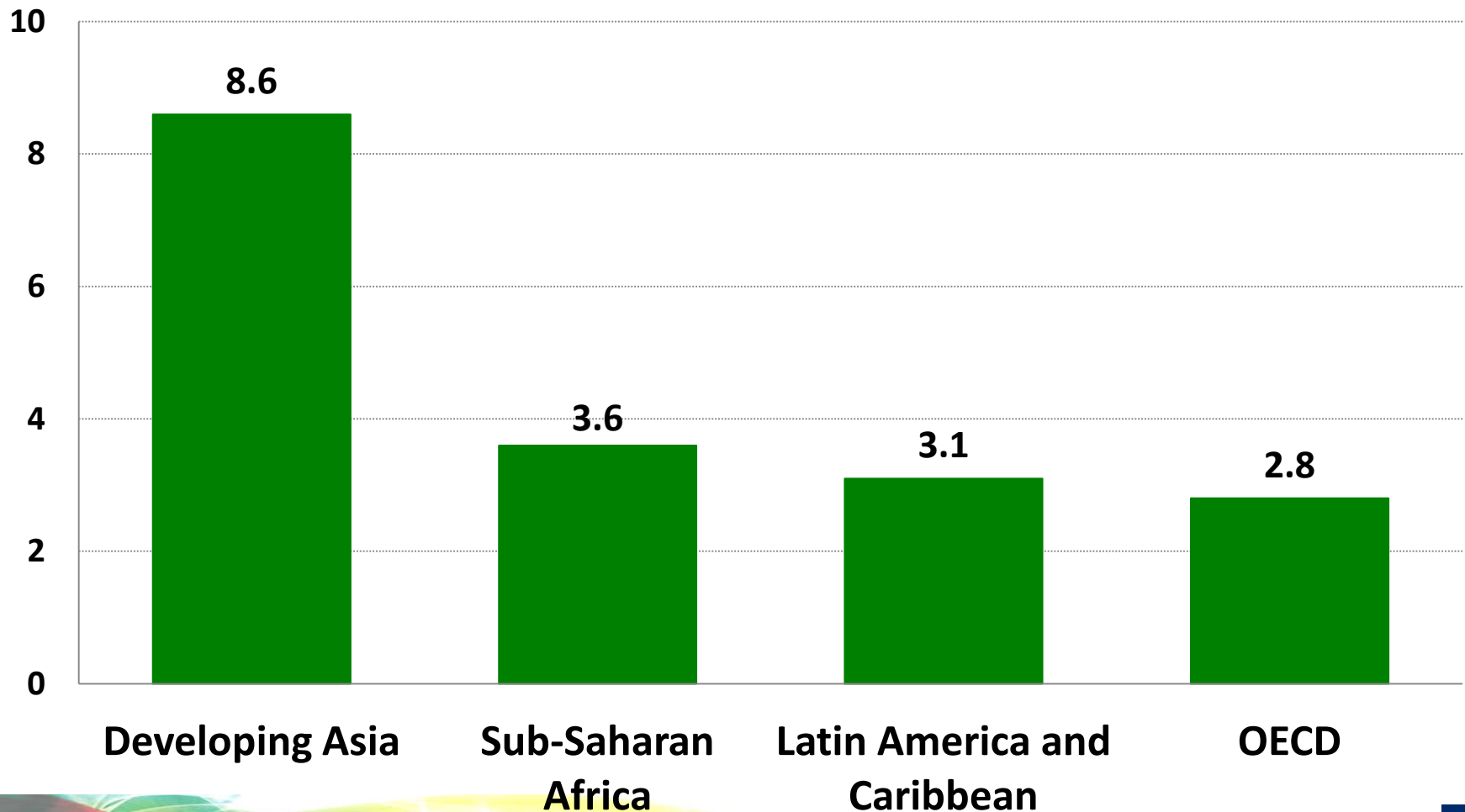


Poverty, Inequality, Environment and Urbanization

Guanghua Wan
Principal Economist
ADB

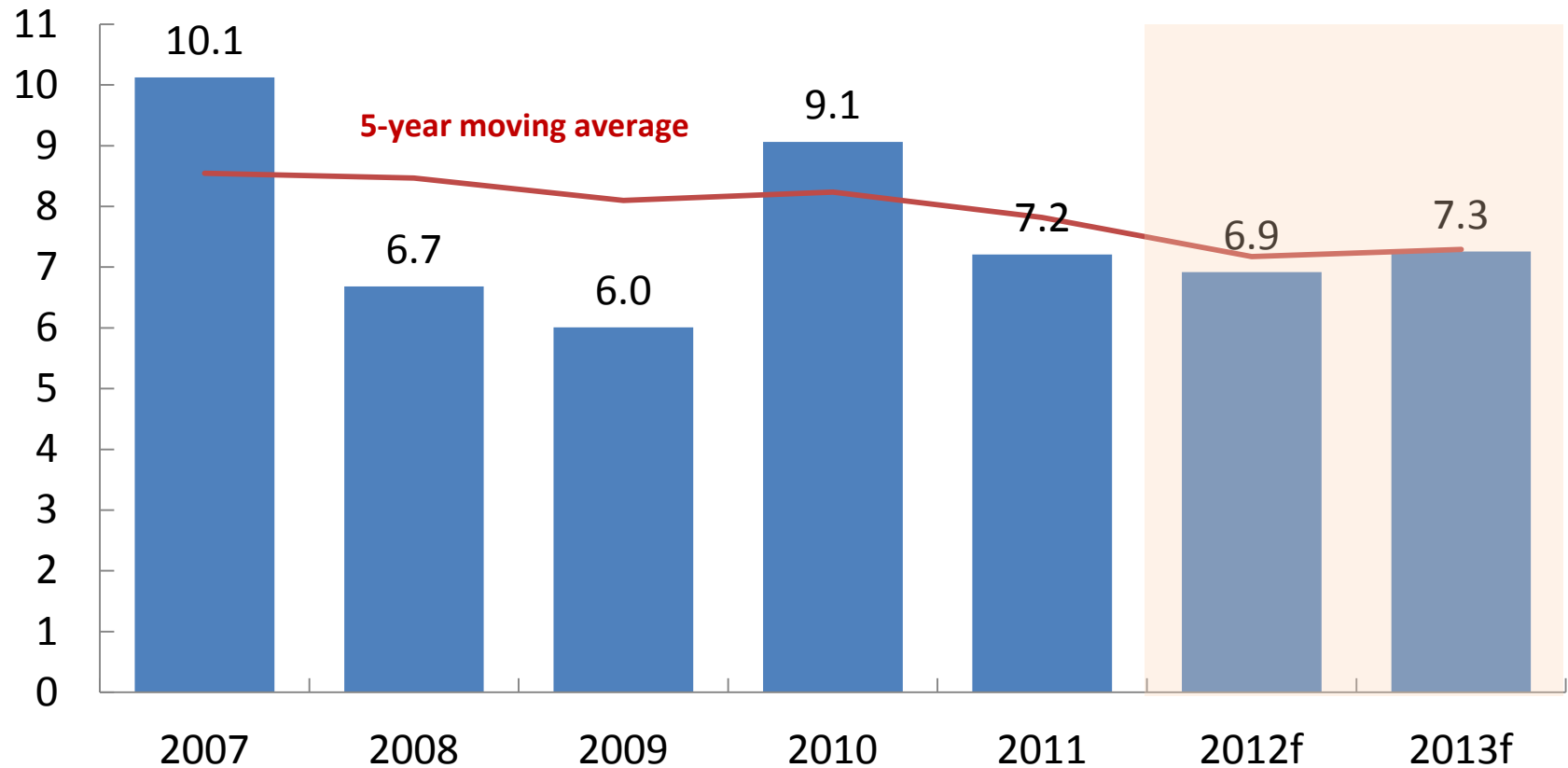
Asia has seen fast growth (1990-2008)

...



The growth continues despite crises...

GDP growth



f: forecast

Growth helps reduce poverty...

