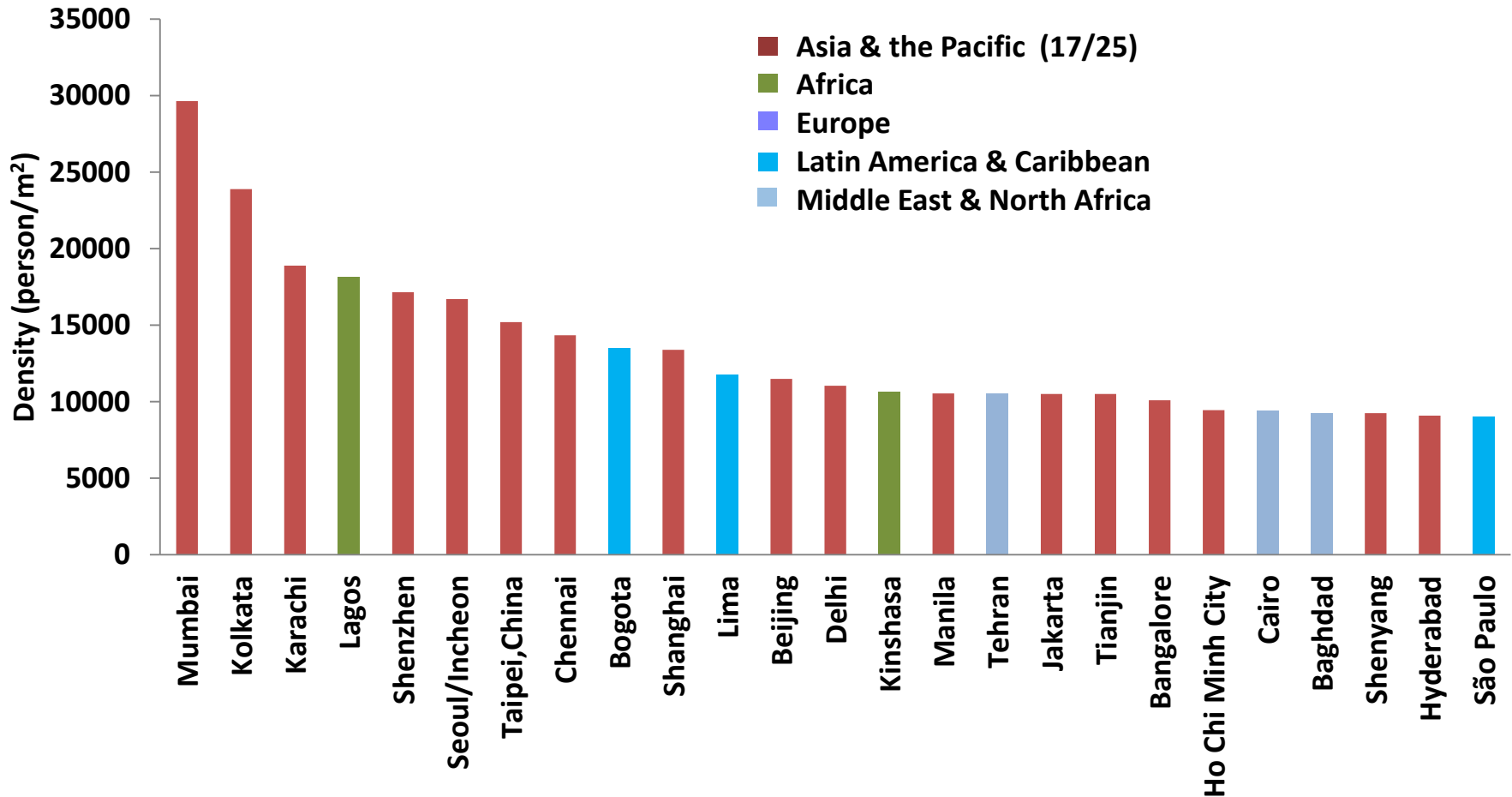
Number of Years from about 10% to 50% of Urbanization Rate



Source: ADB estimates using Bairoch (2008) and UN(2012).

Unique feature 2: highest densities in the world...

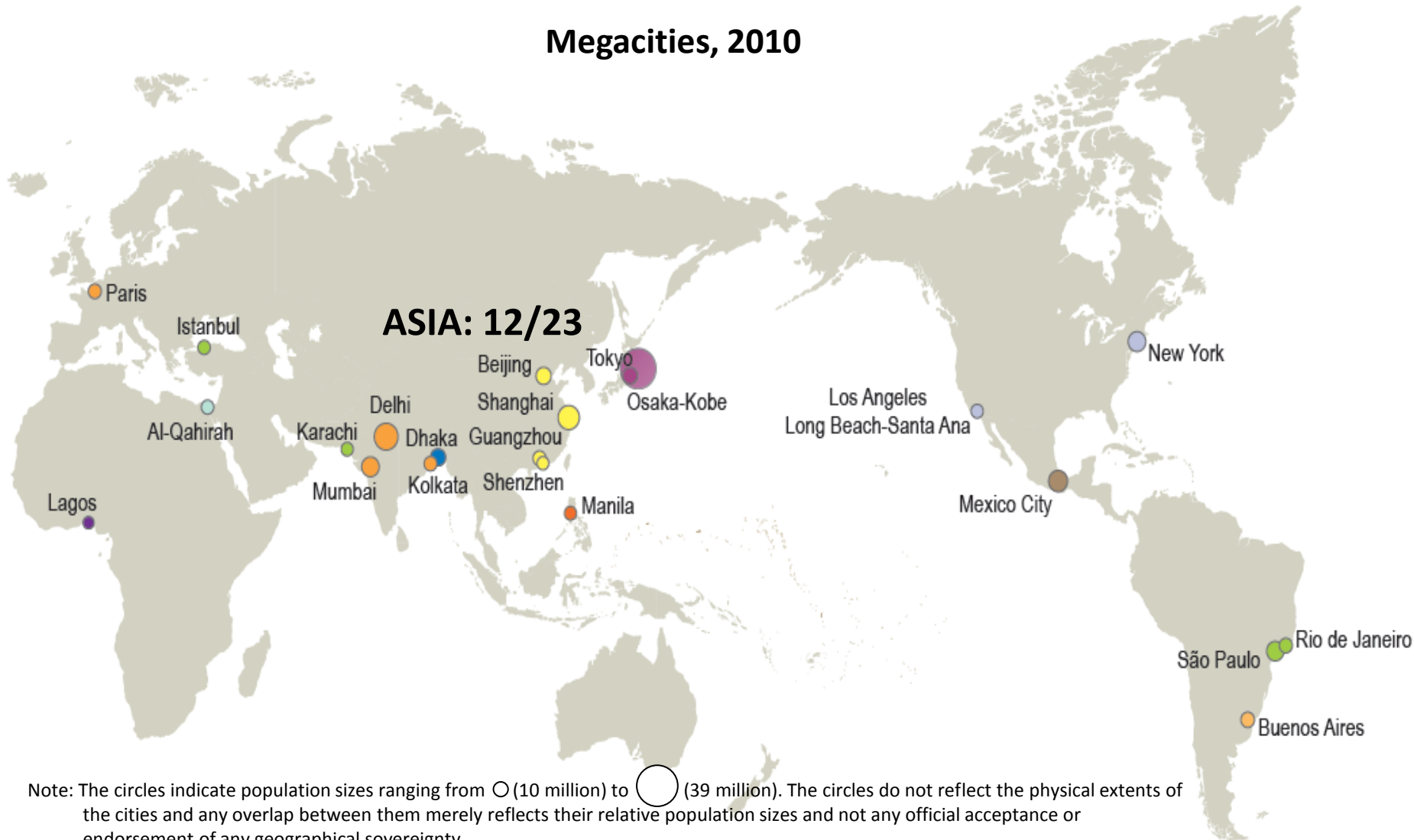
Top 25 World's Cities Ranked by Density, 2007



