

# URBAN AGE CONFERENCE

# GOVERNING URBAN FUTURES

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*The exponential growth in urban  
land*

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# Global Urban Land Expansion: Trends, Projections and Impacts

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# IPCC Fifth Assessment Report New Chapter on Urban Mitigation

ipcc

INTERGOVERNMENTAL PANEL ON climate change

12

2 Coordinating Lead Authors  
30 Authors  
2 Review Editors  
2 Chapter Science Assistants

More than 4 years  
More than 110 pages  
Nearly 700 references  
More than 3,000 comments

## Human Settlements, Infrastructure, and Spatial Planning

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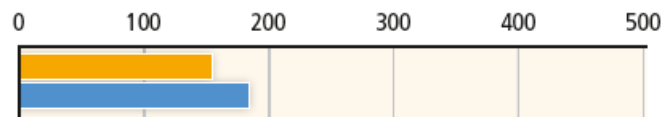
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### This chapter should be cited as:

Seto K. C., S. Dhakal, A. Bigio, H. Blanco, G. C. Delgado, D. Dewar, L. Huang, A. Inaba, A. Kansal, S. Lwasa, J. E. McMahon, D. B. Müller, J. Murakami, H. Nagendra, and A. Ramaswami, 2014: Human Settlements, Infrastructure and Spatial Planning. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahan, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

# Key Message 1: Expansion of urban areas faster than urban population growth

Average Built-up Area per Person [m<sup>2</sup>/cap]