ADB Economics
Working Paper Series

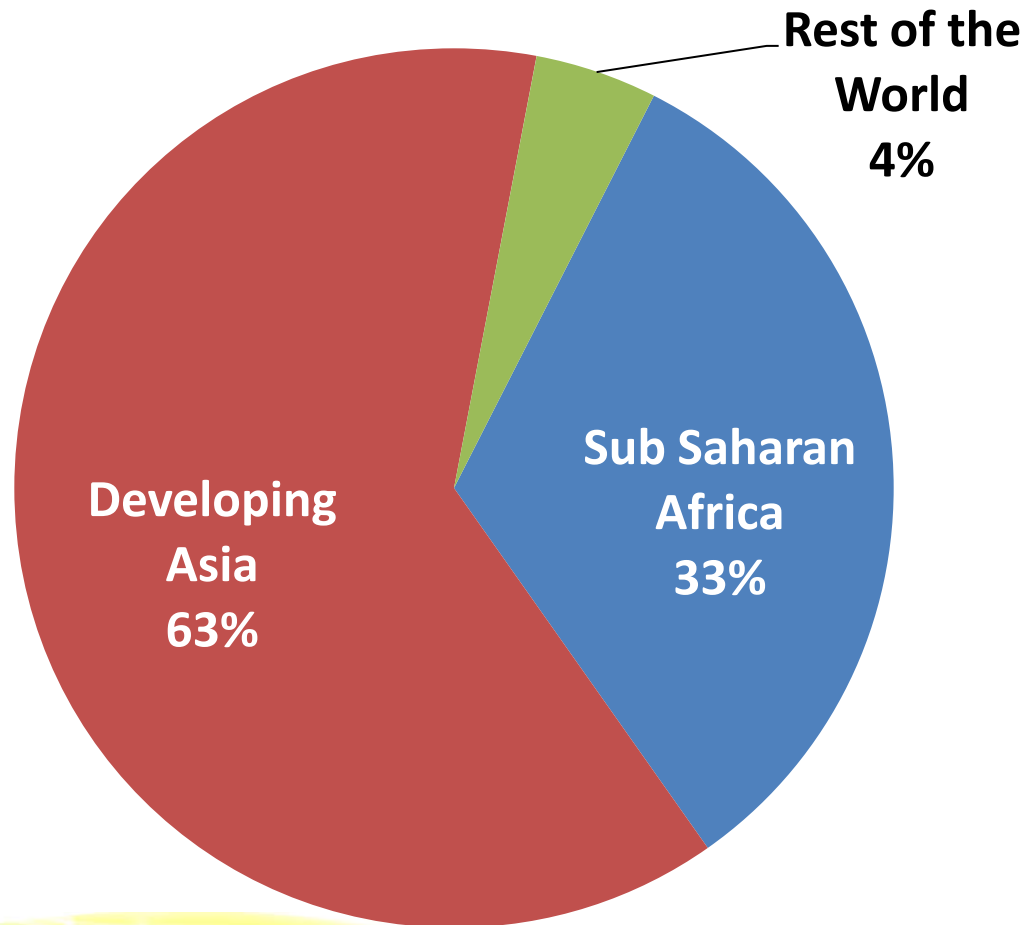


Poverty in Asia and the Pacific: An Update

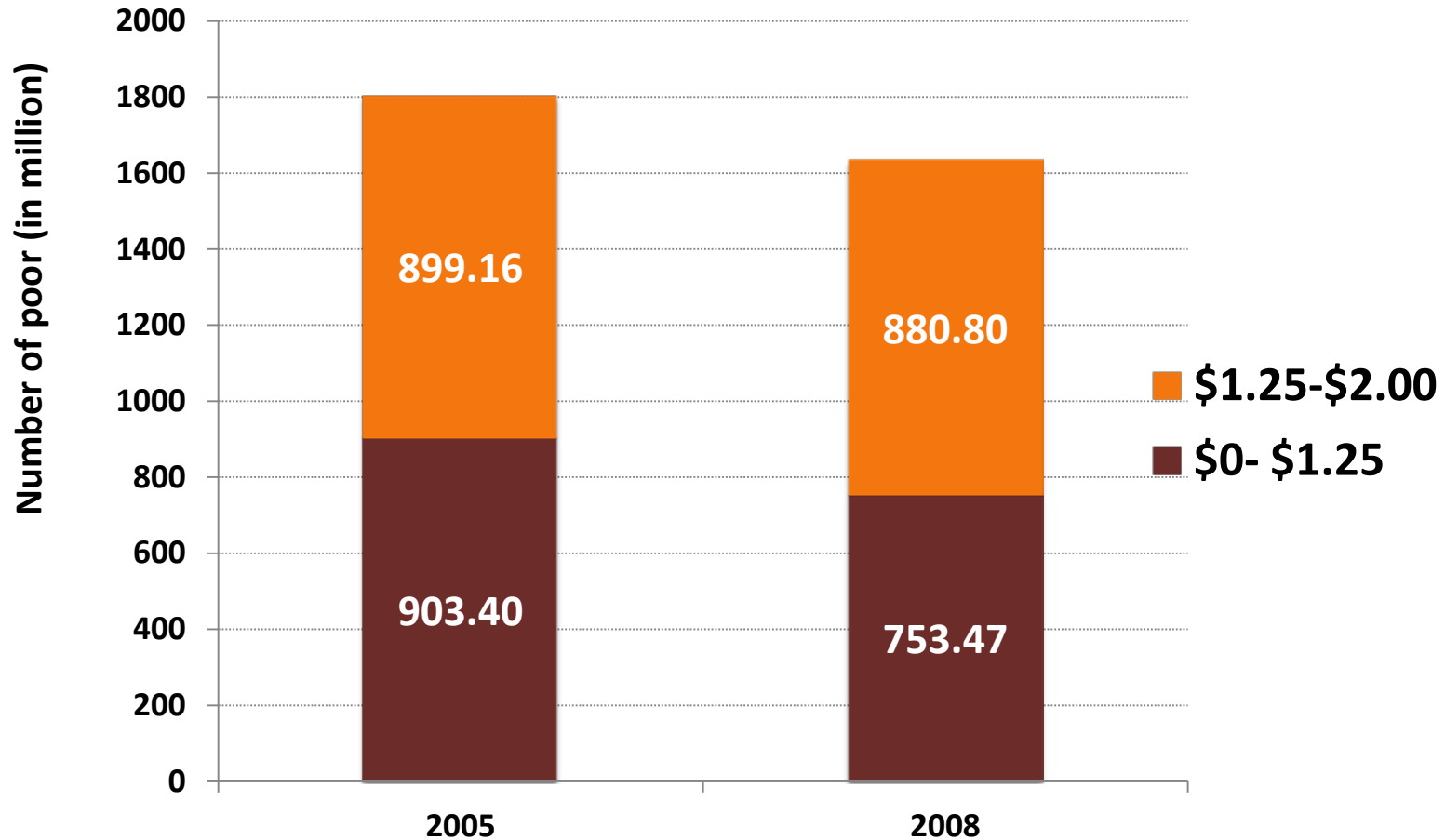
Guanghua Wan and Iva Sebastian

No. 267 | August 2011

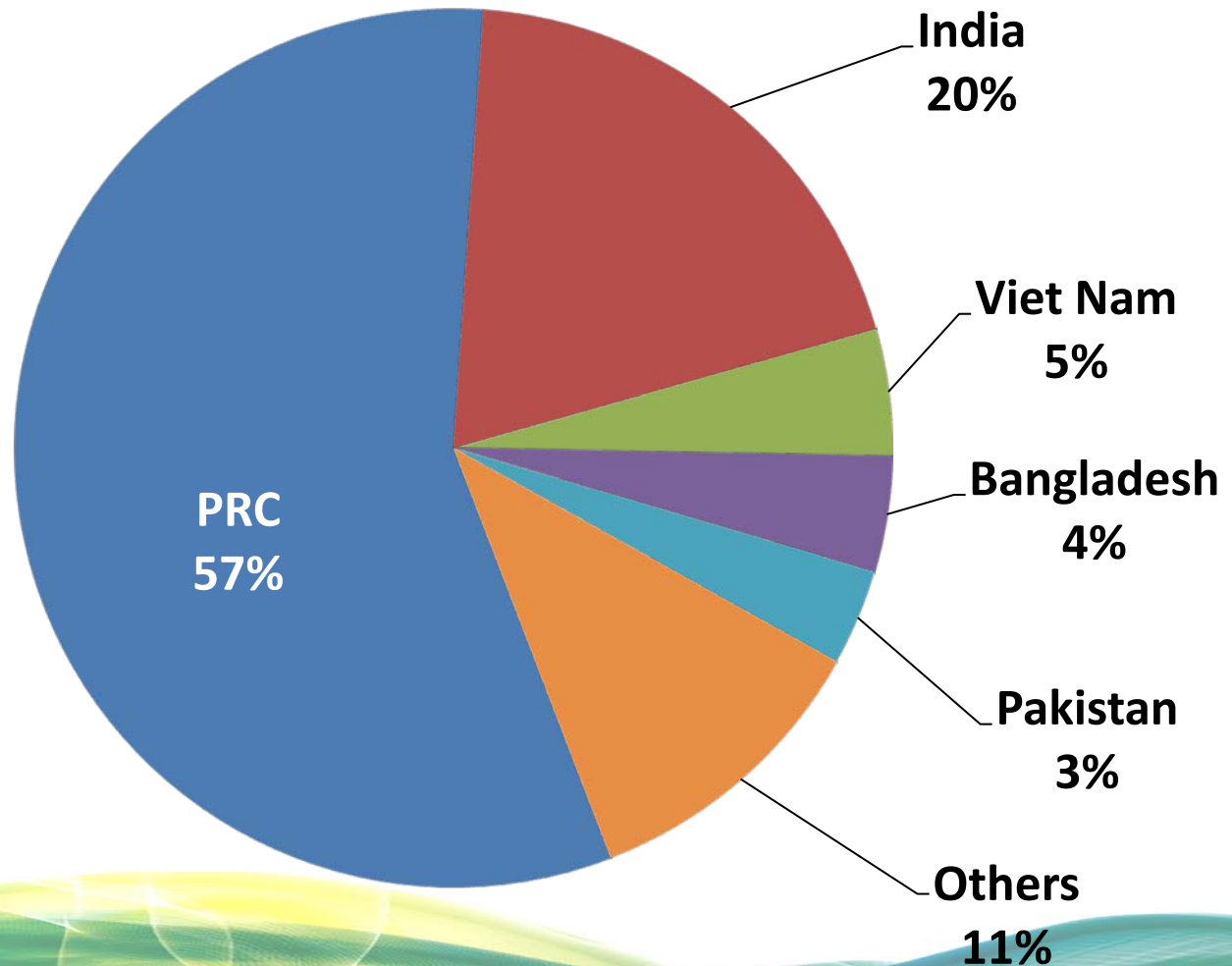
But growth quality? Asia remains home to the largest number of poor...



... little reduction in moderate poverty



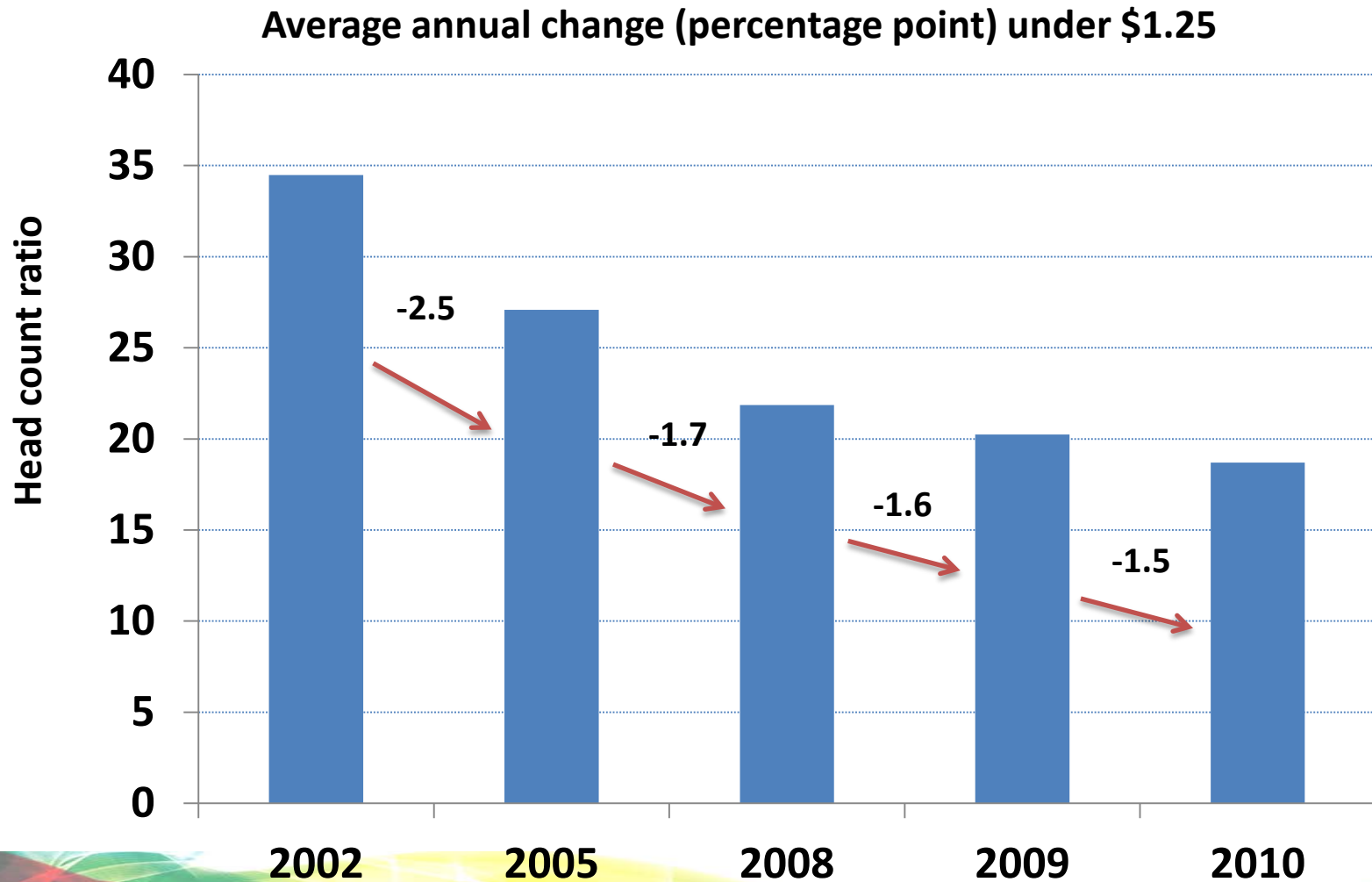
Poverty reduction mainly from PRC and India (\$1.25)



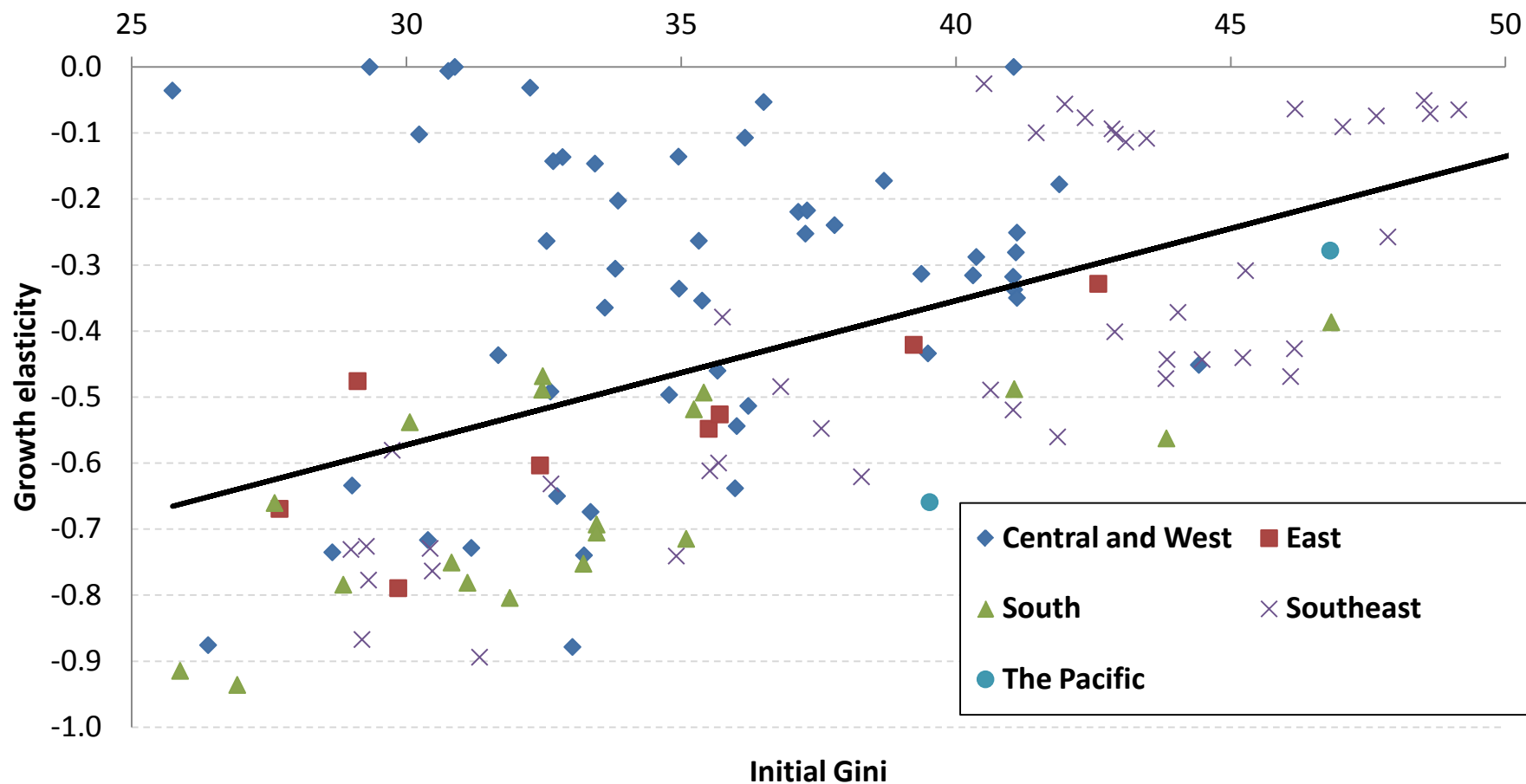
... in the Pacific, the number of \$1.25 poor rose

Sub-region	HCR (%)			No. of Poor (million)		
	2005	2008	% change	2005	2008	% change
Central and West Asia	21.51	16.43	-23.63	49.36	39.81	-19.36
East Asia	15.93	9.25	-41.94	208.25	122.78	-41.04
Pacific	31.63	30.65	-3.07	2.23	2.35	5.52
South Asia	42.48	38.08	-10.35	550.17	513.93	-6.59
Southeast Asia	18.81	14.37	-23.60	93.39	74.60	-20.13
Developing Asia	27.09	21.87	-19.27	903.40	753.47	-16.60

The growth impacts on poverty decline over time...