Unique feature 3: many megacities

Megacities, 2010

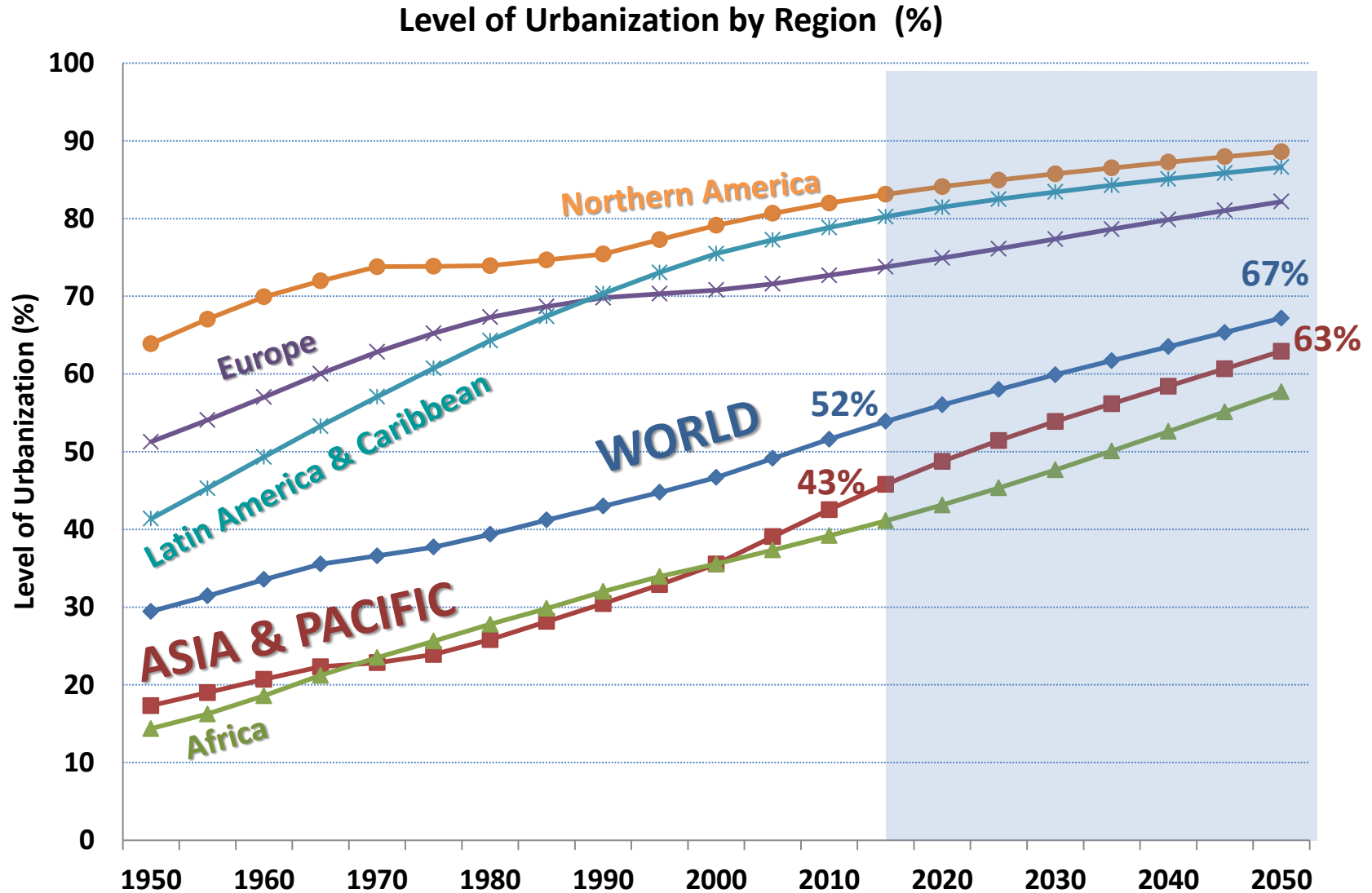
ASIA: 12/23



Note: The circles indicate population sizes ranging from ○ (10 million) to ○ (39 million). The circles do not reflect the physical extents of the cities and any overlap between them merely reflects their relative population sizes and not any official acceptance or endorsement of any geographical sovereignty.