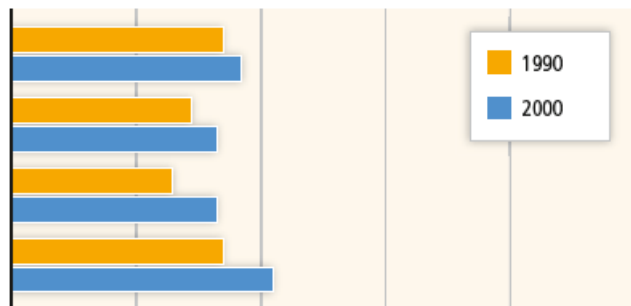
## City Size

More than 4,180,000

1,490,000-4,180,000

528,000-1,490,000

100,000-528,000



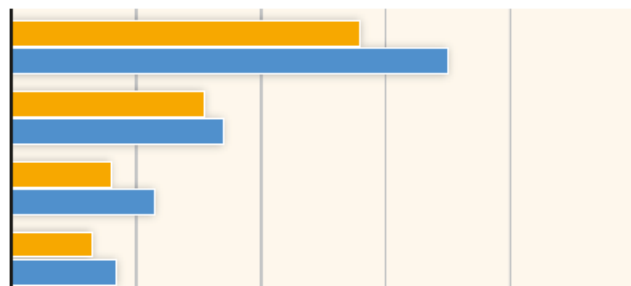
## Income

High Income

Upper-Middle Income

Lower-Middle Income

Low Income



## Geographic

East Asia and the Pacific

Southeast Asia

Sub-Saharan Africa

South and Central Asia

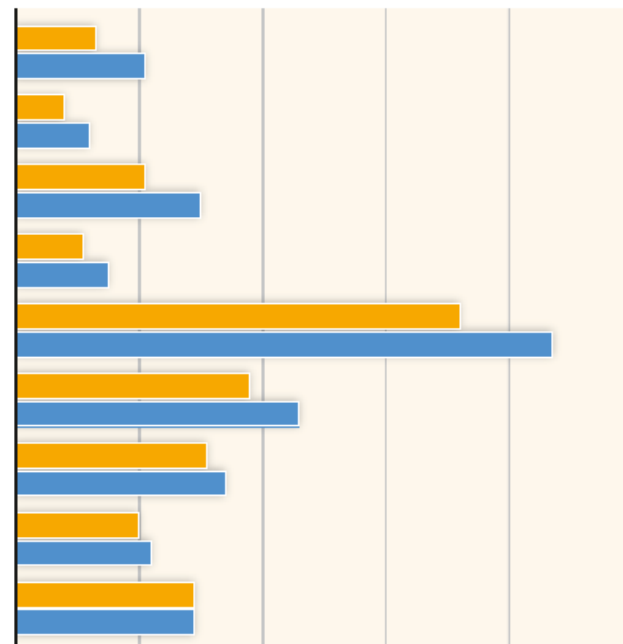
North America, Japan, Australia

Europe

Western Asia

Northern Africa

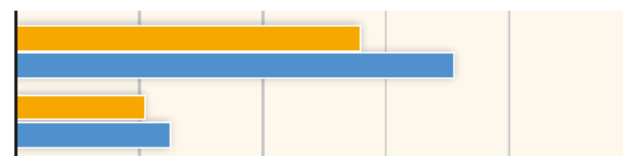
Latin America and the Caribbean



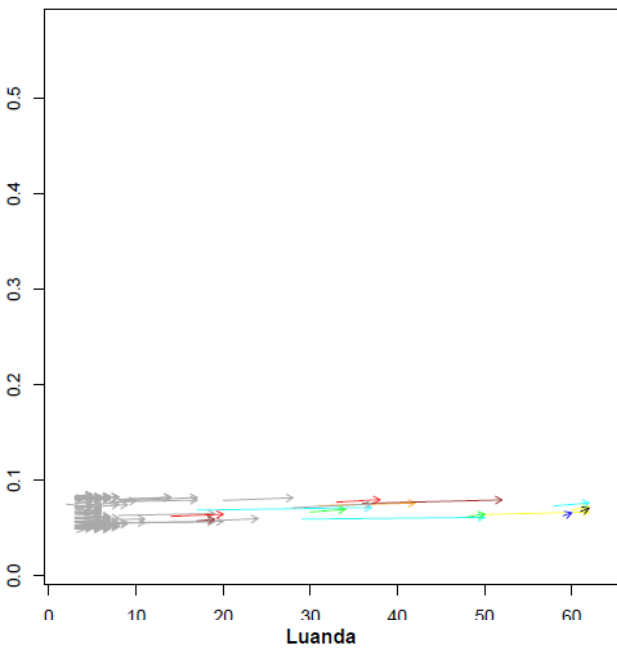
## Development

Industrialized Countries

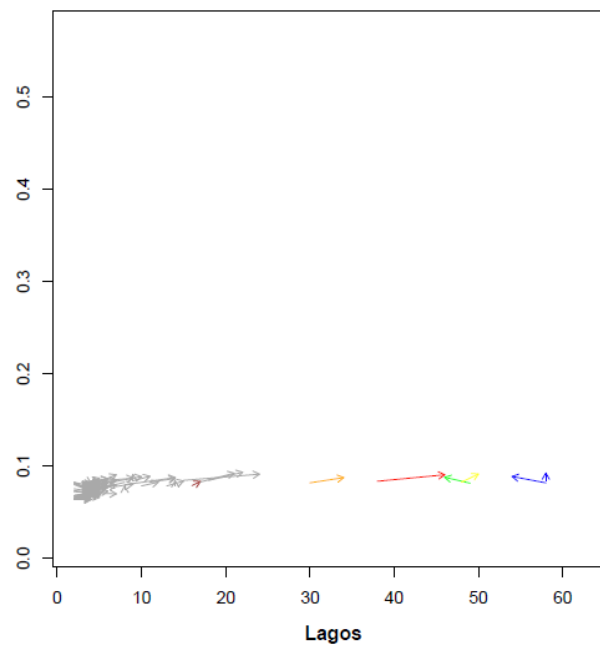
Developing Countries



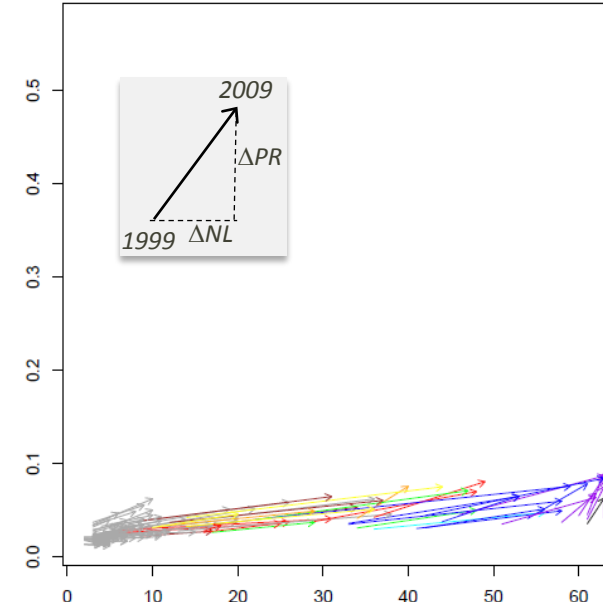
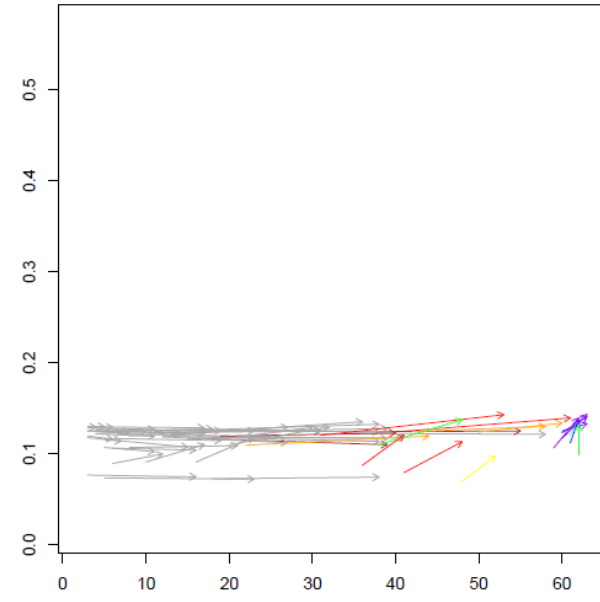
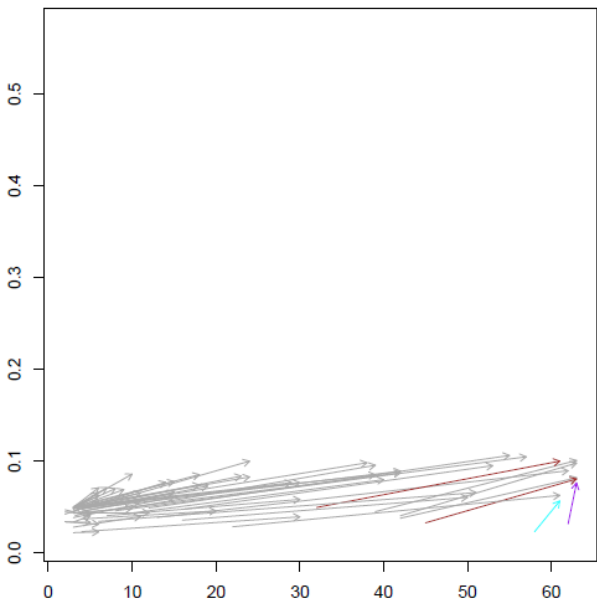
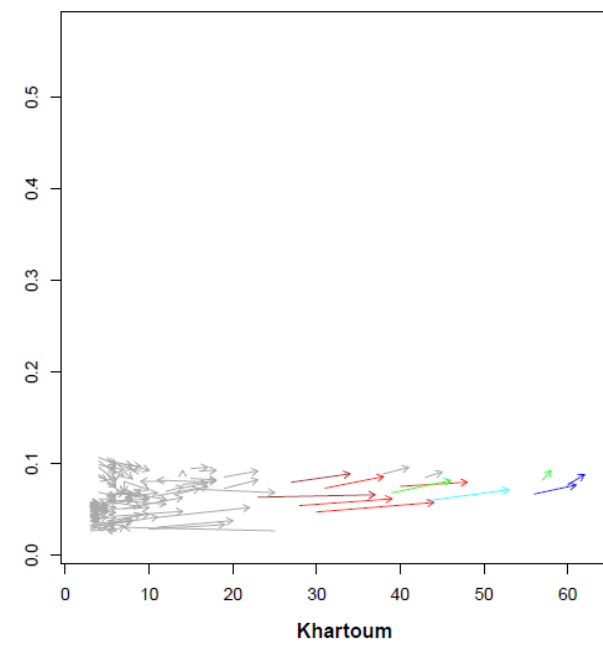
Kinshasa