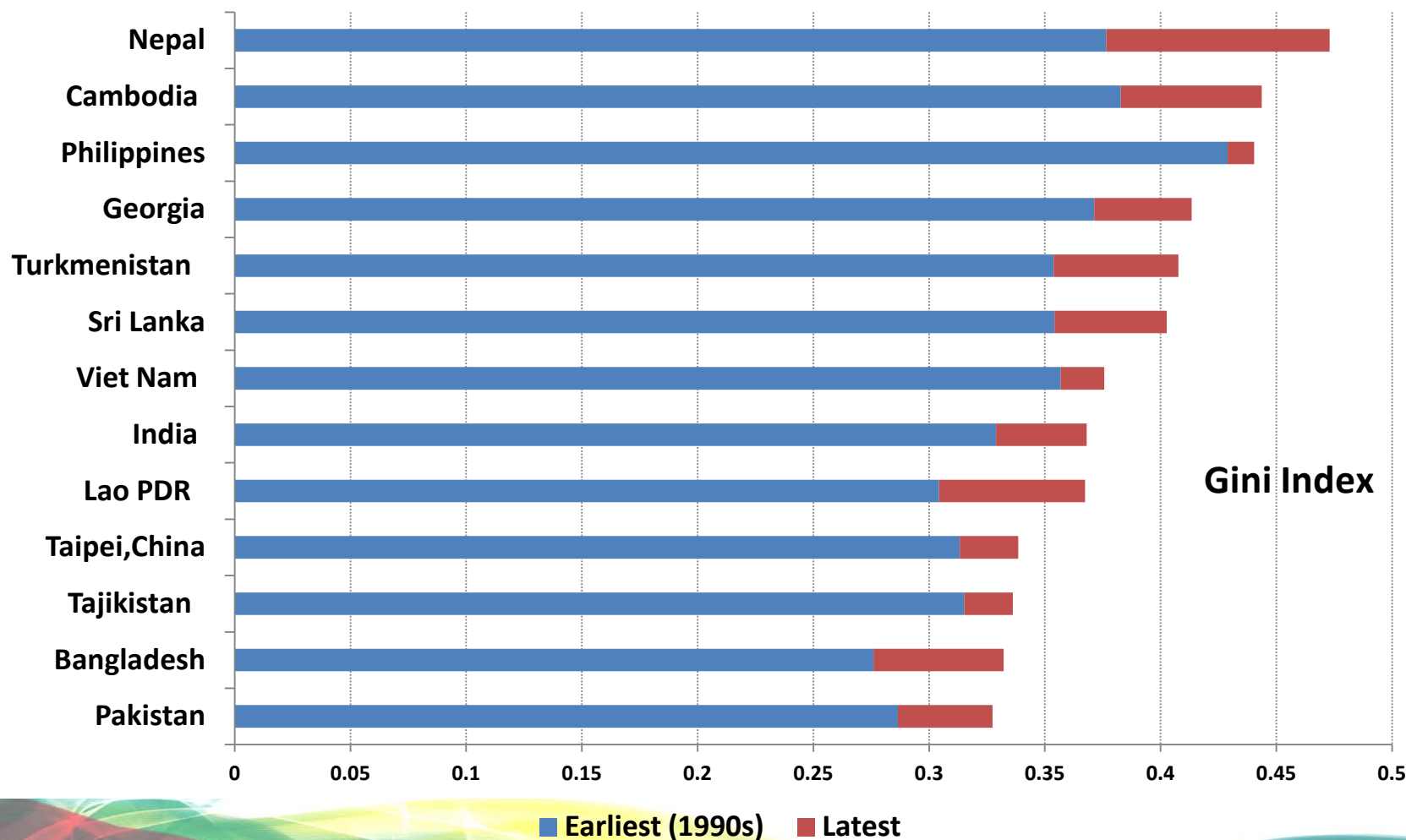
... largely due to rising inequality



No. of obs	124	R-squared	0.2574
		Adj R-squared	0.2513

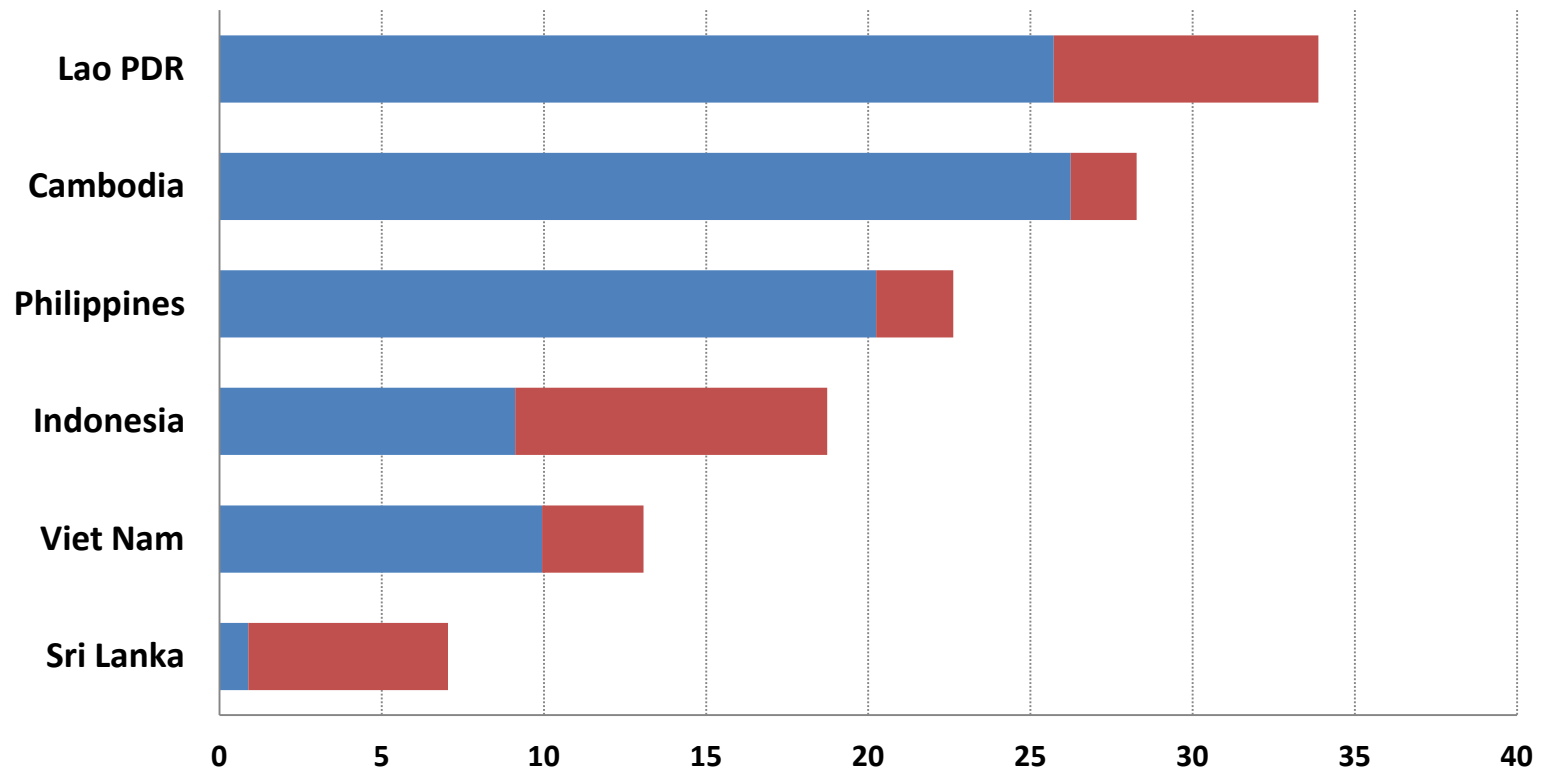
Variable	Coefficient	Std. Error	t stat	P-value
Gini	0.0218	0.0034	6.5	0.000
Constant	-1.2277	0.1247	-9.84	0.000

Inequality in Asia has risen...



Poverty-growth-inequality triangle

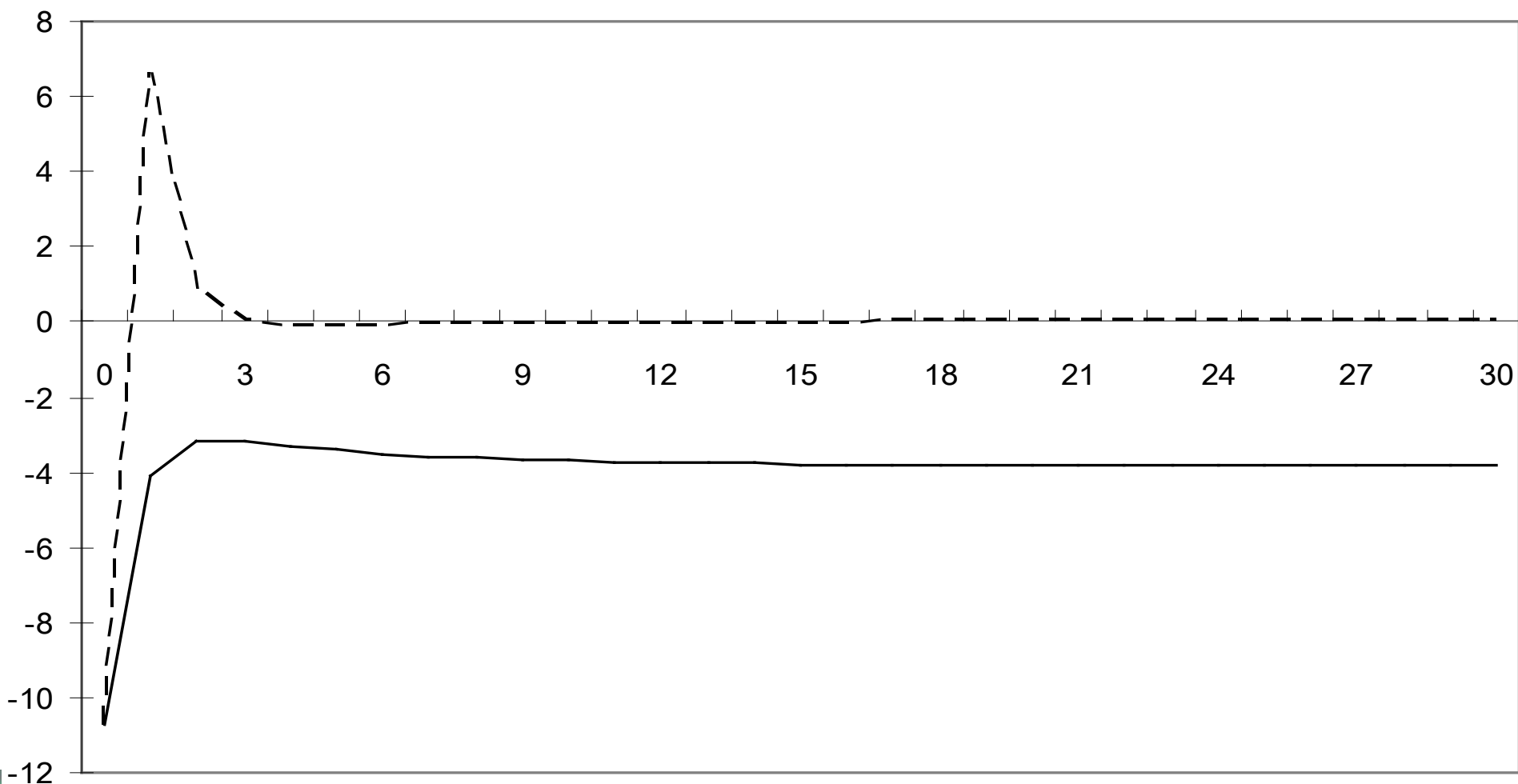
\$1.25 a day



■ Simulated ■ Actual

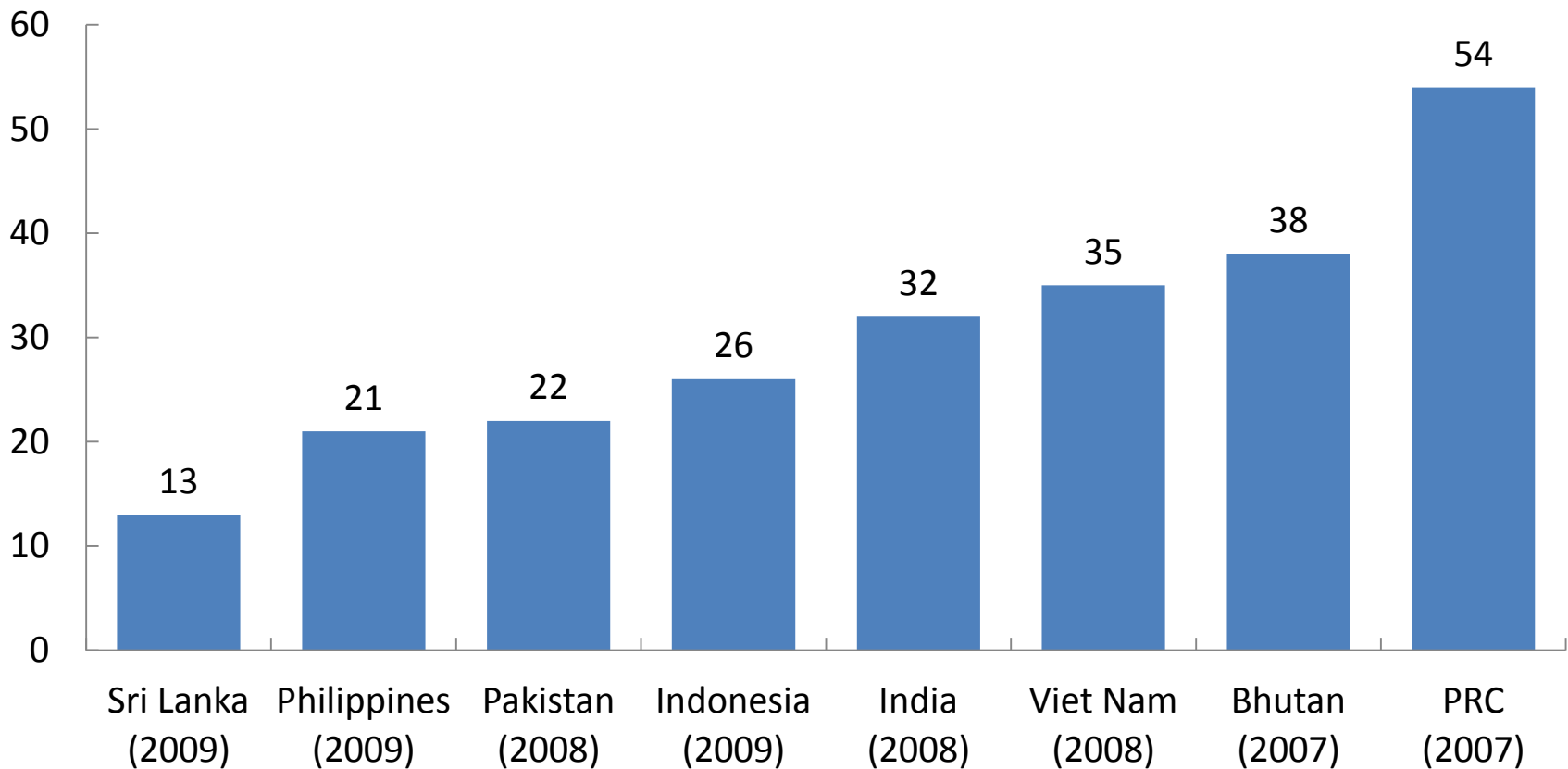
The inequality–growth relationship in PRC

(dashed = yearly; solid = cumulative)

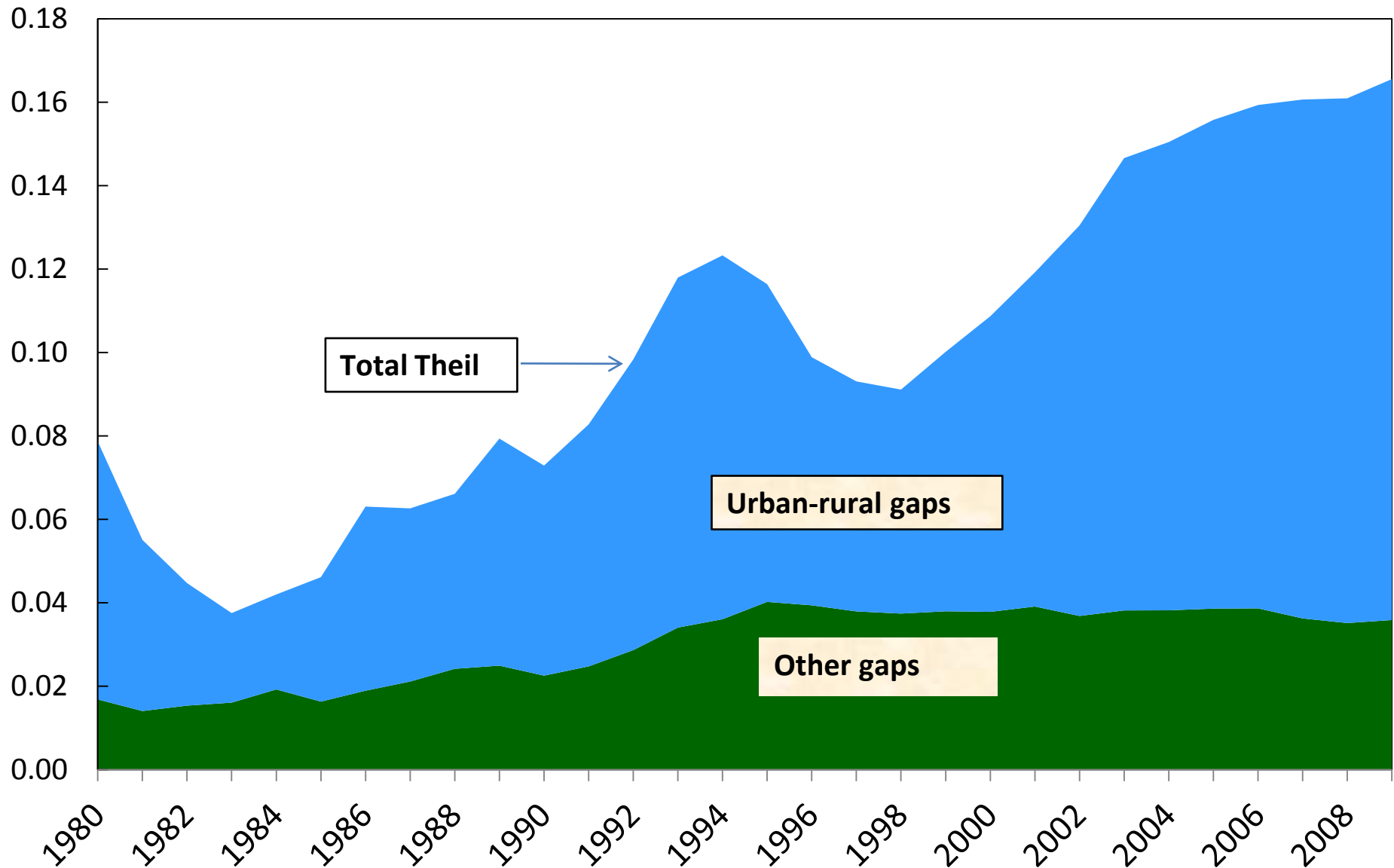


Spatial (urban-rural) gaps as main contributor to high inequality

Share of spatial inequality to total inequality (%)