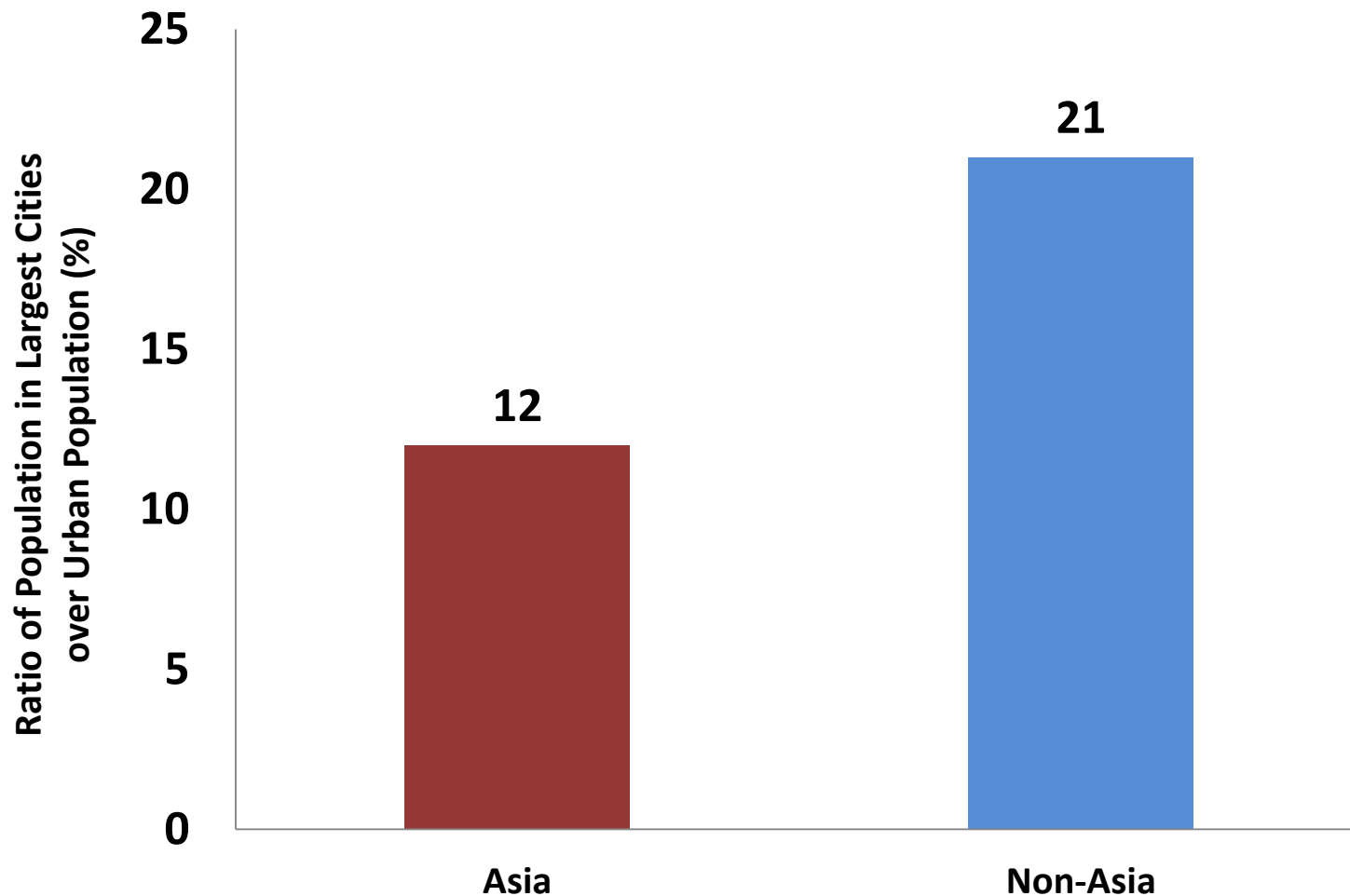
Source: UN (2012).

Unique feature 4: low starting base



Unique feature 5: the largest cities are likely to grow bigger

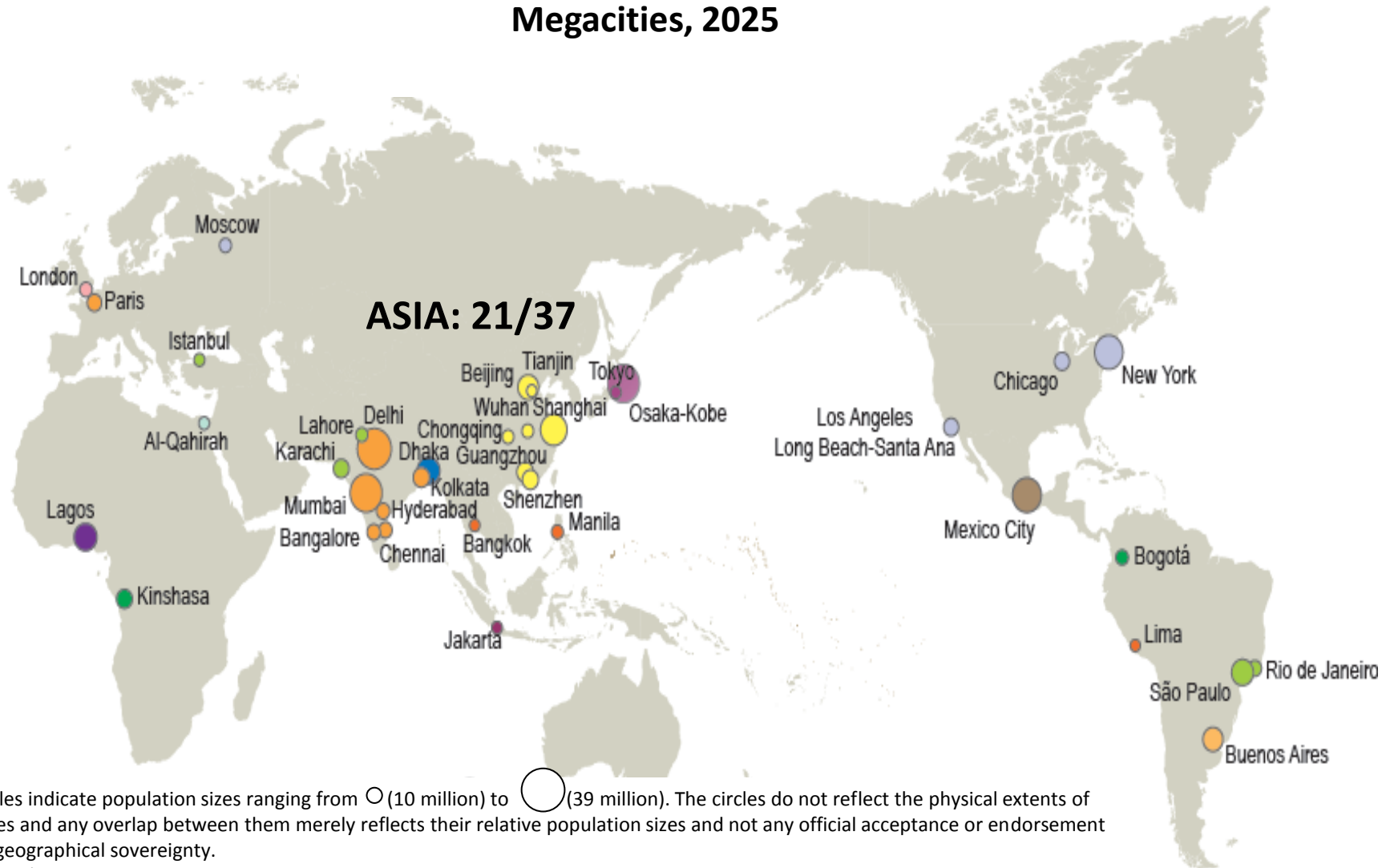
Urban Primacy (% , 2009)



Source: ADB estimates using UN(2012).