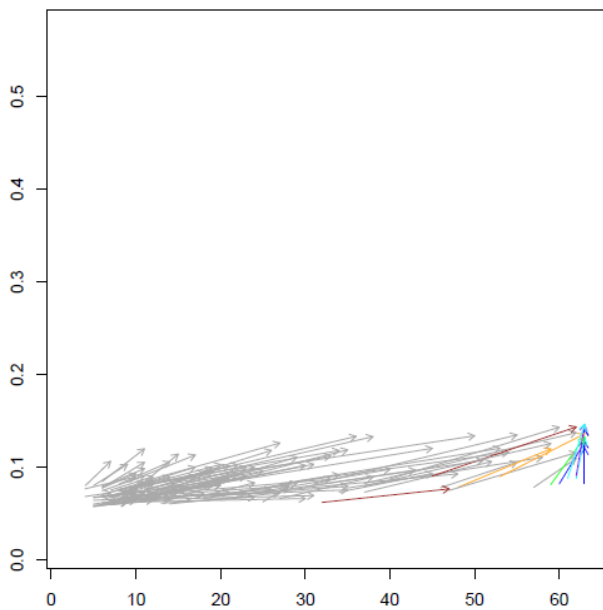
Kano



Nairobi

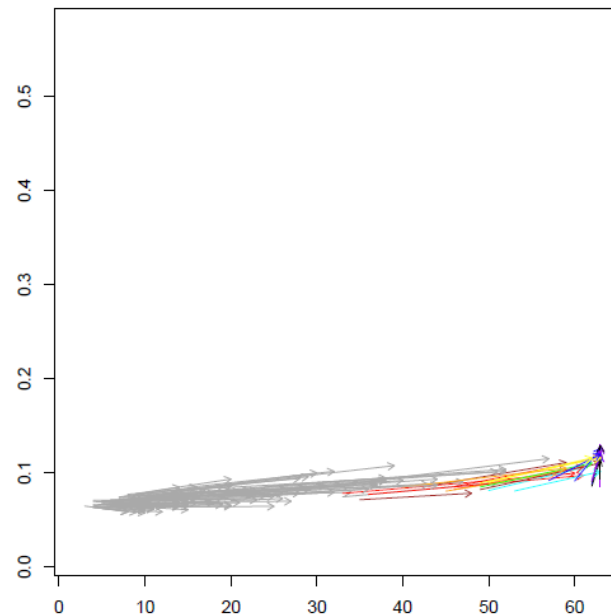


Bangalore



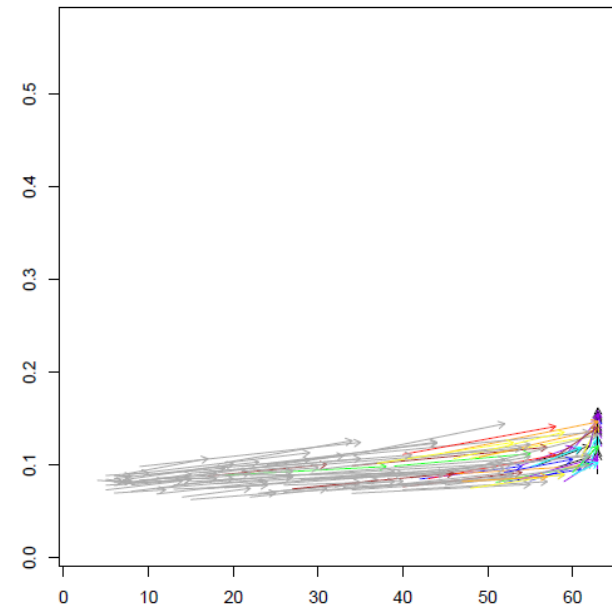
Ahmedabad

Hyderabad

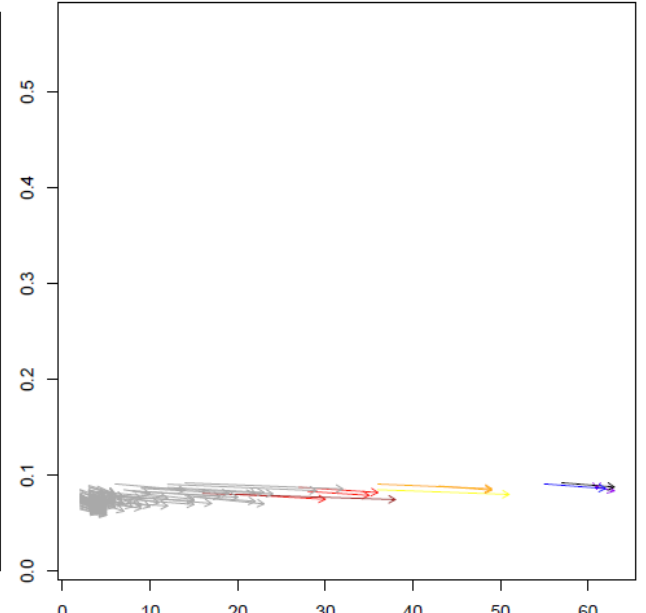
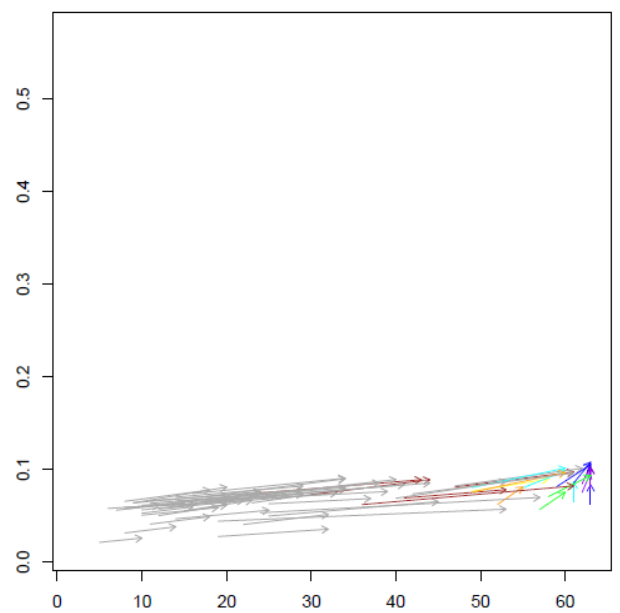
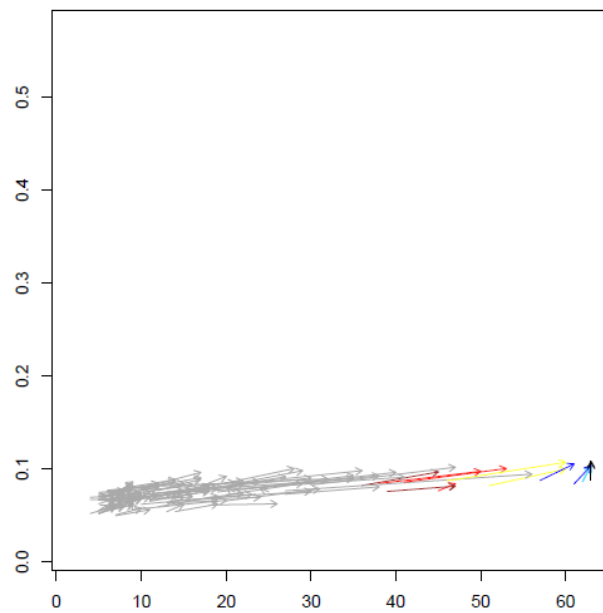