China's Regional Inequality



Urbanization the only solution

GDP = \$100, Population = 10

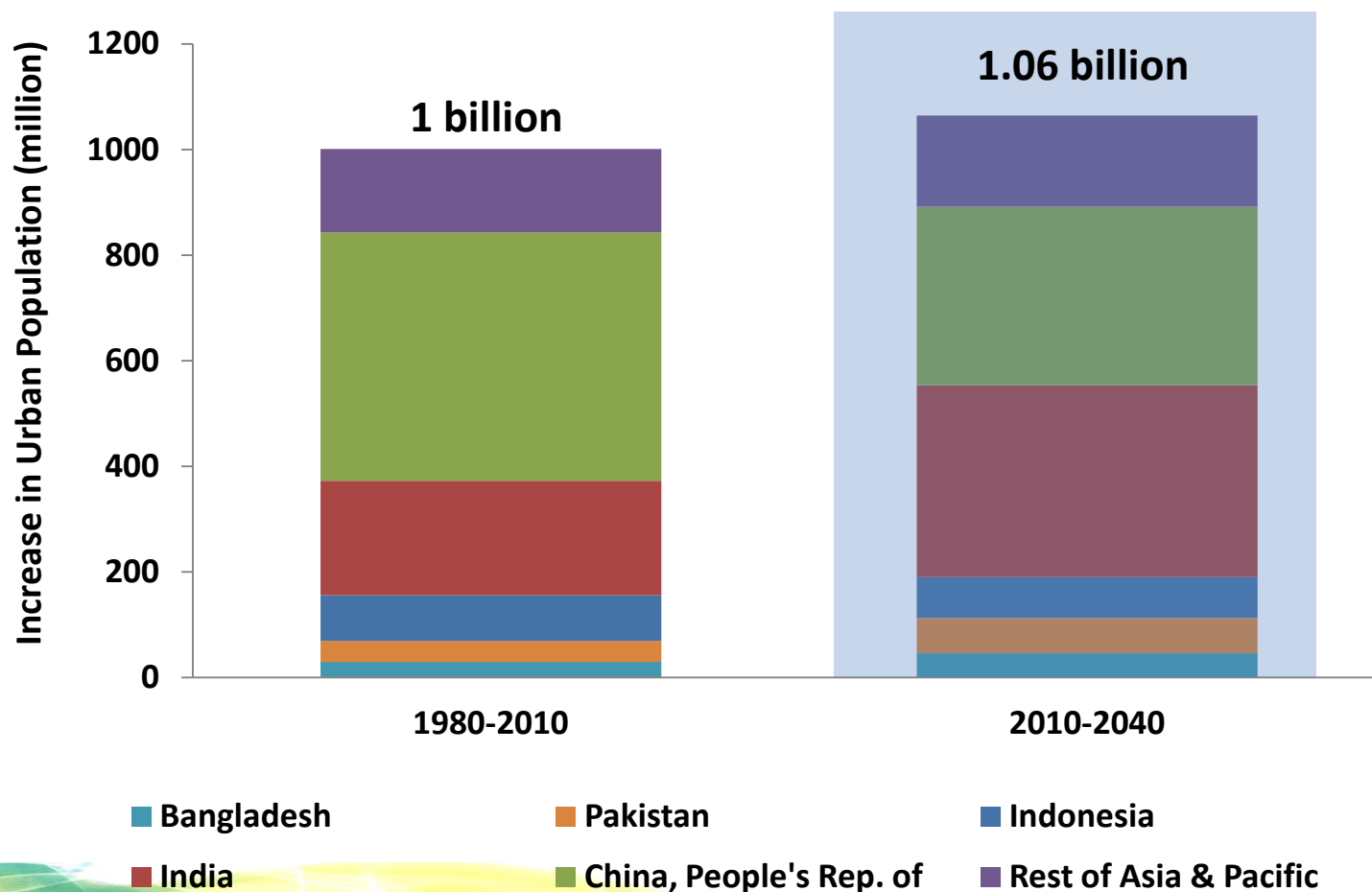
	GDP	Urbanization	Average Income
City	\$90	6 (60%)	\$15
Rural	\$10	4 (40%)	\$2.5
Urban – rural ratio			6!

City	\$90	8(80%)	\$11
Urban – rural ratio			2.2

Plus Transfer **<2.0**

Asia's urbanization is unprecedented

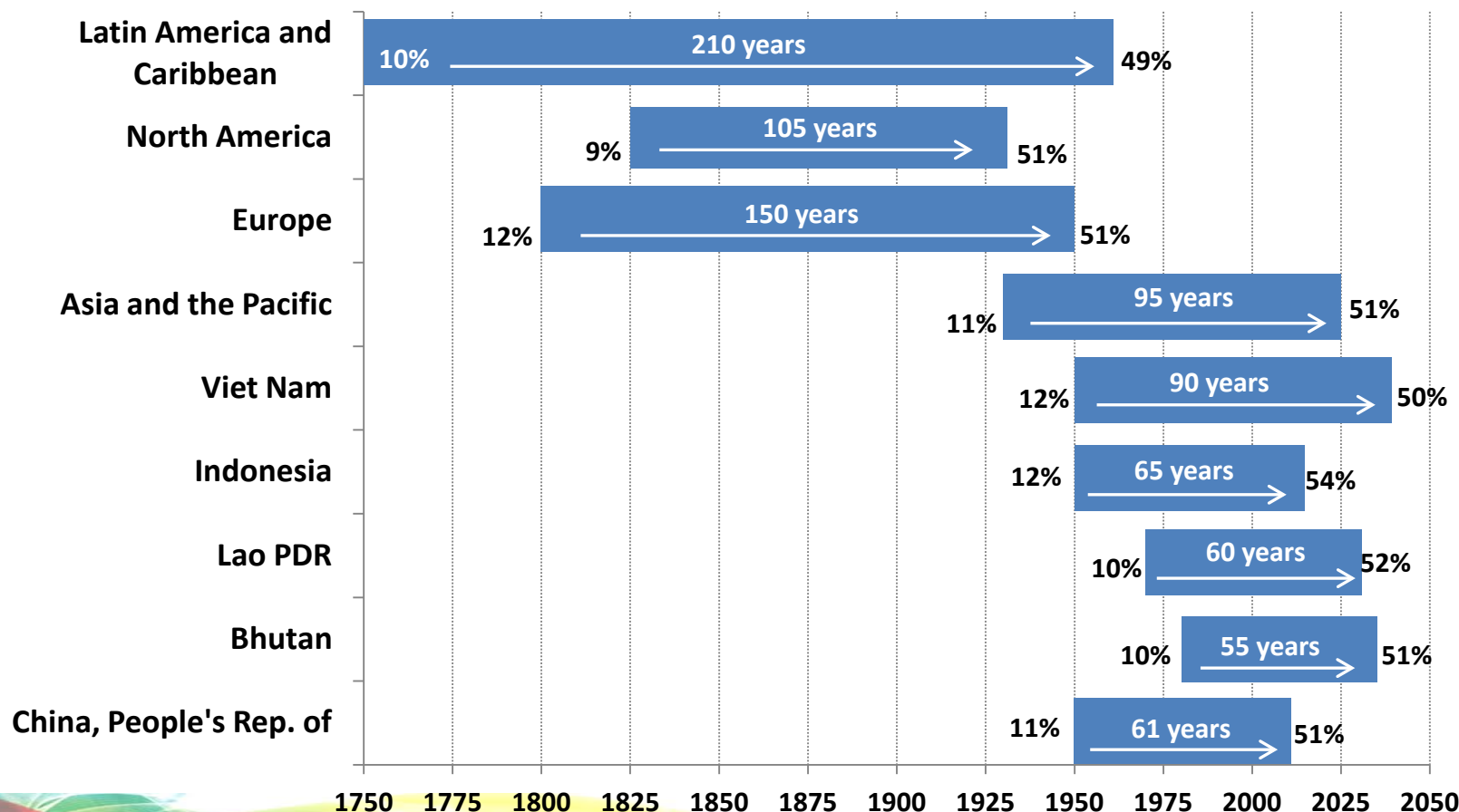
Increase in Urban Population in Asia and the Pacific (millions)



Source: ADB estimates using UN(2012).

Unique feature 1: very fast speed

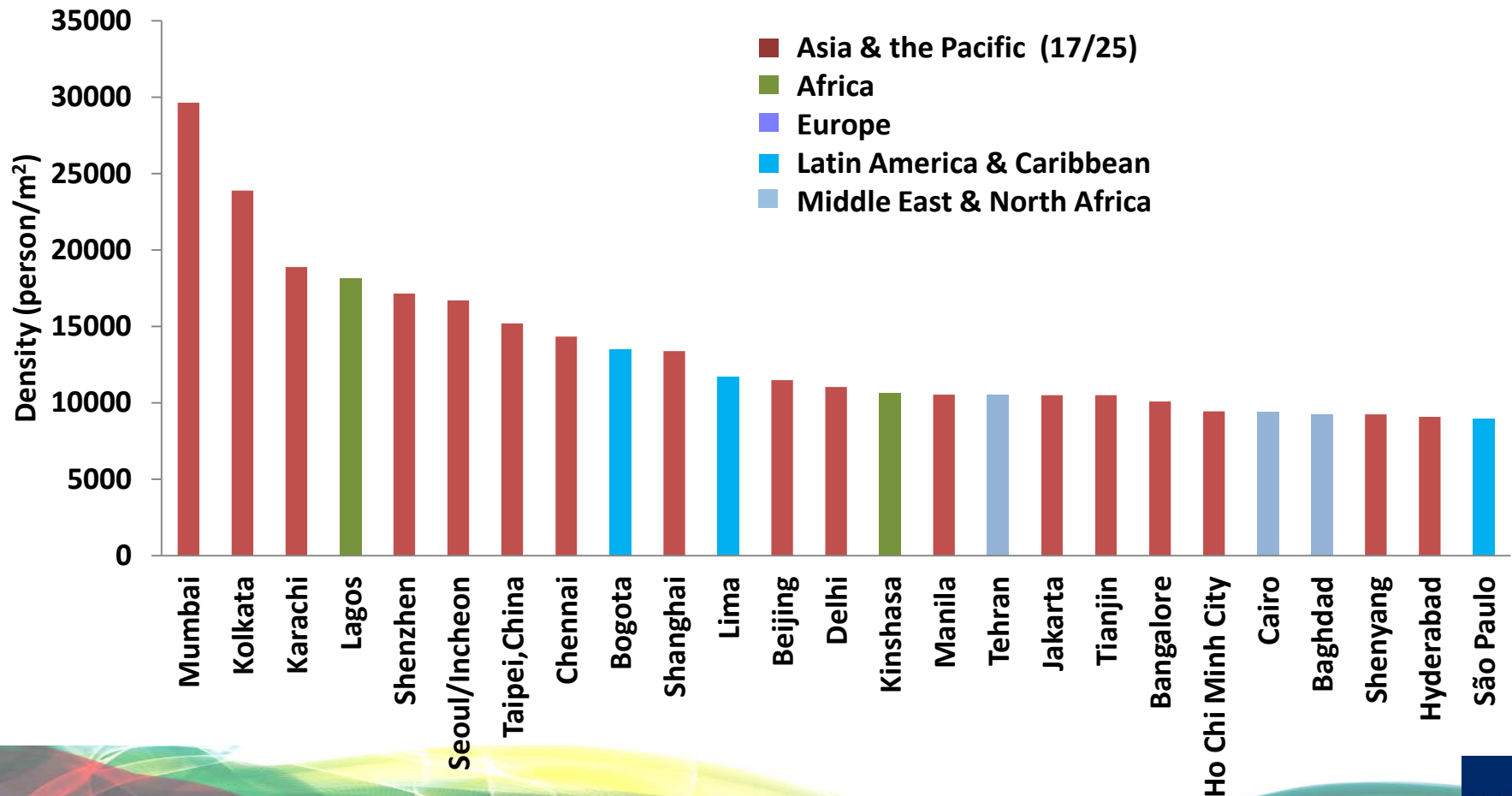
Number of Years from about 10% to 50% of Urbanization Rate



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

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

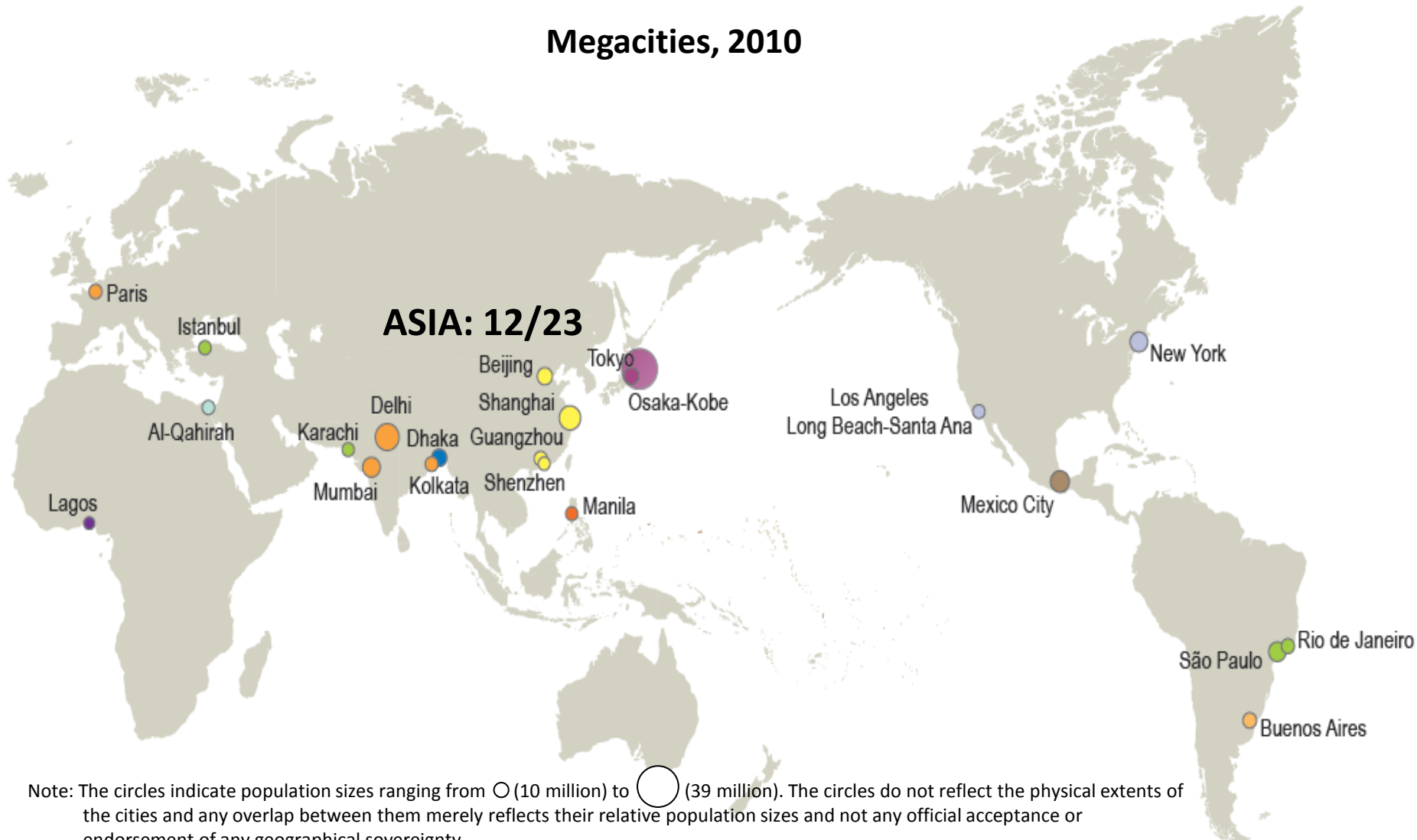
Top 25 World's Cities Ranked by Density, 2007