... thus more and bigger megacities are emerging

Megacities, 2025



Note: The circles indicate population sizes ranging from \bigcirc (10 million) to \bigcirc (39 million). The circles do not reflect the physical extents of the cities and any overlap between them merely reflects their relative population sizes and not any official acceptance or endorsement of any geographical sovereignty.

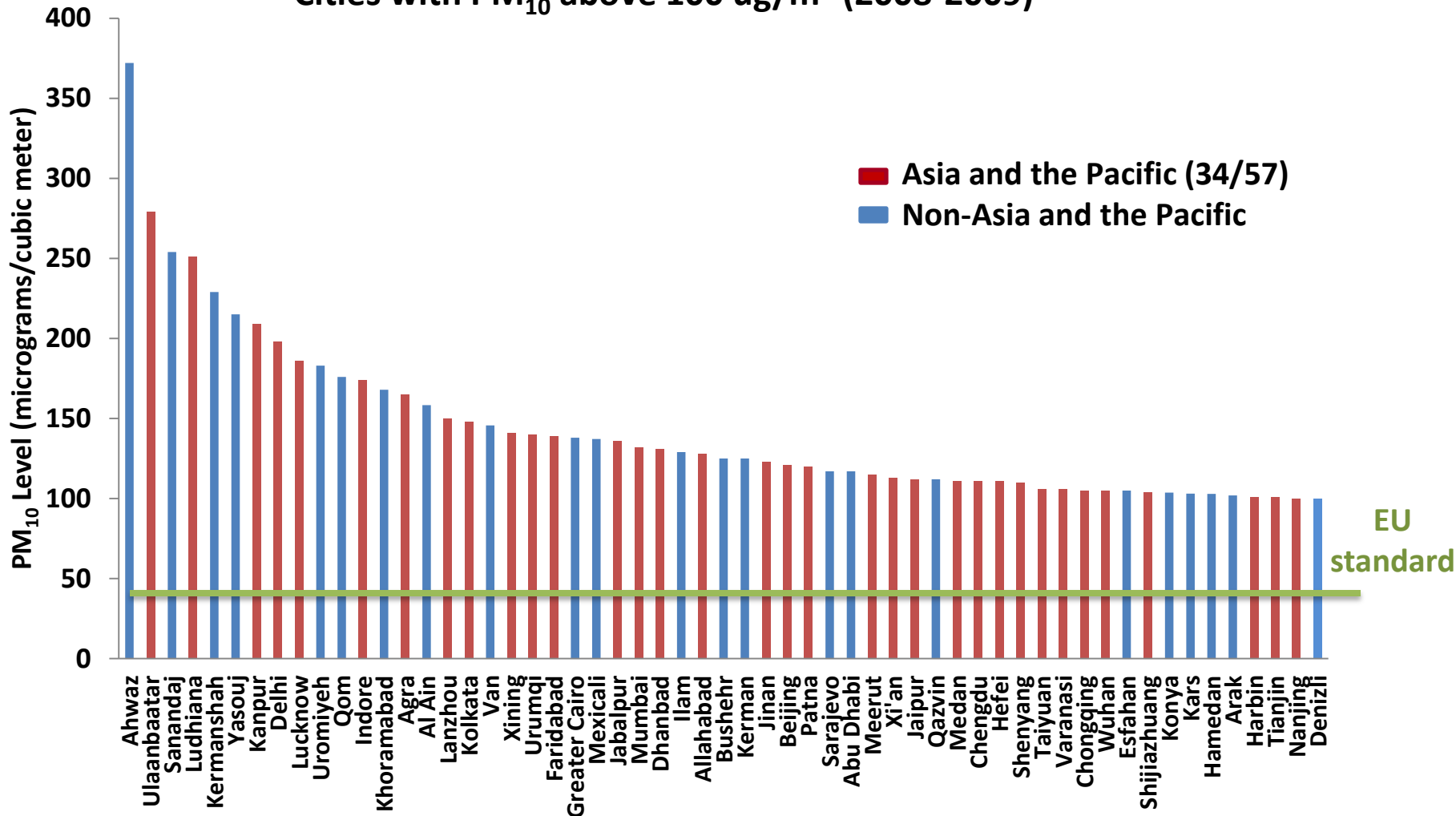
Source: UN (2012).

Unprecedented urbanization poses enormous challenges already serious

- **Growing inequalities**
- **Rising urban crimes**
- **Expansion of slums**
- **Above all, environmental degradation**
 - **Pollution**
 - **Vulnerability to flooding**