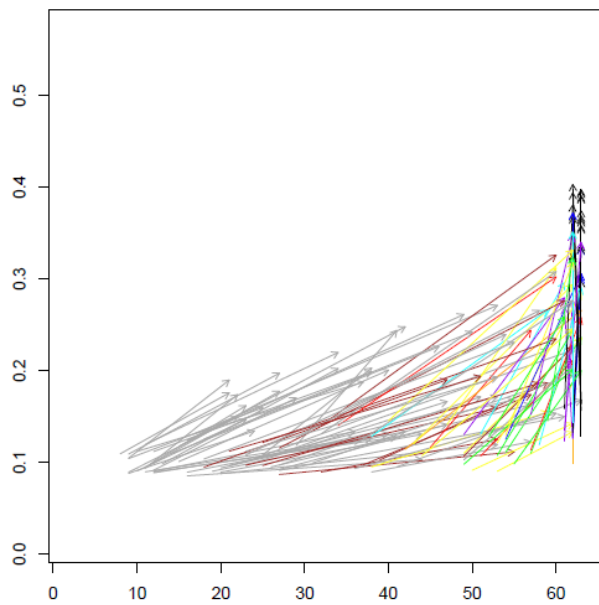
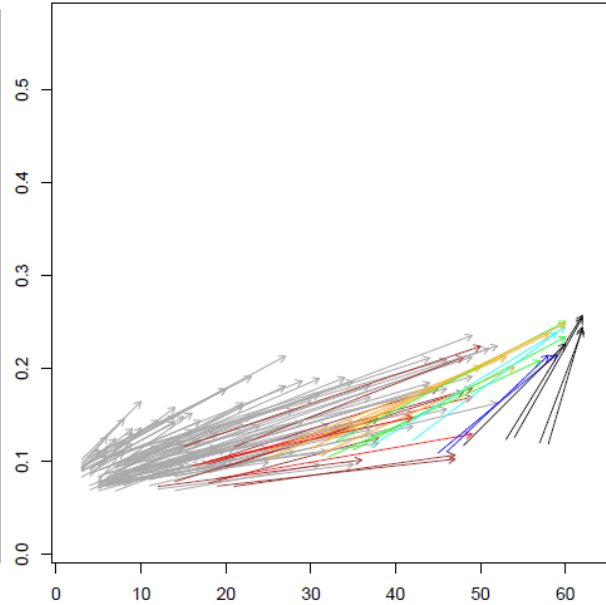
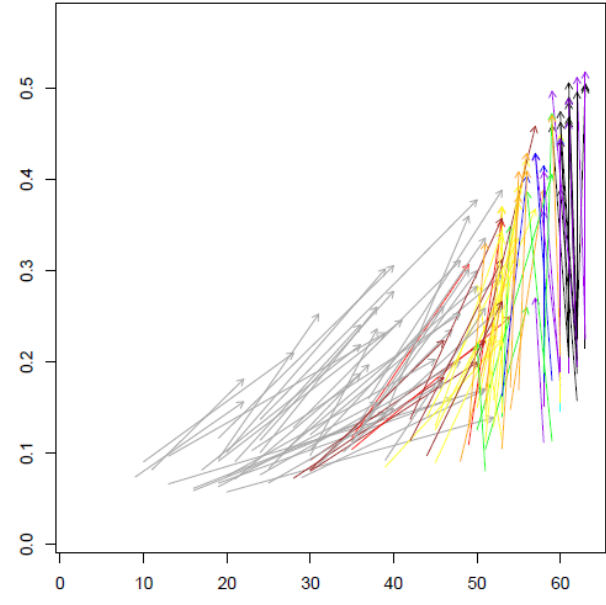
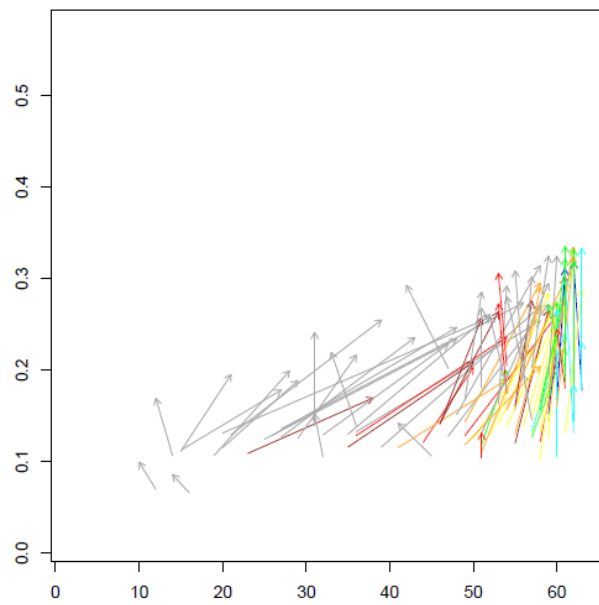
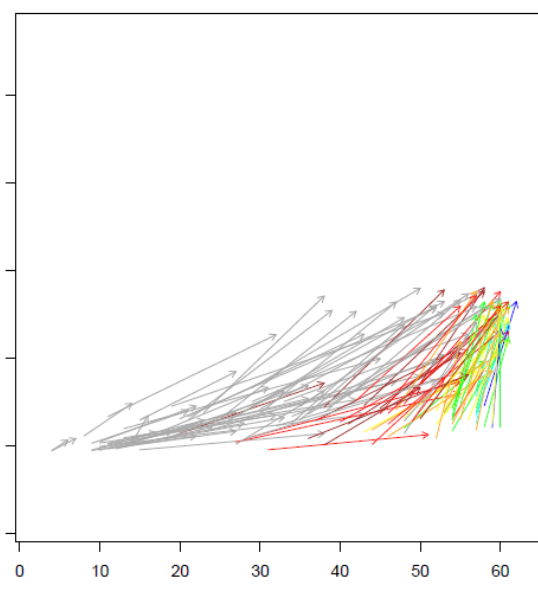
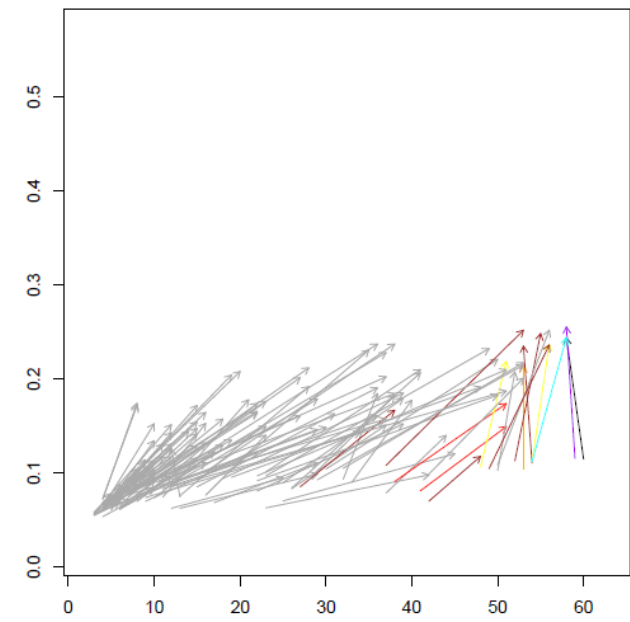
Chennai (Madras)

Delhi (National Capital Region)