Unique feature 3: many megacities

Megacities, 2010

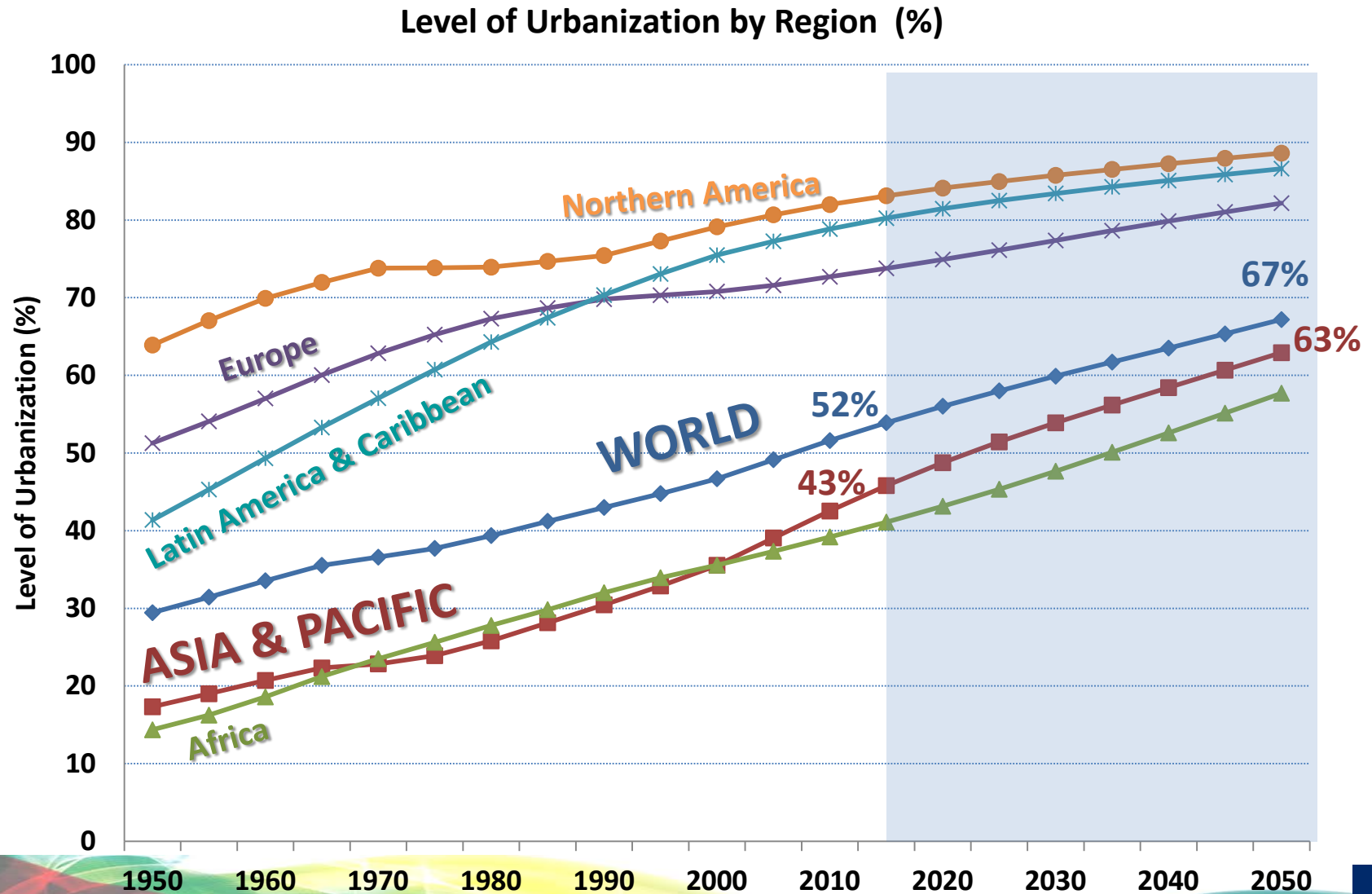
ASIA: 12/23



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).

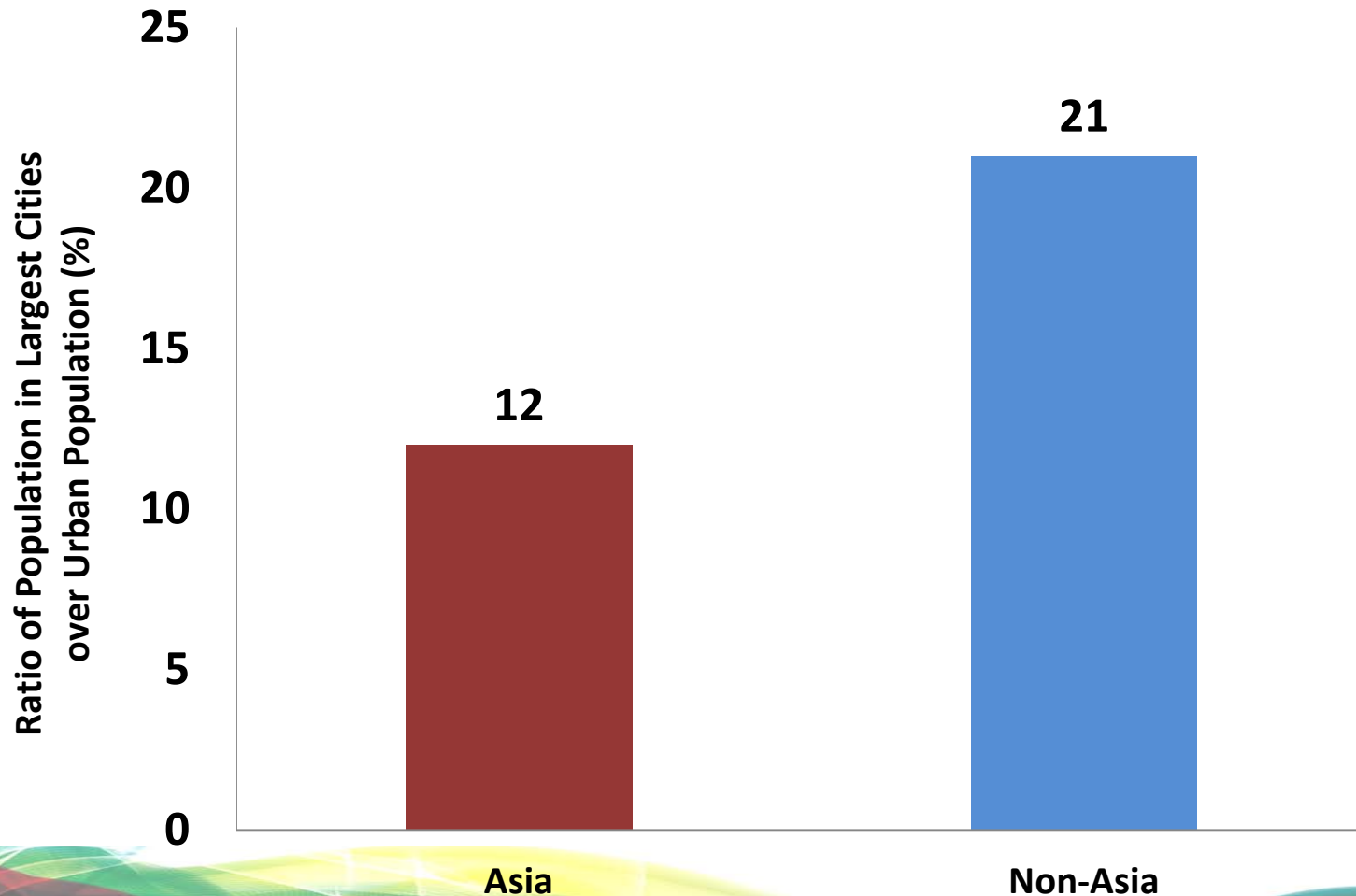
Unique feature 4: low starting base



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

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

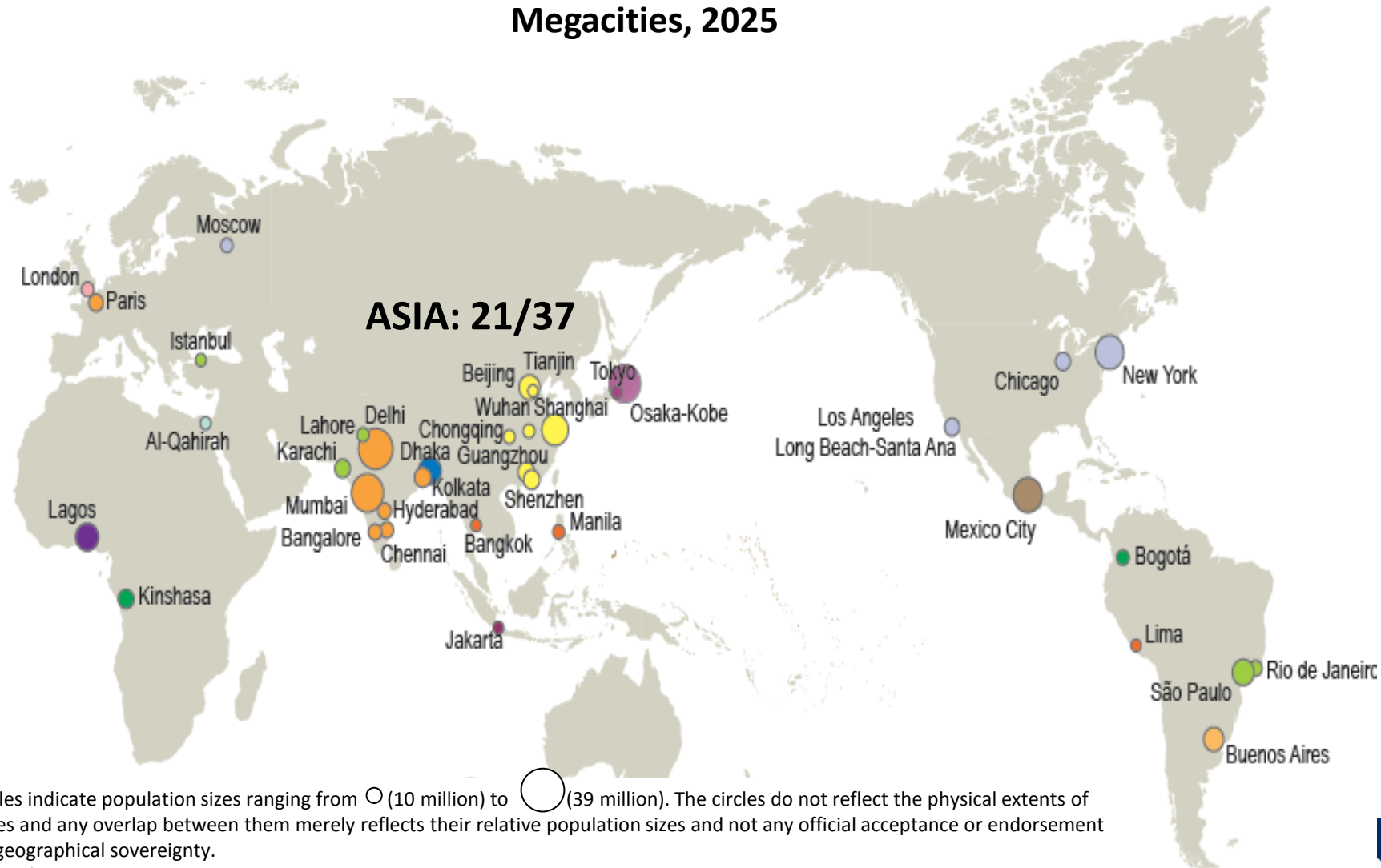
Urban Primacy (% , 2009)



Source: ADB estimates using UN(2012).