67% of Asian (vs. 11% Non-Asian) cities fail to meet EU air quality standard

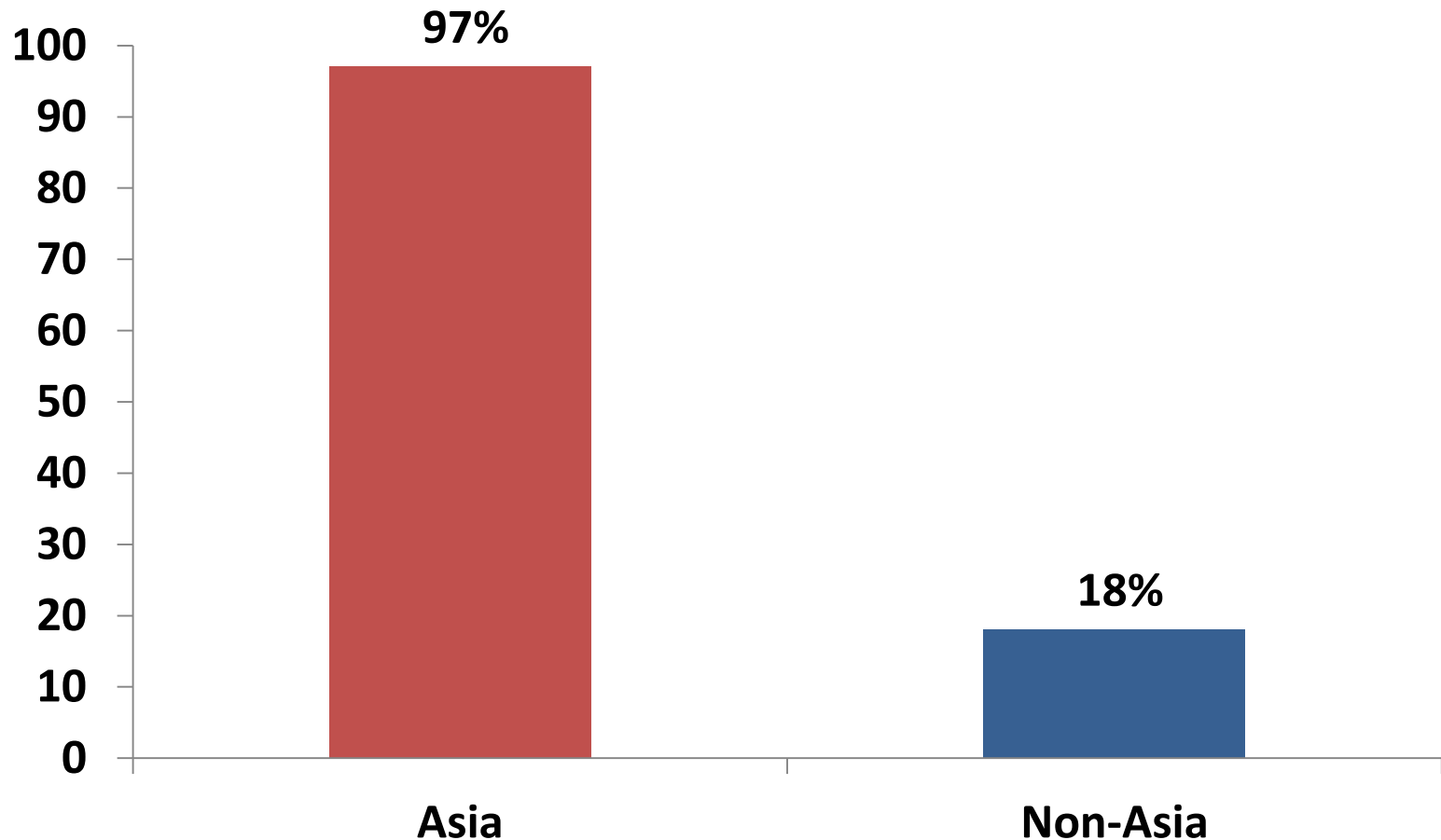
Cities with PM₁₀ above 100 ug/m³ (2008-2009)



Source: WHO (2012).

CO₂ emissions grow fast in Asia

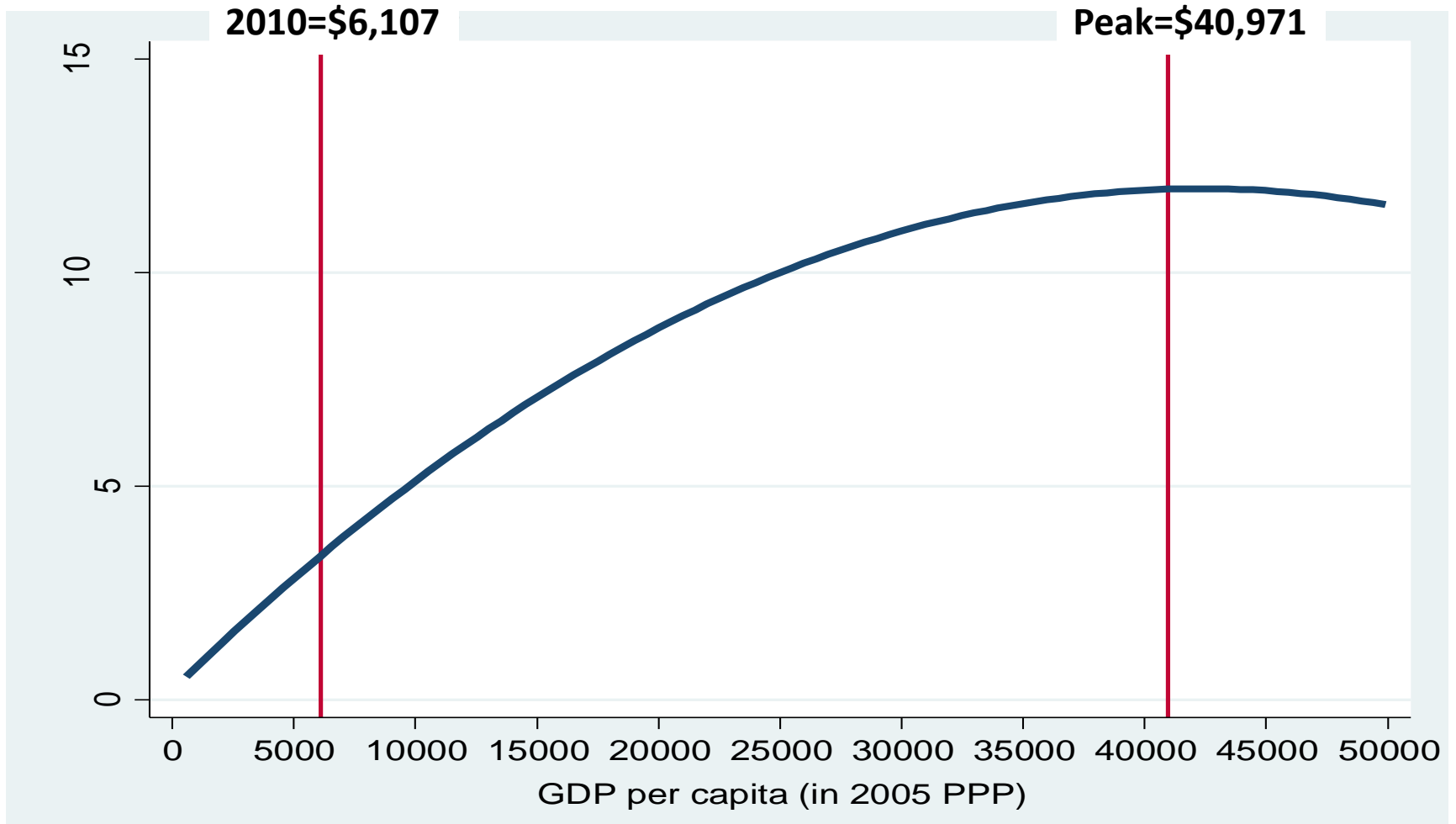
Growth of Per Capita CO₂ Emissions over 2000-2008 (%)



Source: ADB estimates using World Bank (2012).