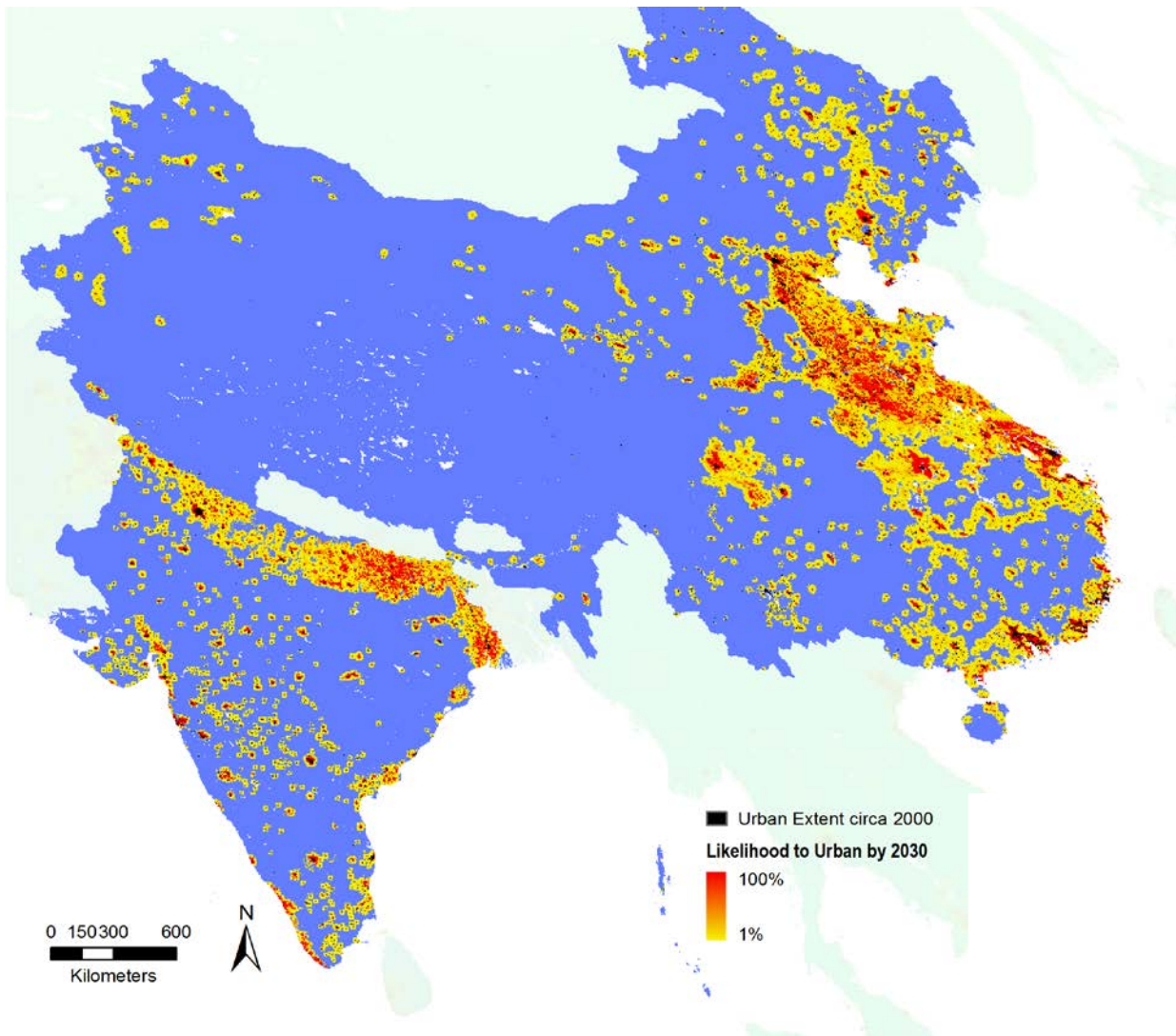


Kanpur (Cawnpore)



**Beijing****Chengdu****Shanghai****Shenzhen****Dongguan****Nanjing**

# Key Message 2: More urban areas will be constructed during first 3 decades of 21<sup>st</sup> Century than all of history



Year	Urban Land (km <sup>2</sup> )	
	China	India
2000	80,500	30,400
2030	486,000	174,000

(Seto et al., 2012)

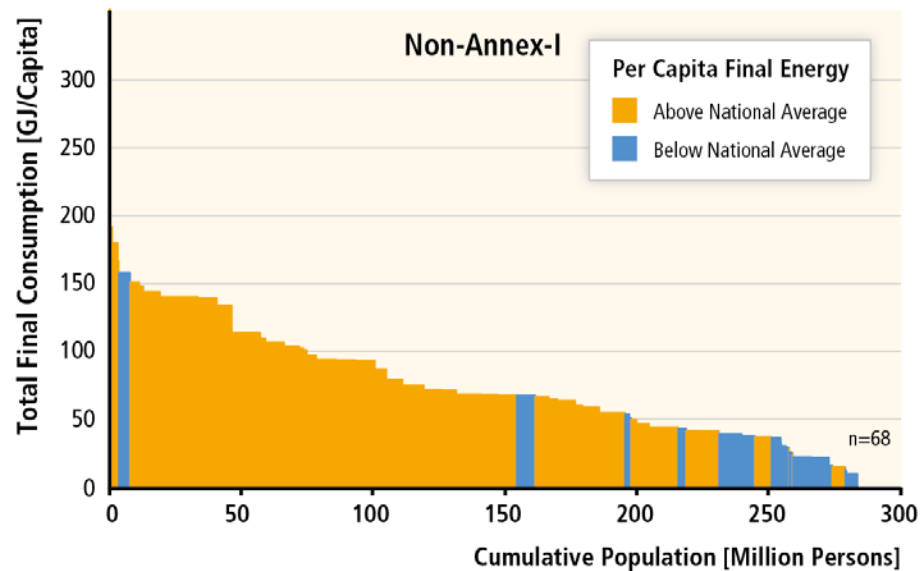
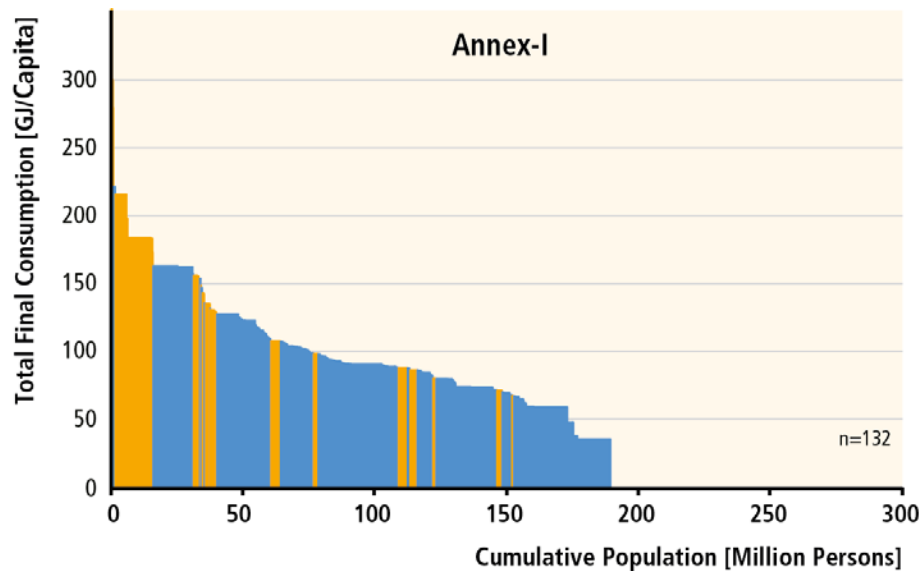