... thus more and bigger megacities are emerging

Megacities, 2025

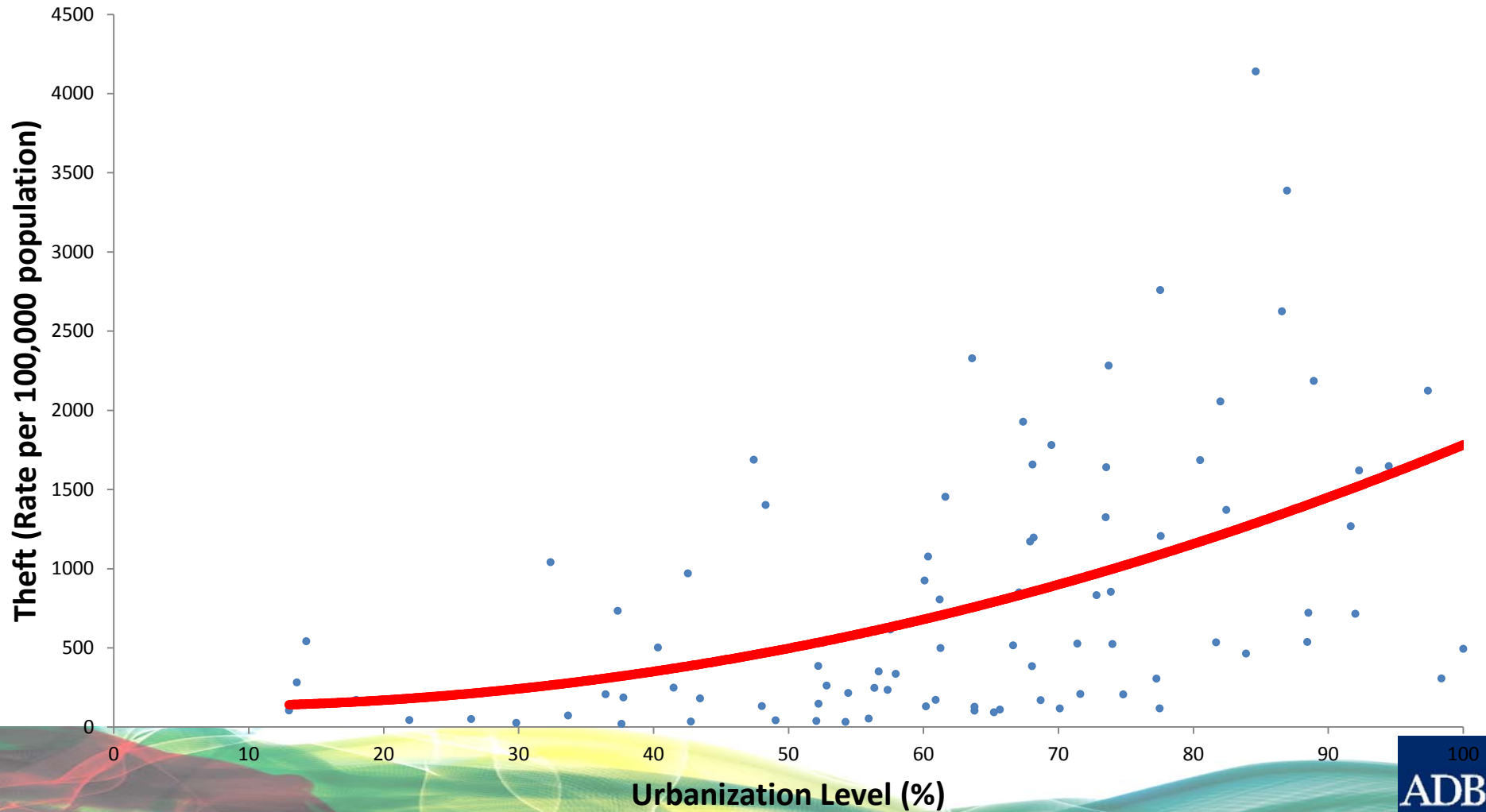


Unprecedented urbanization poses enormous challenges already serious

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

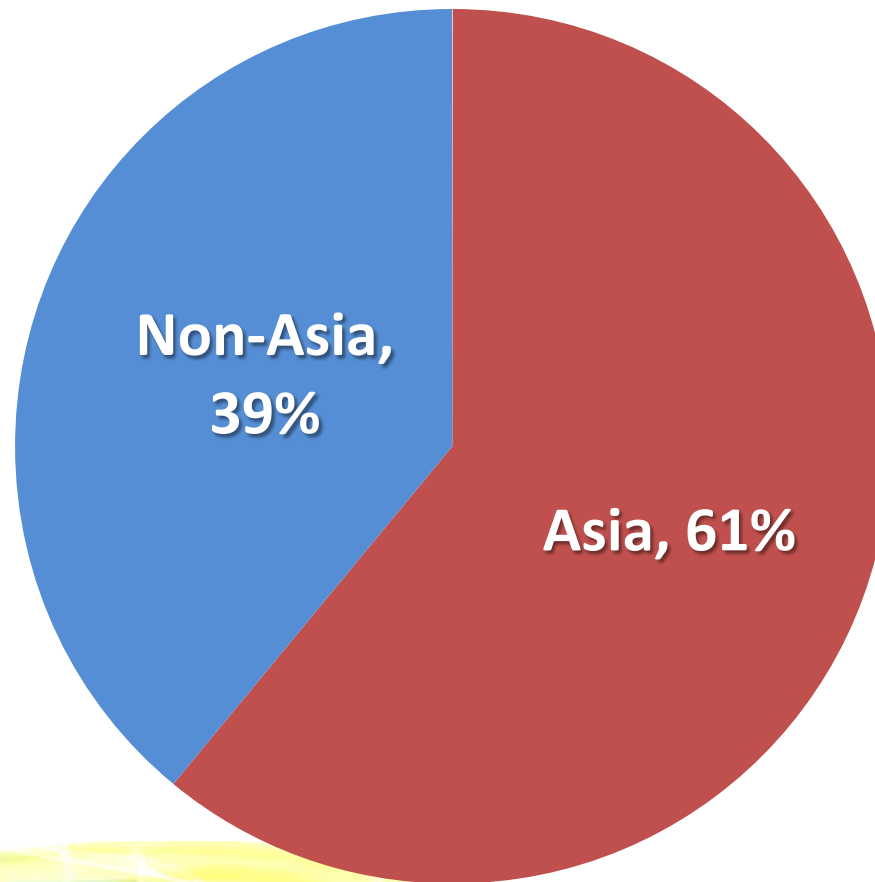
Theft rates rise with urbanization

Theft Rate versus Level of Urbanization: Global Data



Over 60% of global slum dwellers in Asia

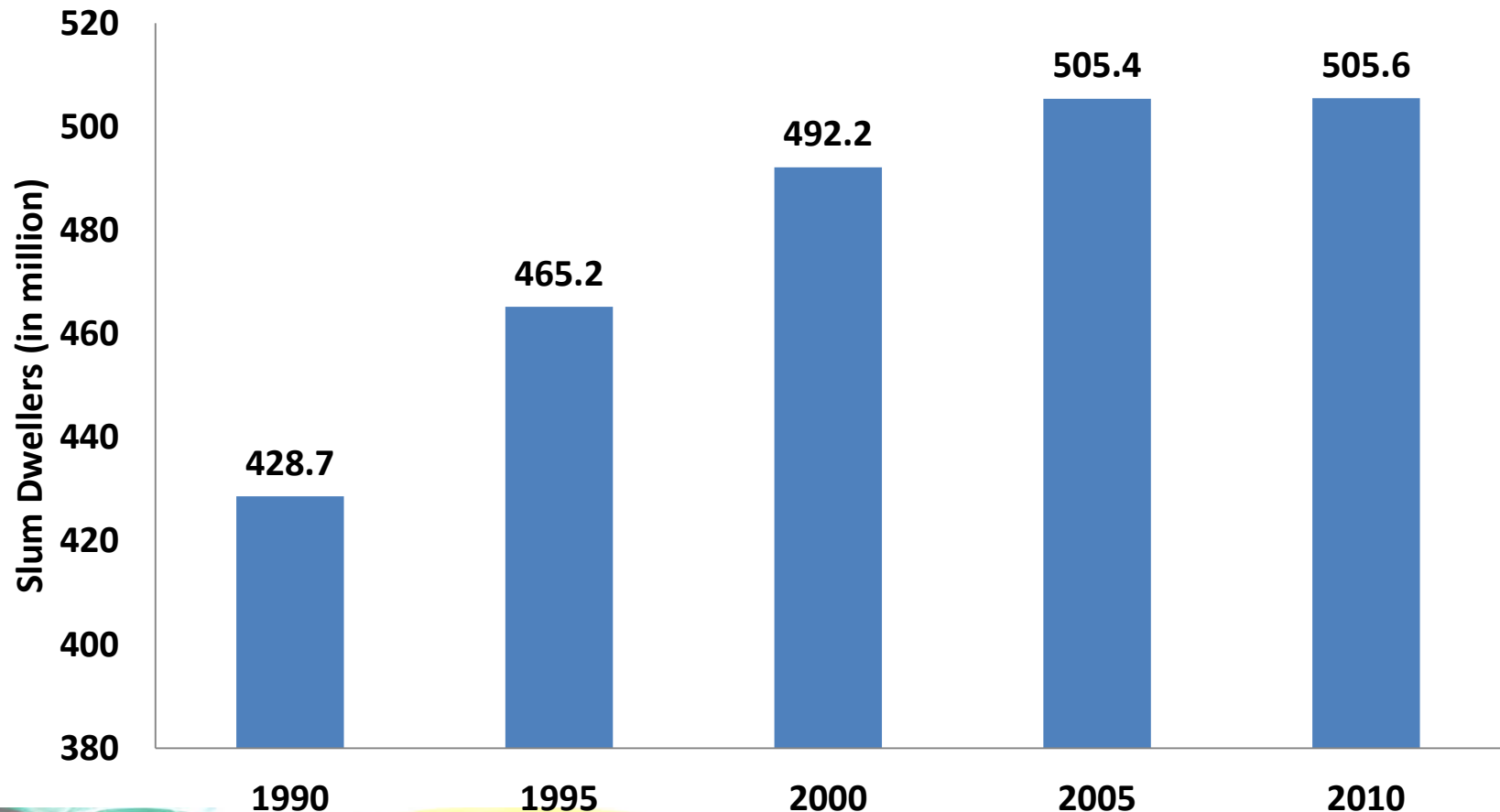
Shares of Global Slum Dwellers , 2010



Source: UN-HABITAT.

... and slum dwellers rise over time

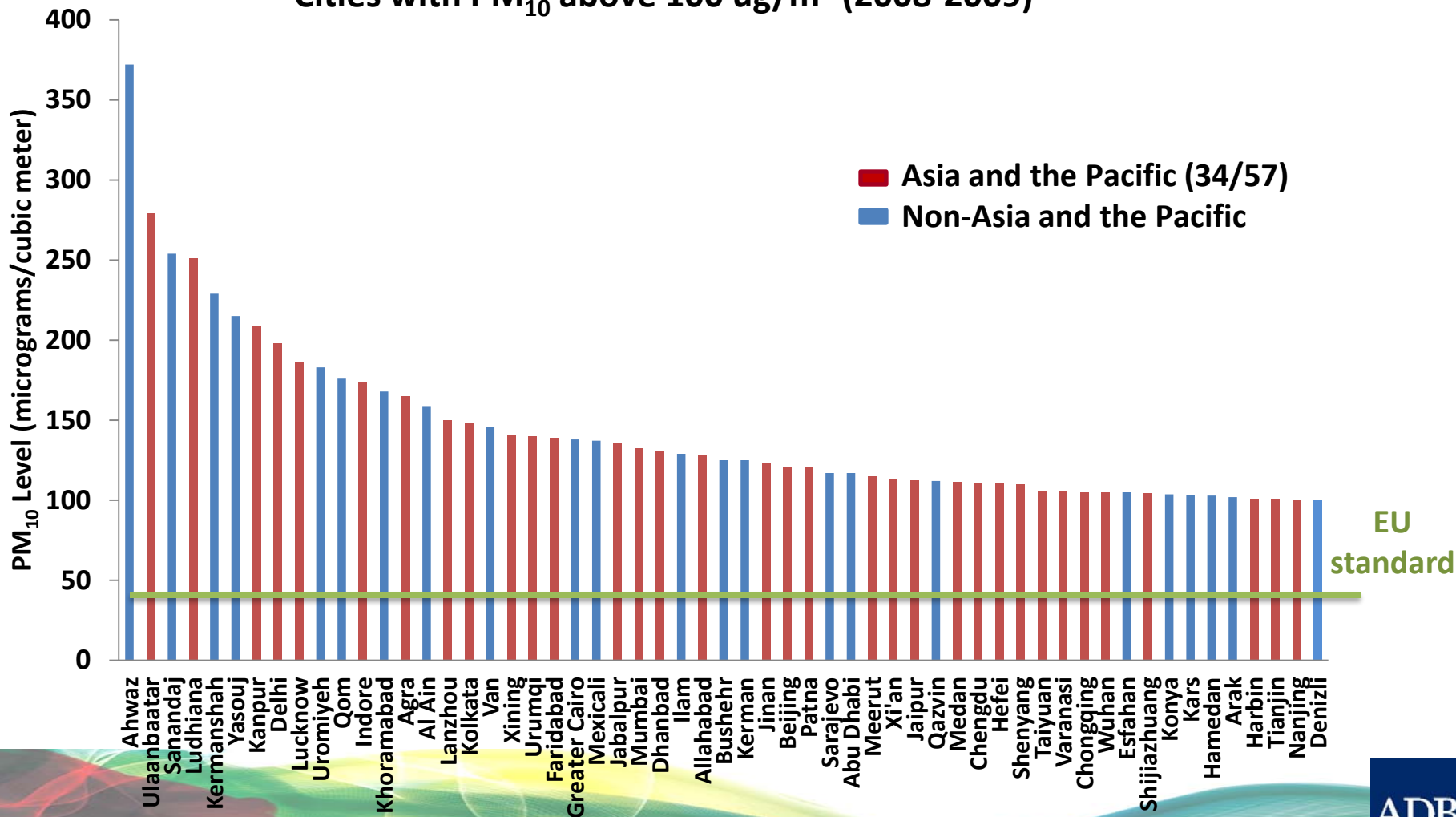
Asian Slum Dwellers , 1990-2010



Source: UN-HABITAT.

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

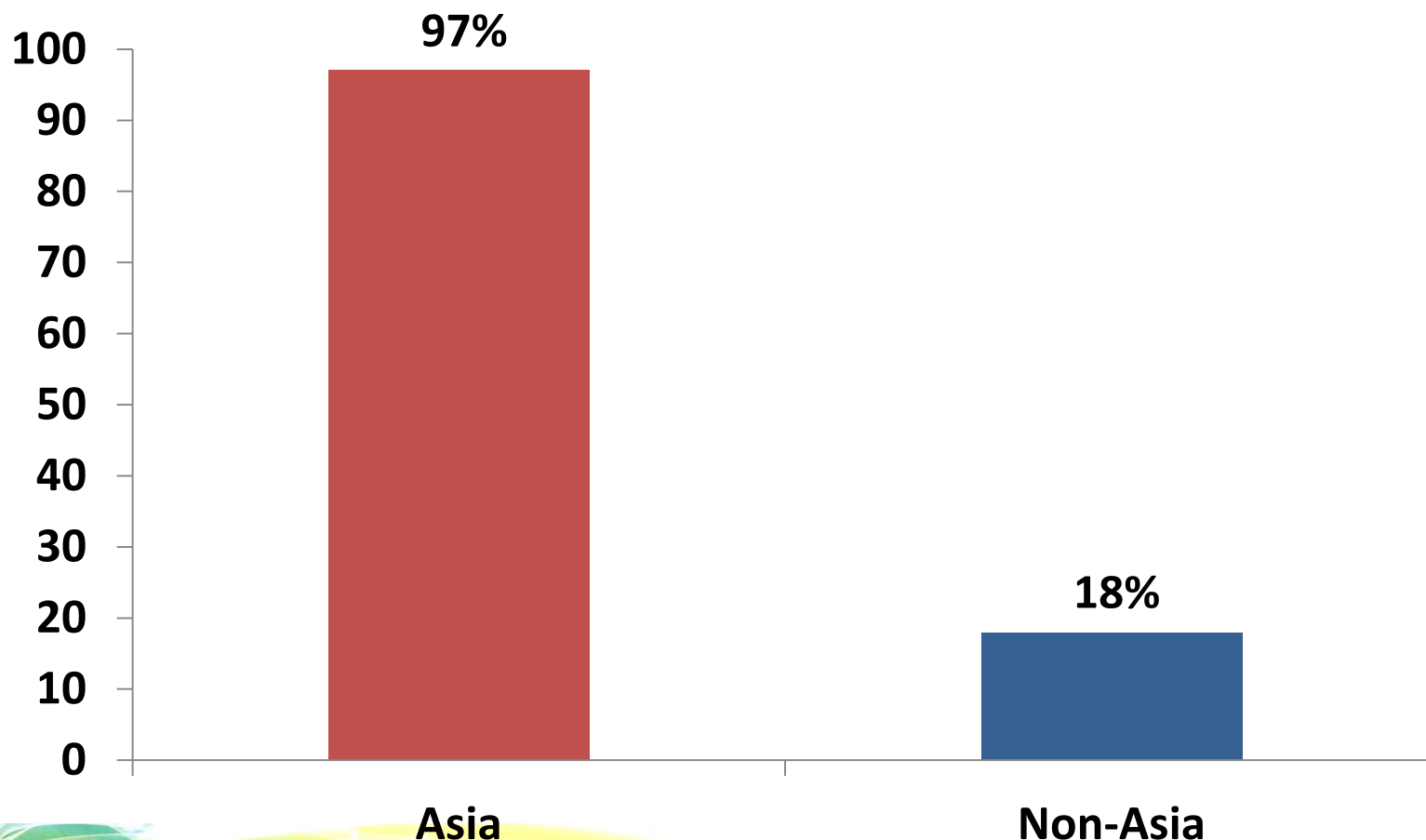
Cities with PM₁₀ above 100 ug/m³ (2008-2009)



Source: WHO (2012).