Environment may degrade further with growth

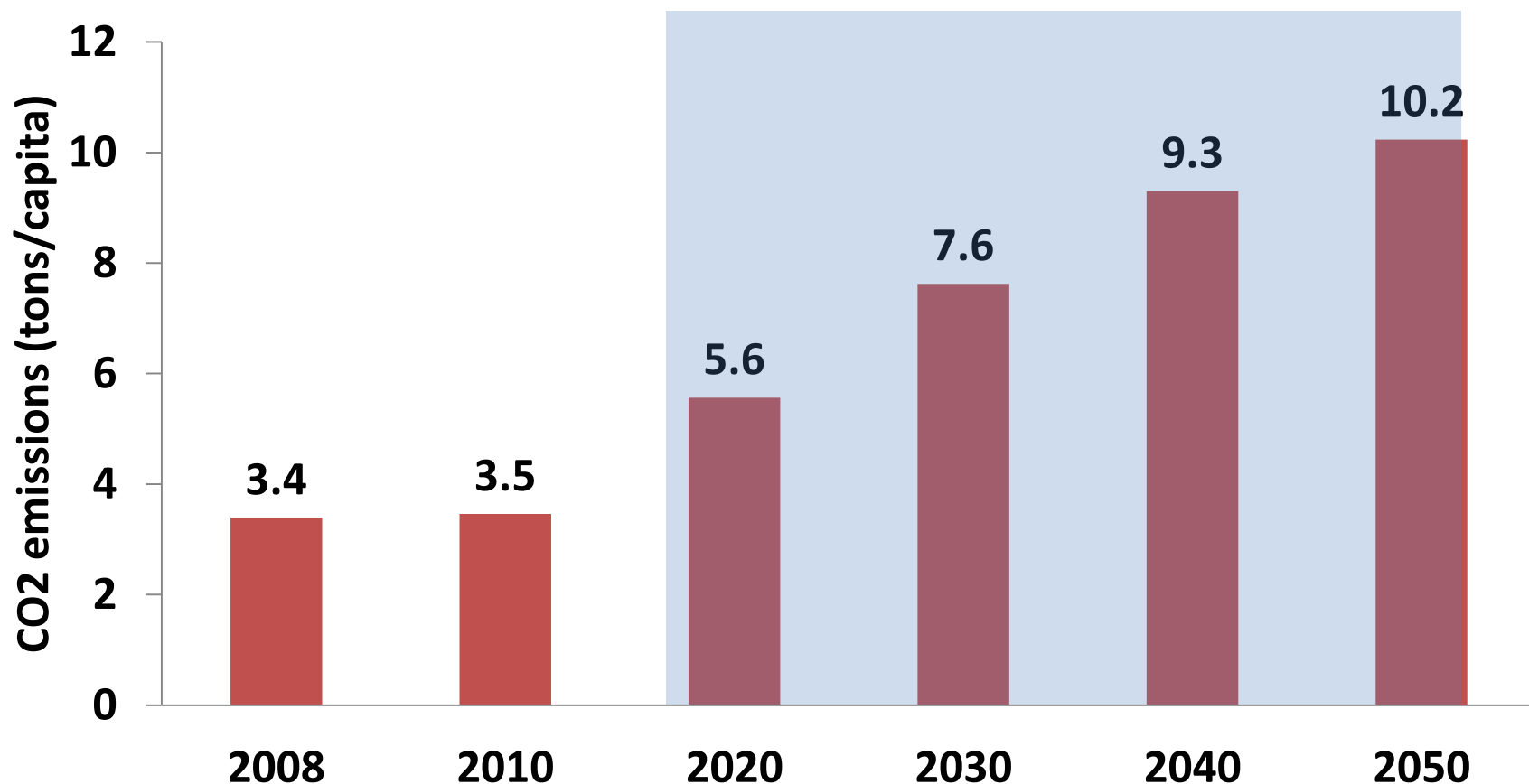
Asia's Environmental Kuznets Curve



Source: ADB estimates using World Bank (2012).

CO₂ emissions may triple under the business-as-usual scenario

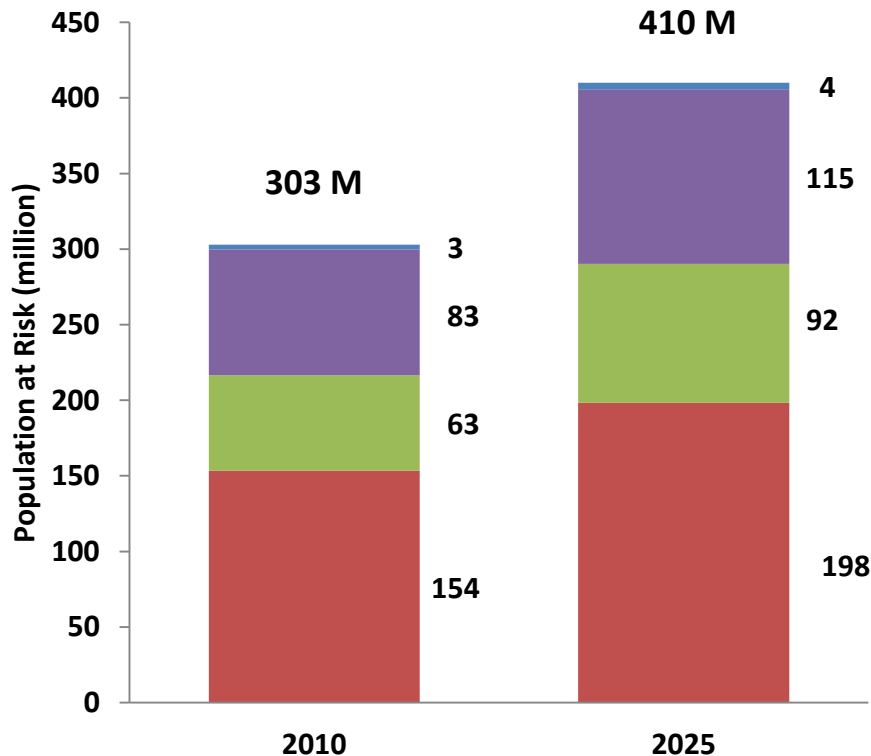
Projected CO₂ emissions based on latest EKC



Source: ADB estimates using World Bank (2012).