# Key Message 3: Relative drivers of urban land expansion differ

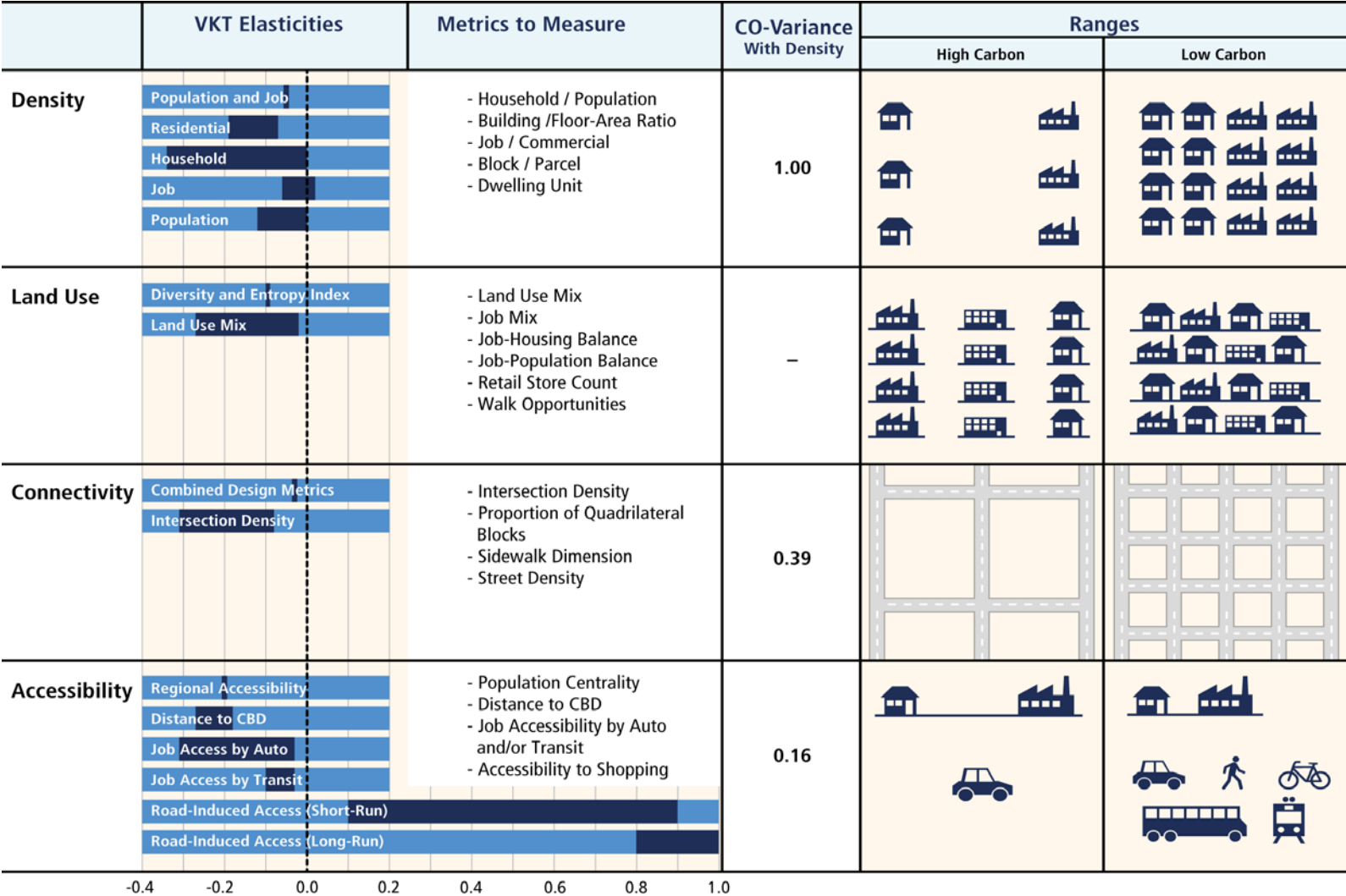
<i>Location</i>	<i>Average annual urban expansion growth rate</i>	<i>Approximate percent of urban land expansion attributed to</i>	
		<i>Population growth rate</i>	<i>GDP per capita growth rate</i>
China	7.48	18	53
India	4.84	30	23
Africa	4.32	43	Not significant
North America	3.31	28	72
Europe	2.50	4	86

# Key Message 4: Urban areas are focal points of energy use and GHG emissions with large variations between and within countries

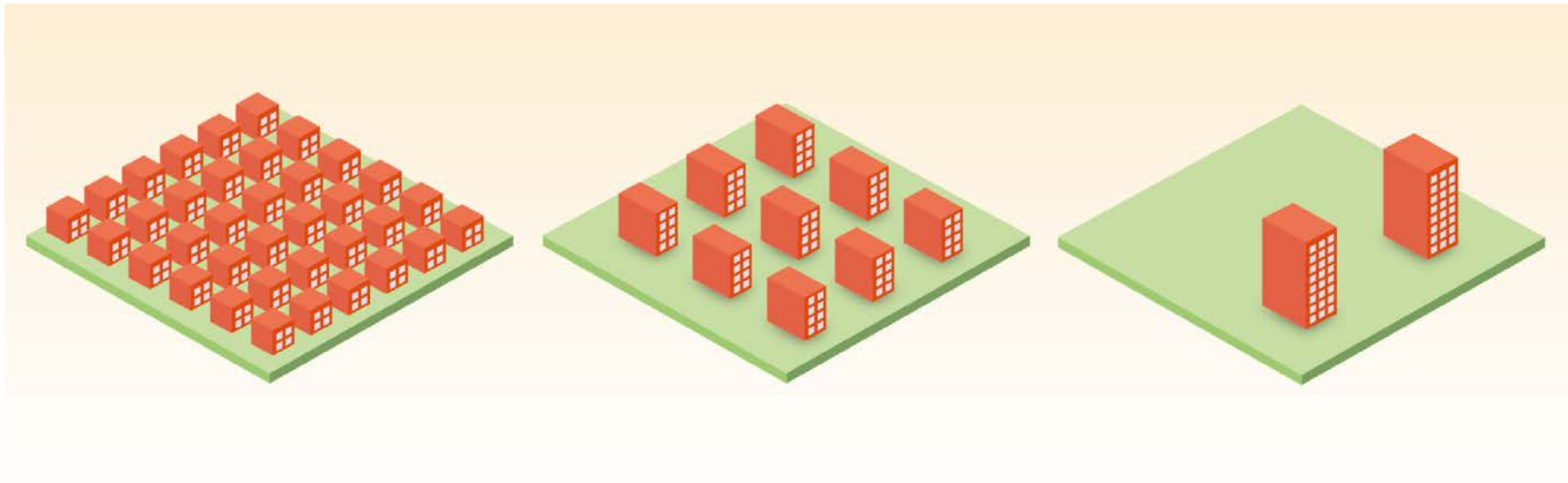
Urban energy use: 67–76%  
Urban CO<sub>2</sub> emissions: 71–76% } of global total