CO₂ emissions grow fast in Asia

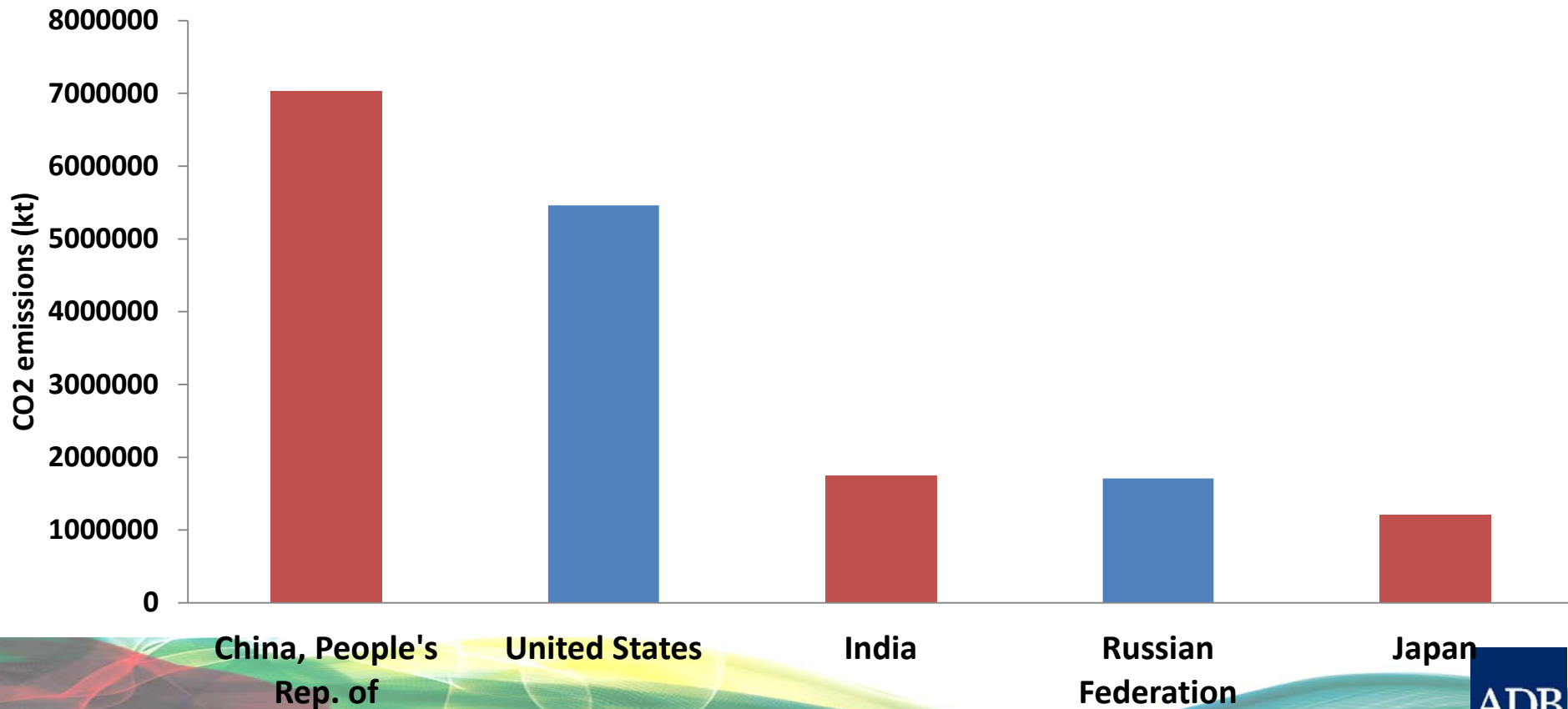
Growth of Per Capita CO₂ Emissions over 2000-2008 (%)



Source: ADB estimates using World Bank (2012).

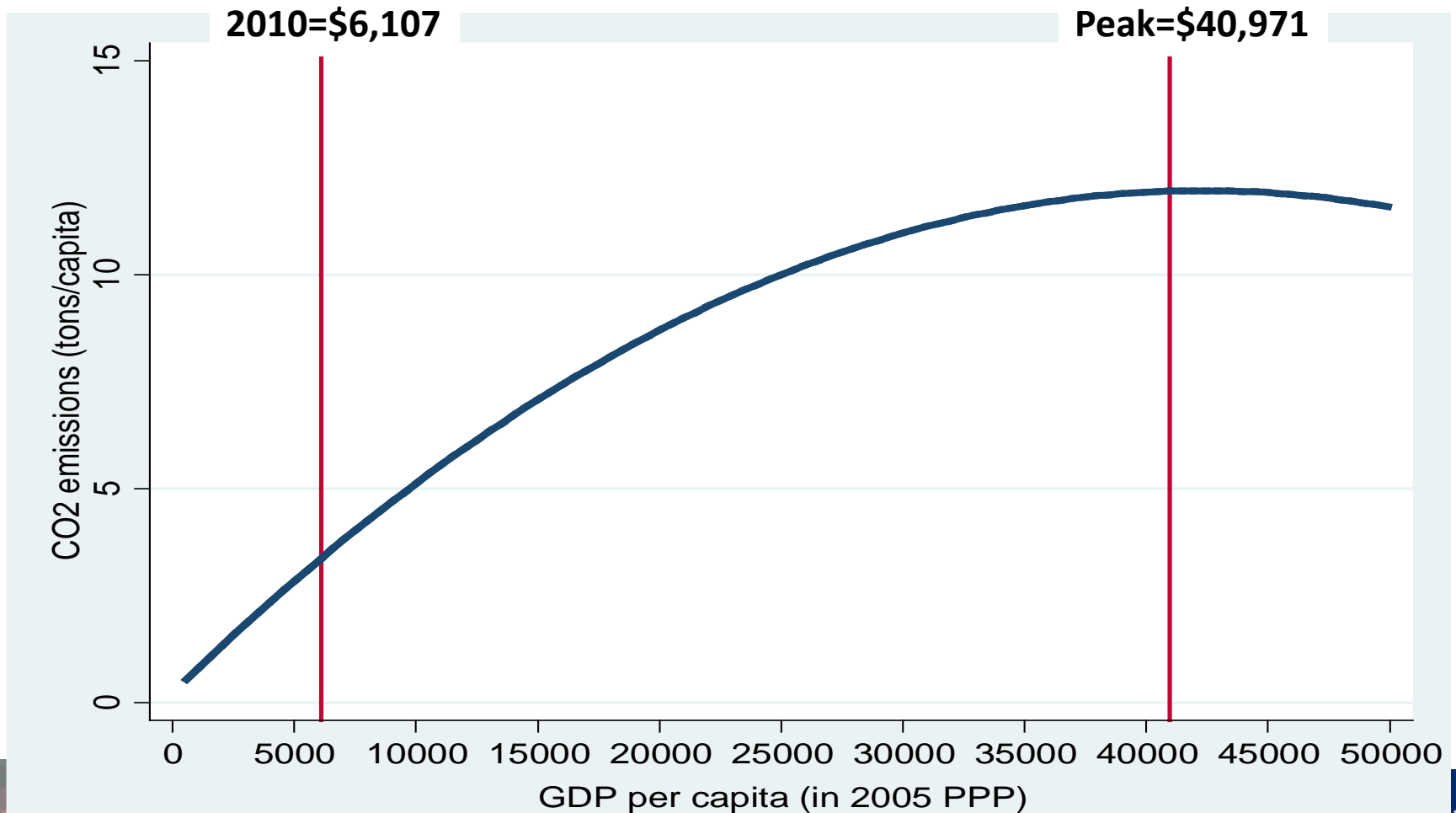
... and three of the top five CO₂ emitting economies are in Asia.

Top 5 Countries in terms of CO₂ Emissions



Environment may degrade further with growth

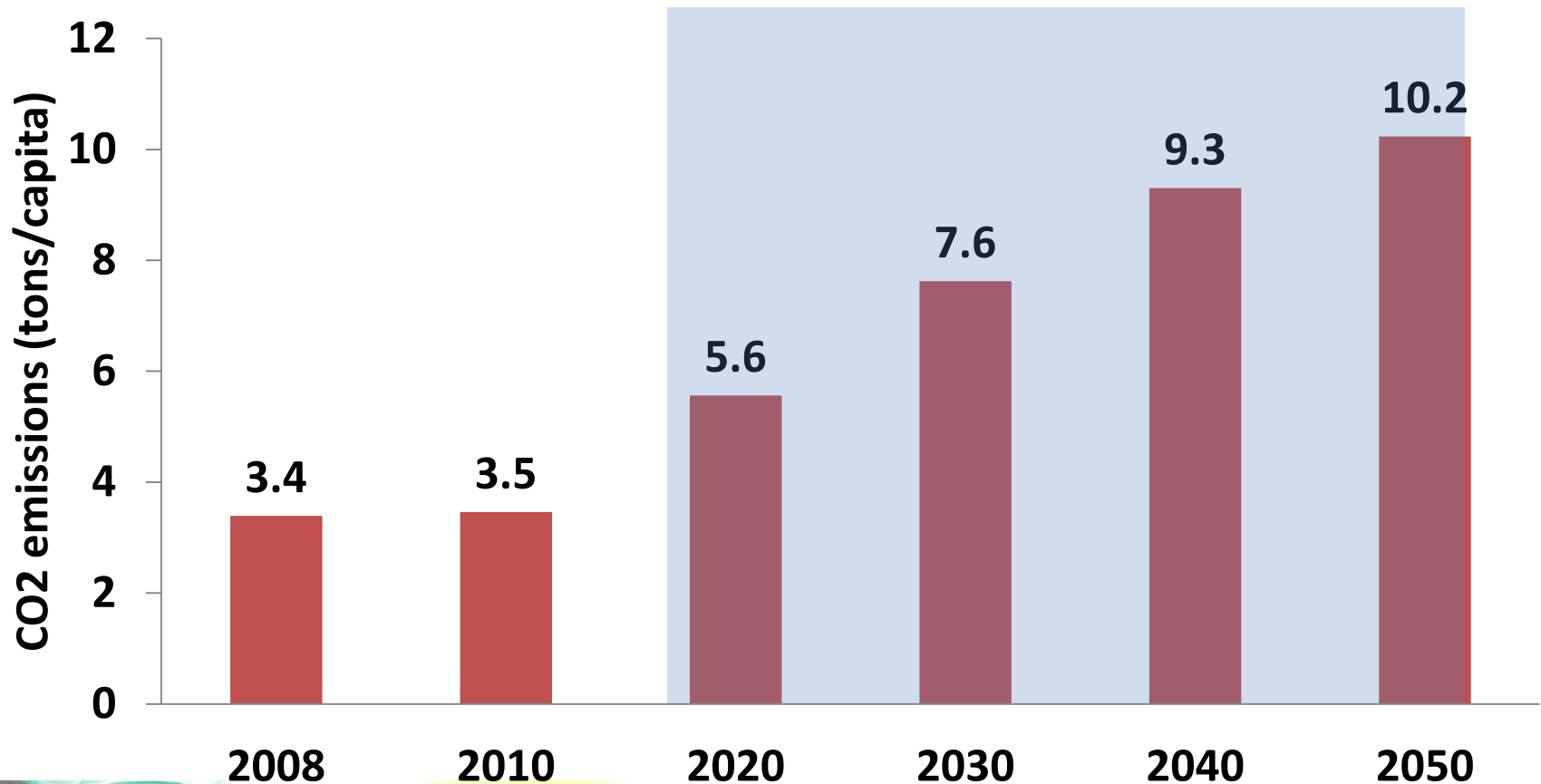
Asia's Environmental Kuznets Curve



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).

Asia is more vulnerable to coastal flooding

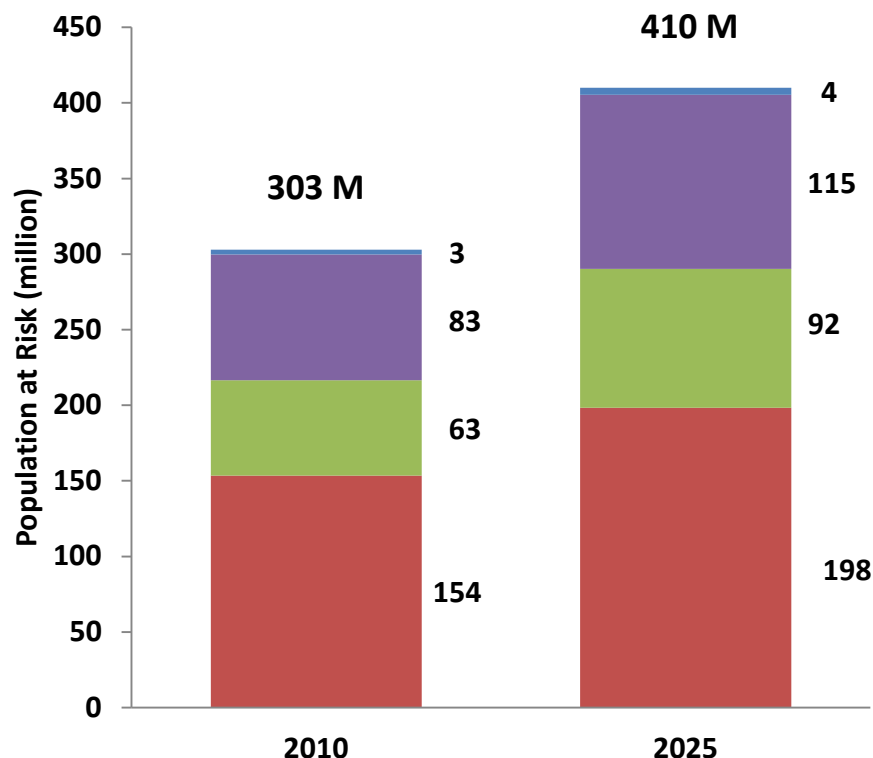
Risk of Coastal Flooding by Region, 2000

	Urban population at Risk (million)	Share of Population at Risk (%)	Urban Area at Risk (^{'000} km ²)	Share of Area at Risk (%)
Africa	32	11	18	6
Asia and Pacific	251	18	129	11
Latin America	24	8	42	6
Europe	40	7	56	7

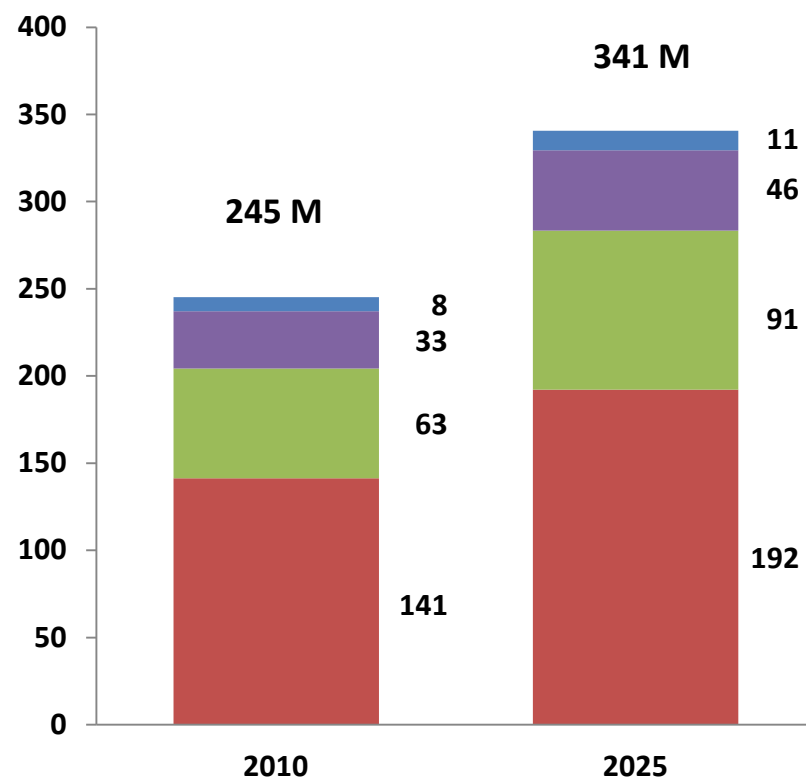
Source: ADB estimates based on McGranahan et al. 2007.