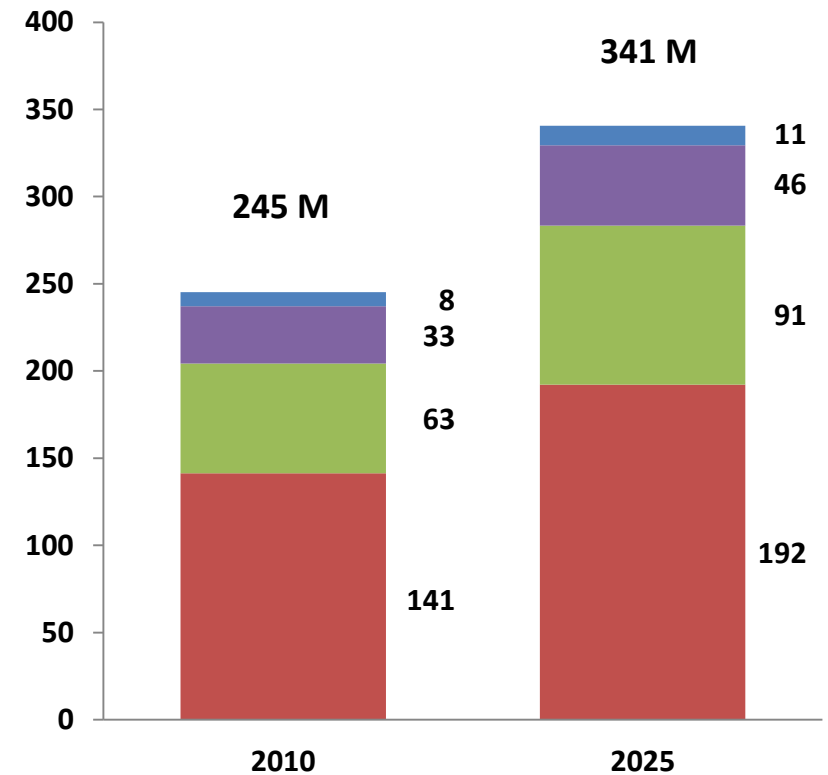
Vulnerability will rise with urbanization

Coastal Flooding



■ East Asia ■ South Asia

Inland Flooding



■ Central and West Asia ■ Southeast Asia

Unique features of Asian urbanization make challenges more serious...

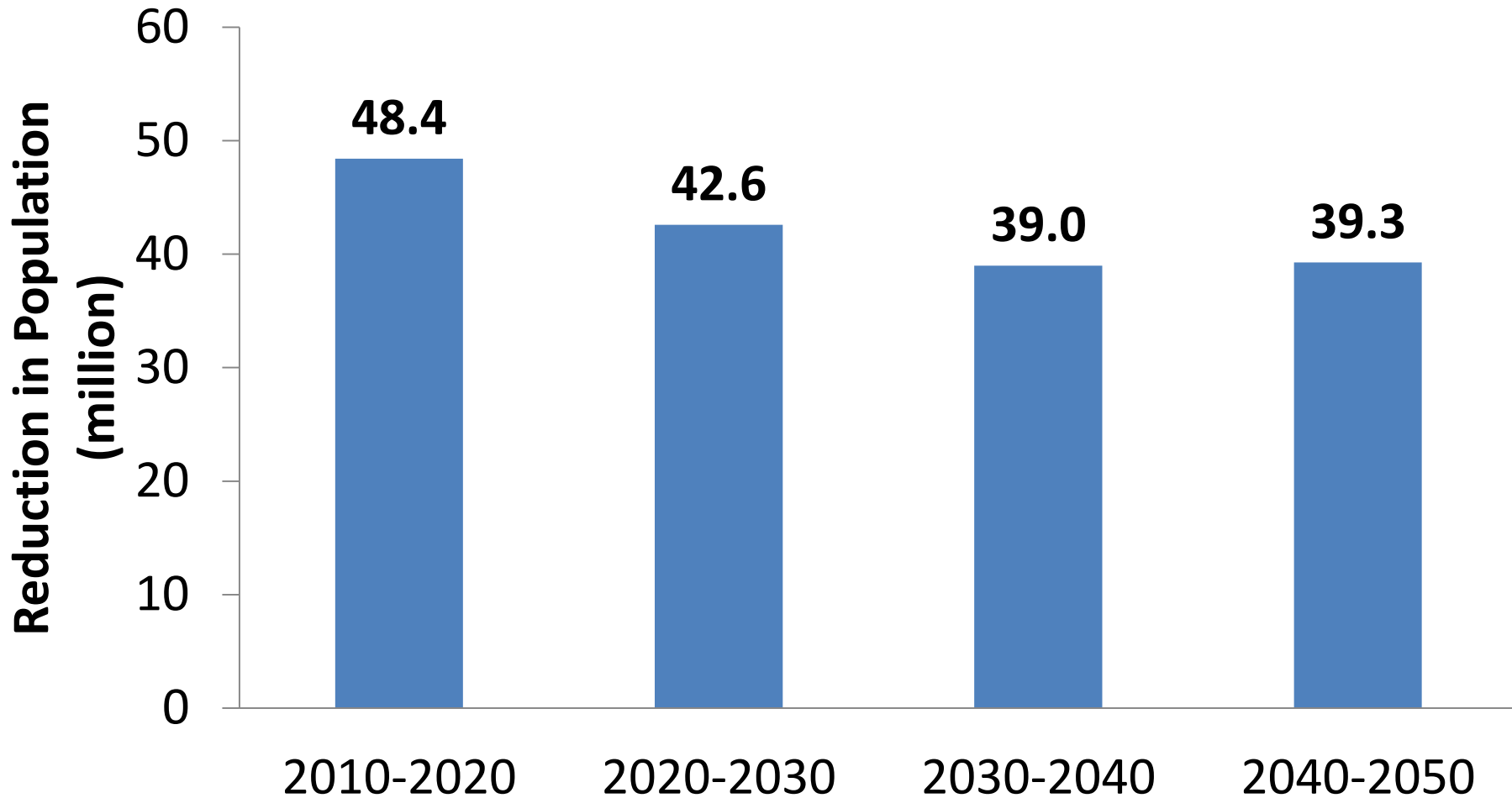
- **Low level = a long way to go**
- **Fast speed = little time to adjust or learn**
- **More & bigger megacities = hard to manage**
- **More slums = higher vulnerability**

But, can urban agglomeration help?