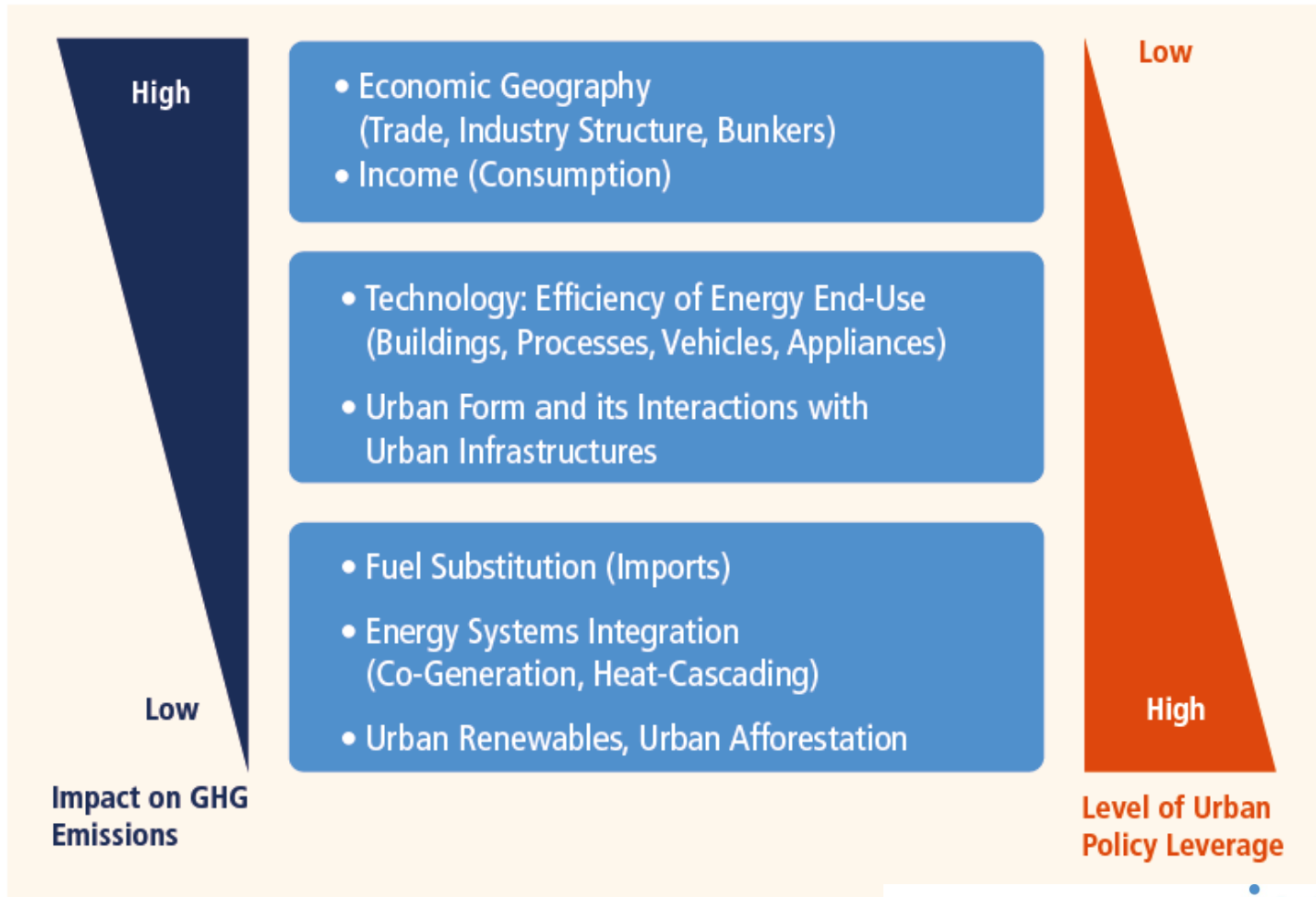
# Key Message 5: Accessibility is key factor to lower urban emissions