Vulnerability will rise with urbanization

Coastal Flooding



Inland Flooding



■ East Asia

■ South Asia

■ Southeast Asia

■ Central and West Asia

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

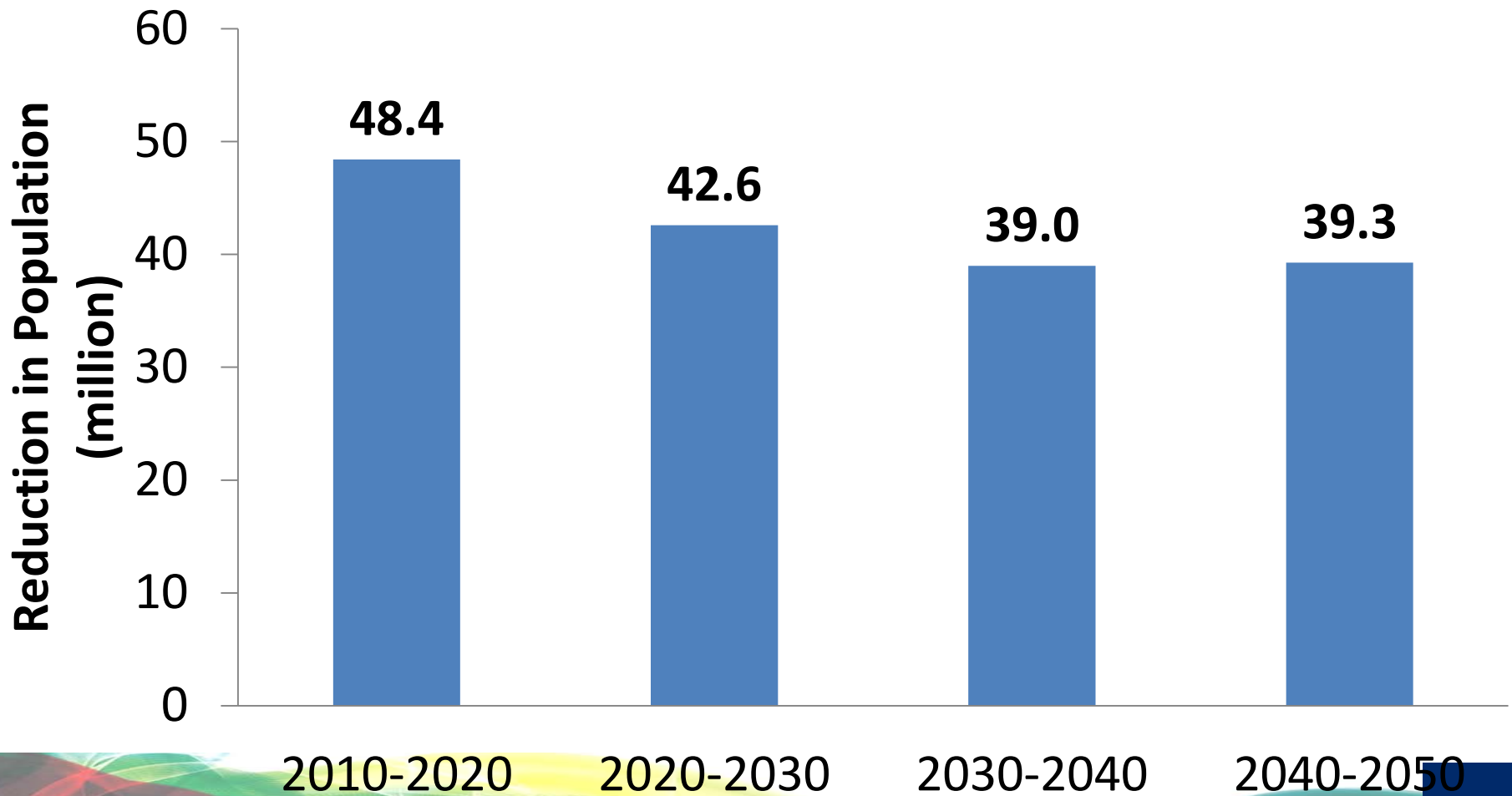
- **Low level = a long way to go**
- **Fast speed = little time to adjust or learn**
- **More & bigger megacities = hard to manage**
- **More slums = higher vulnerability**

But, urban agglomeration can 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

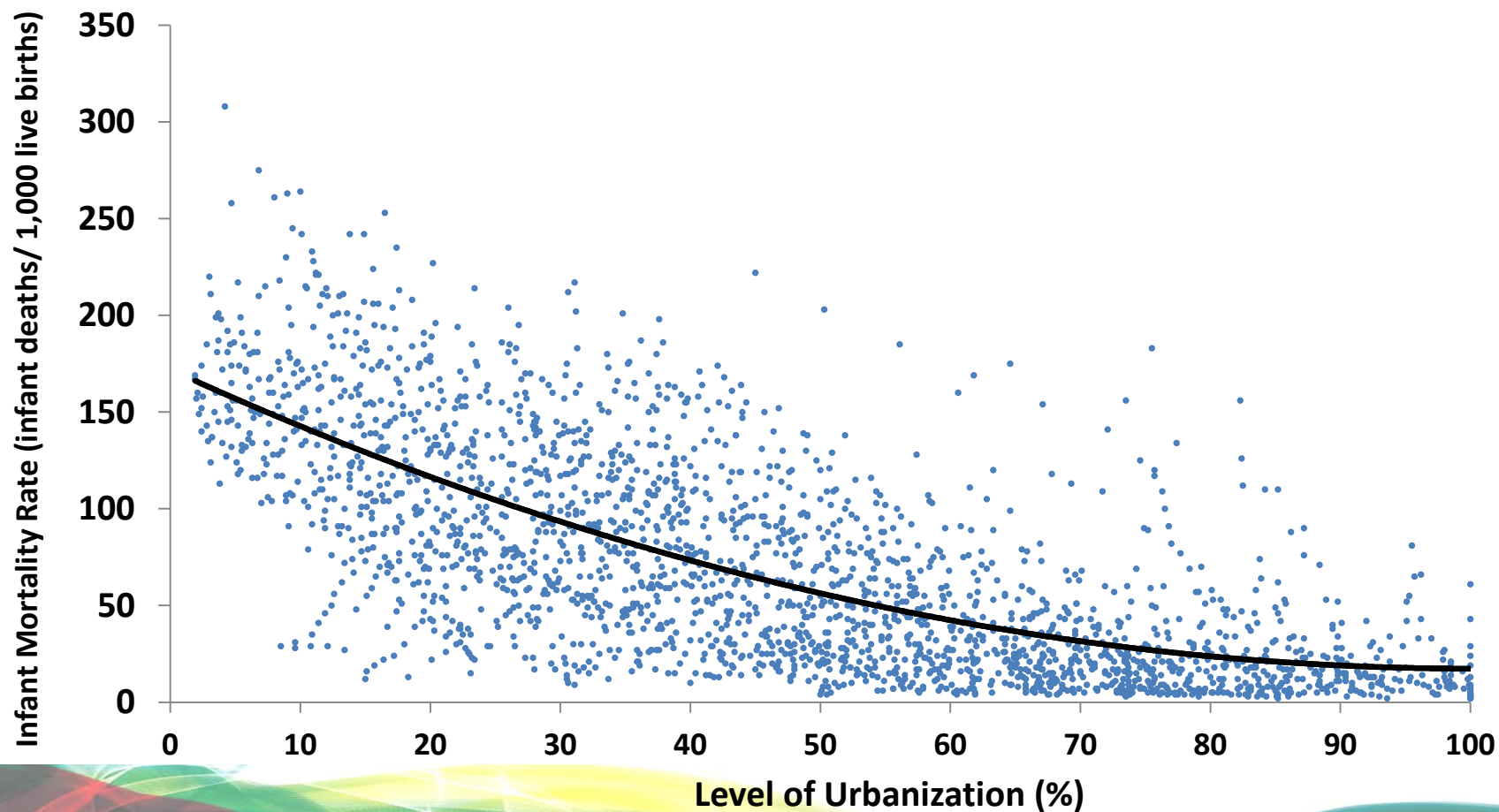


... and more human capital

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

... better health as well

Infant Mortality Rate and Level of Urbanization,
World, 1955-2010



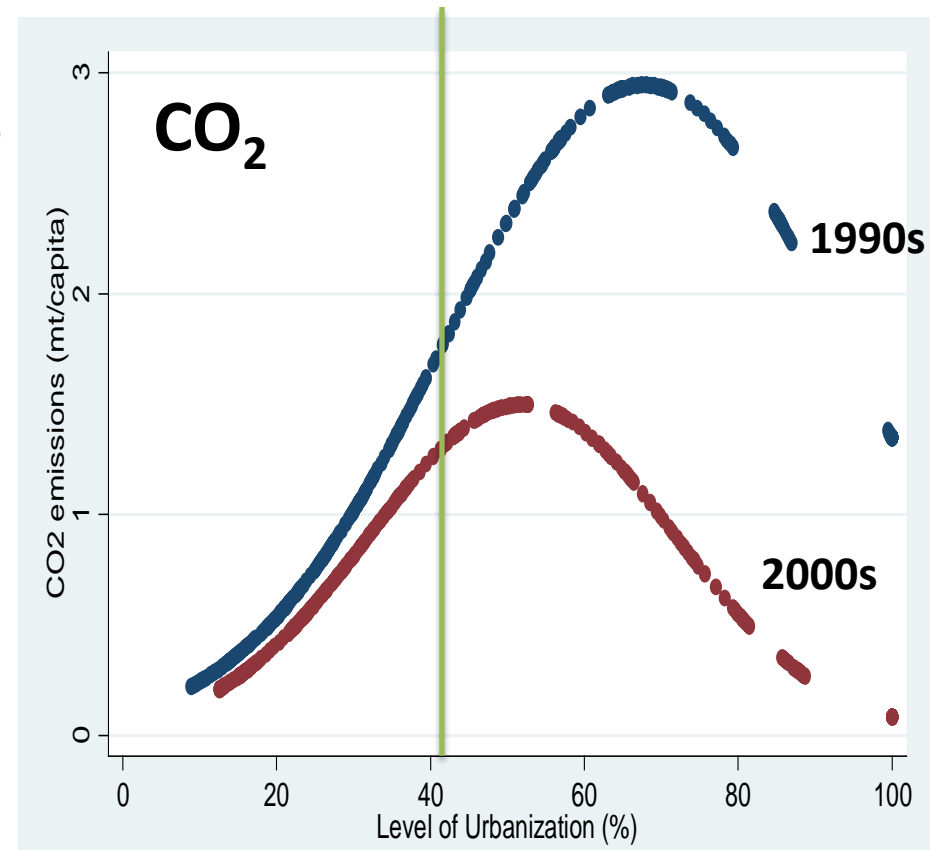
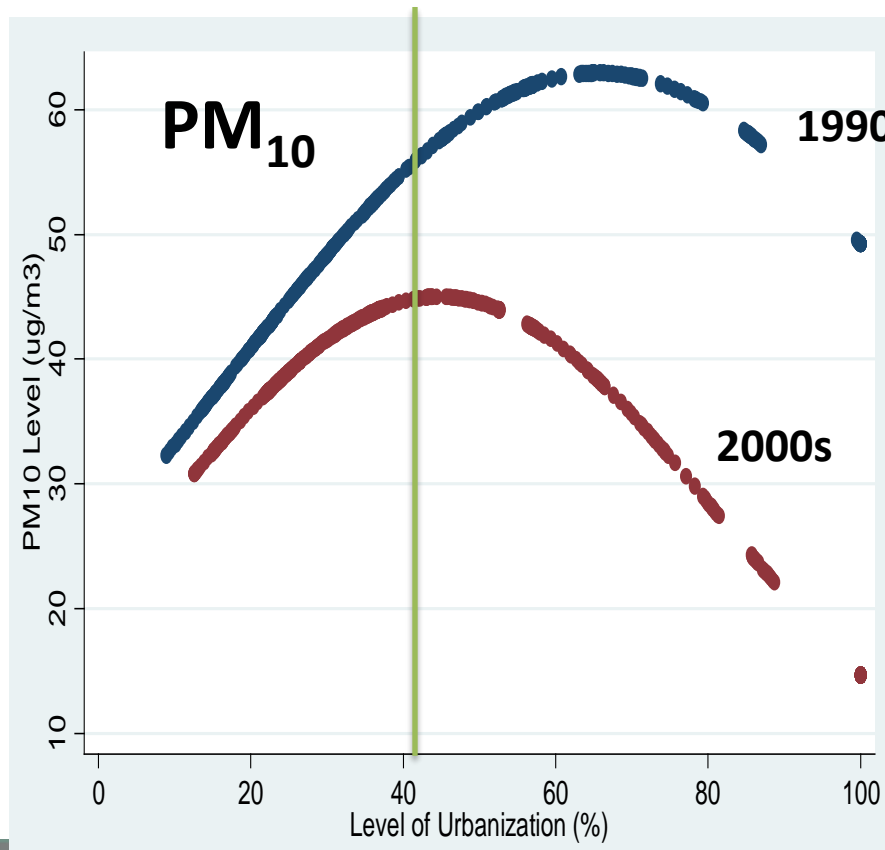
Source: UN (2011) and (2012).

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 exploit Asia's own unique features**
- **Asia can achieve quality growth (lower inequality, less poverty and better environment) through well-managed urbanization!**

Thank You