- **Service sector pollutes less**
- **Manufacturers relocate (e.g., decline manu.)**
- **Efficient provision of infrastructure and services**
- **Innovation and higher labor productivity**
- **Nurture middle class and property owners**
- **And ...**

Urbanization leads to lower fertility

Reduction in Projected Population due to Urbanization



... and more human capital

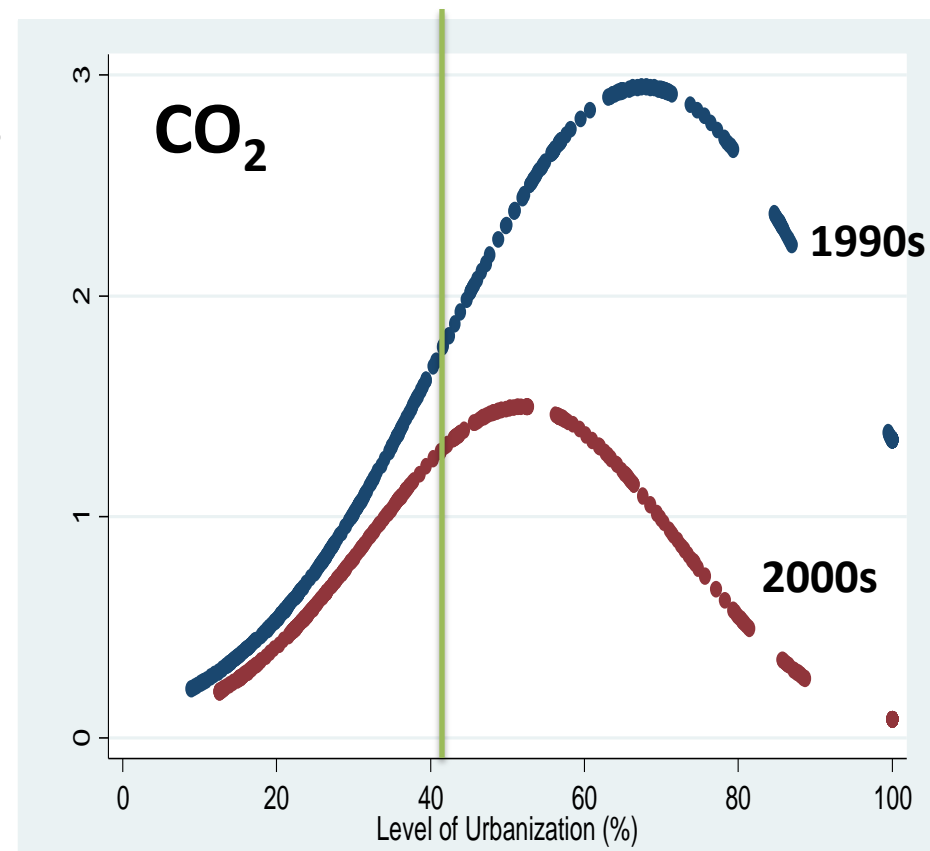
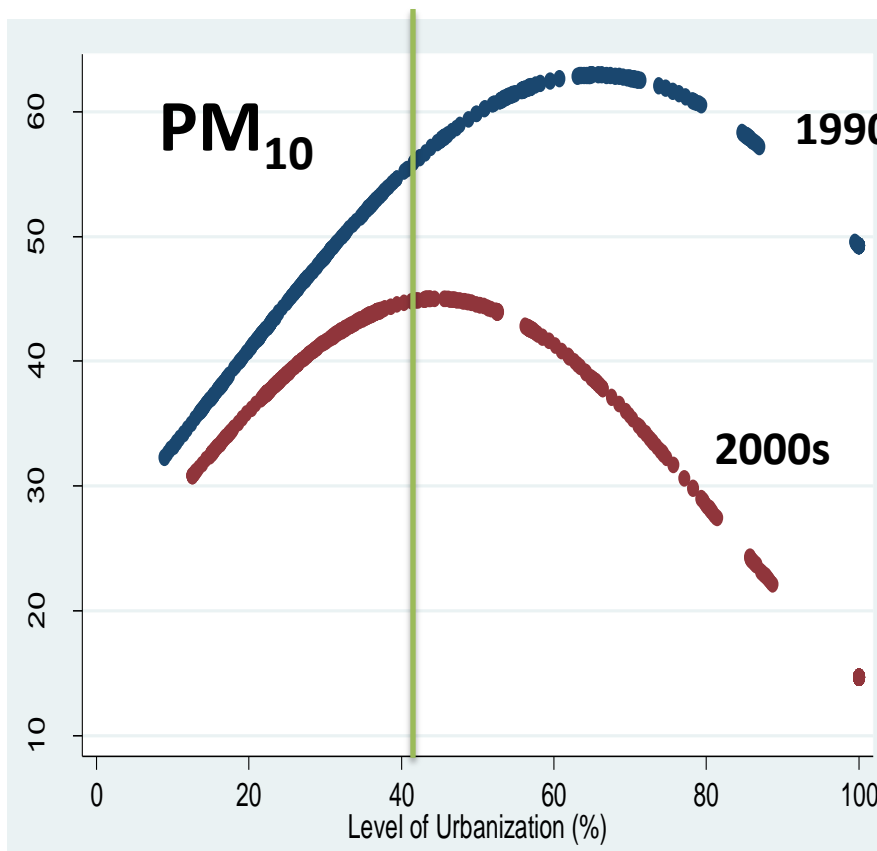
Population Subgroups	Sacrifice Growth	Sacrifice Income	Pay Higher Taxes	Support Regulation
By educational attainment				
No formal education	32.3	49.5	43.2	42.1
Less than Secondary Education	42.4	68.7	58.3	60.4
Secondary Education	45.2	75.3	62.8	60.8
At least Some University Education	46.8	80.8	67.7	61.0
World	49.3	61.8	53.3	67.2
Asia	43.4	71.8	60.4	58.5

The environmental impacts of urbanization

- ✘ The growth impact may be negative**
- ✓ The composition effect is positive**
- ✓ Technical effect is also positive**

Environment-Urbanization relation has improved over time

Environment-Urbanization Curves



Green urbanization can help shift the curves further

- **Megacities with satellite cities:**
 - **ToD, BRT, green/compact/eco- cities concepts**
- **Exploit late comer advantage:**
 - **Leapfrog technology by import or R&D;**
 - **Timely introduction of regulations:**
pollution/emission pricing, carbon tax or cap & trade, reduce subsidies, increasing block tariffs,
...

Conclusions

- **It is counter-productive to contain urbanization, even for environmental concerns**
- **But, urbanization must be steered into a green path that exploits own unique features**
- **Asia can achieve green urbanization!**

Thank You

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