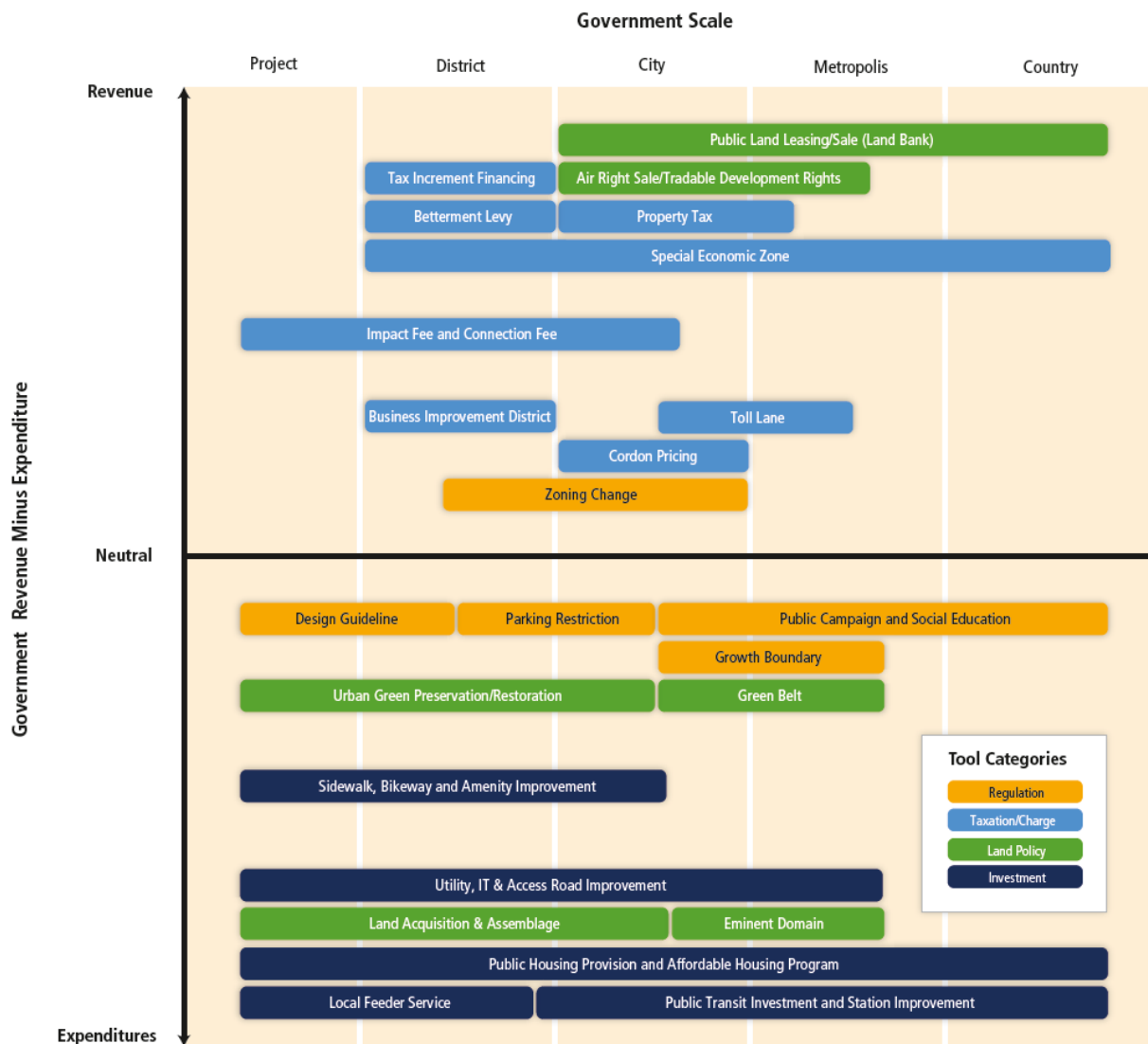
# Key Message 6: Increasing urban density is a necessary but not sufficient condition for lowering urban emissions



# Key Message 7: Governance Paradox: Largest opportunities to GHG reduction may be in places where institutional and governance capacities are weakest

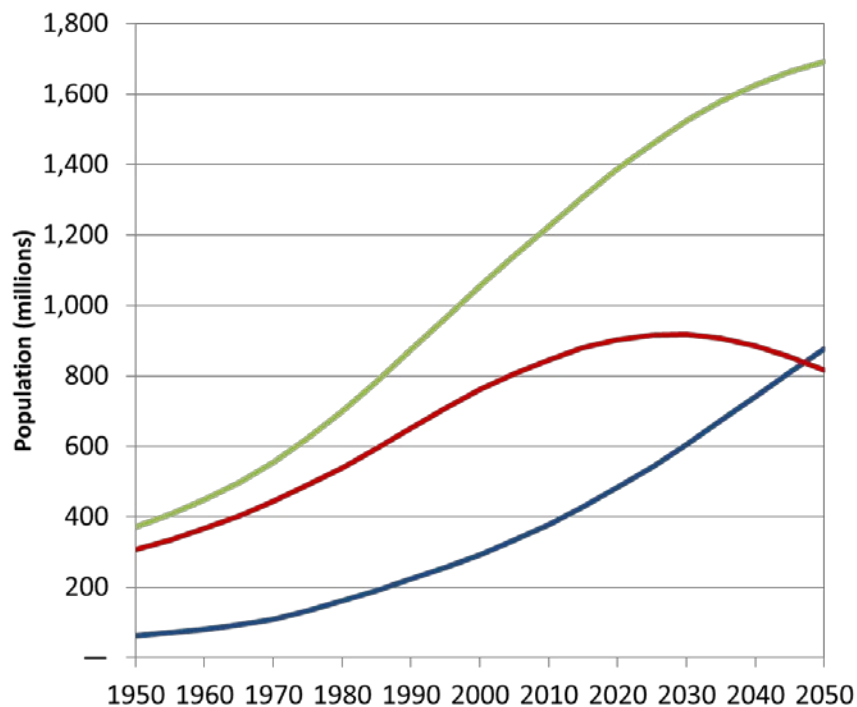


# Key Message 8: Different spatial planning tools have different ability to raise revenue or require expenditures



# Key Message 9: Window of opportunity as large portions of urban areas have not been built

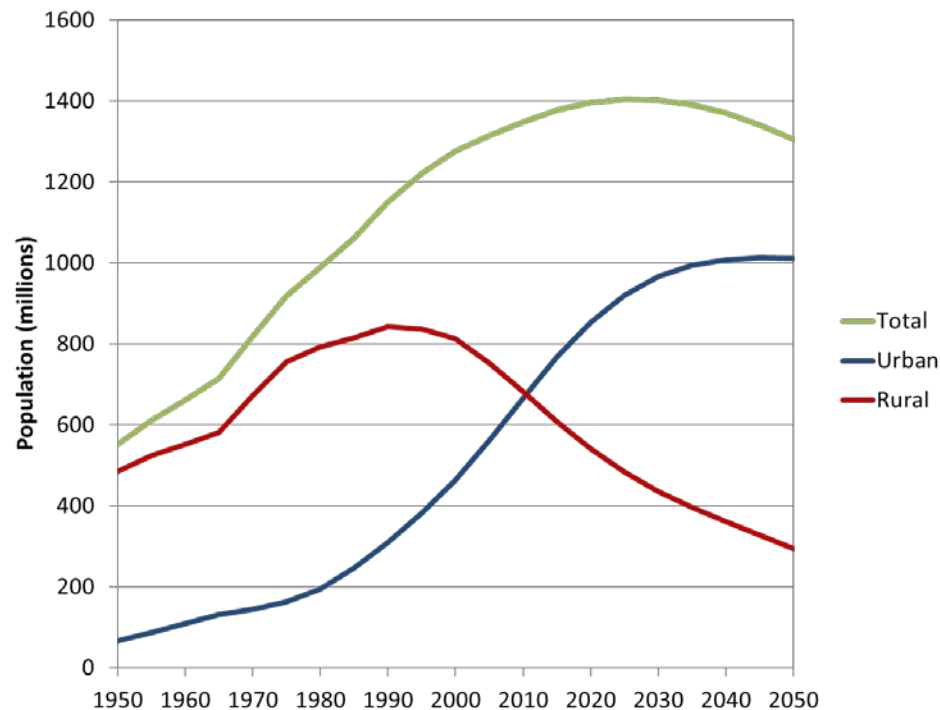
## India



**17%**

**52%**

## China



**12%**

**77%**

# Key Message 10: Thousands of cities are undertaking climate action plans, but few focus on urban land use

