

# The Path to Low-Carbon Green Growth: The Hard Choices Mega Cities Must Make

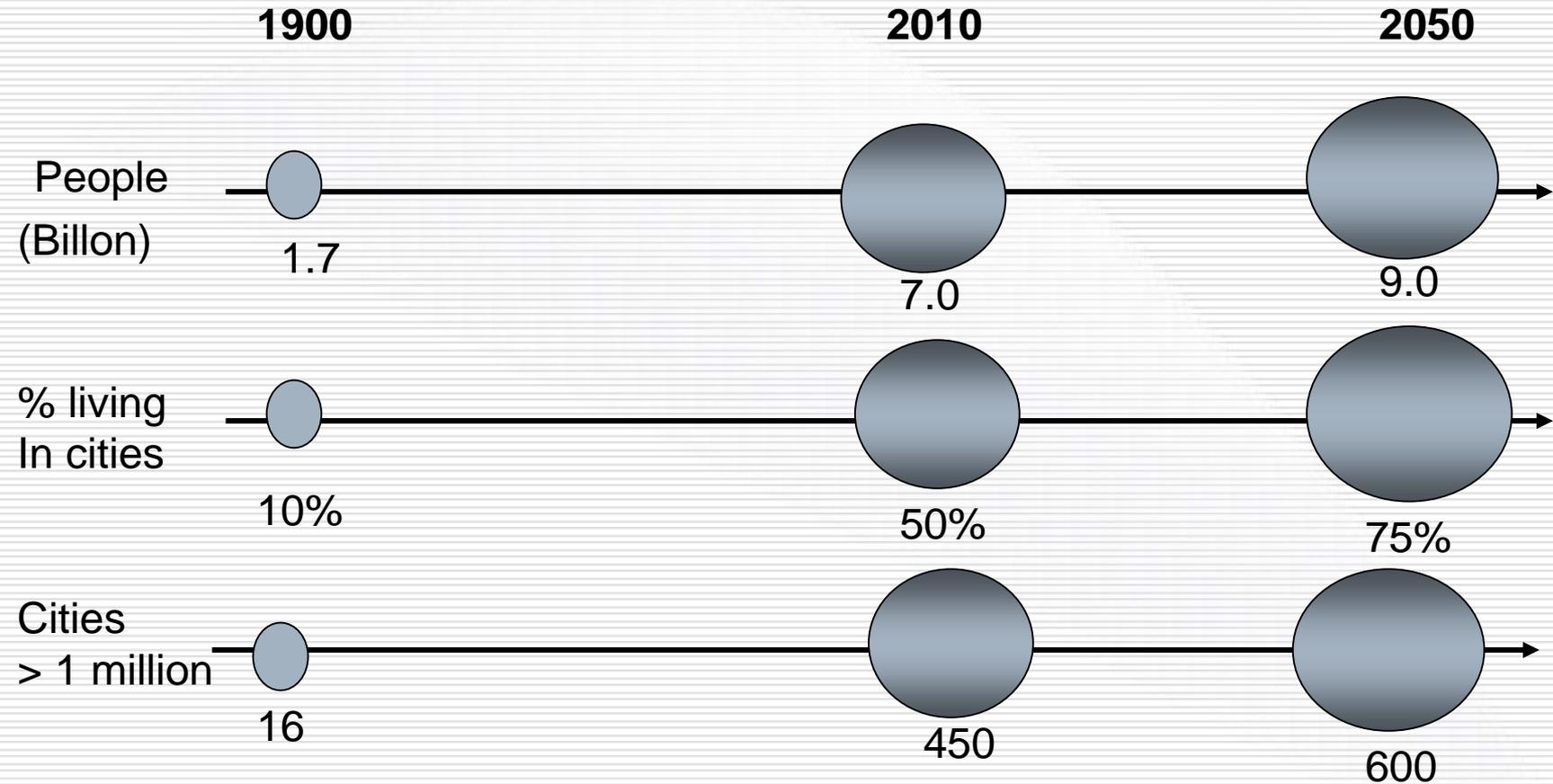
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# The Age and Birth of Mega-Cities

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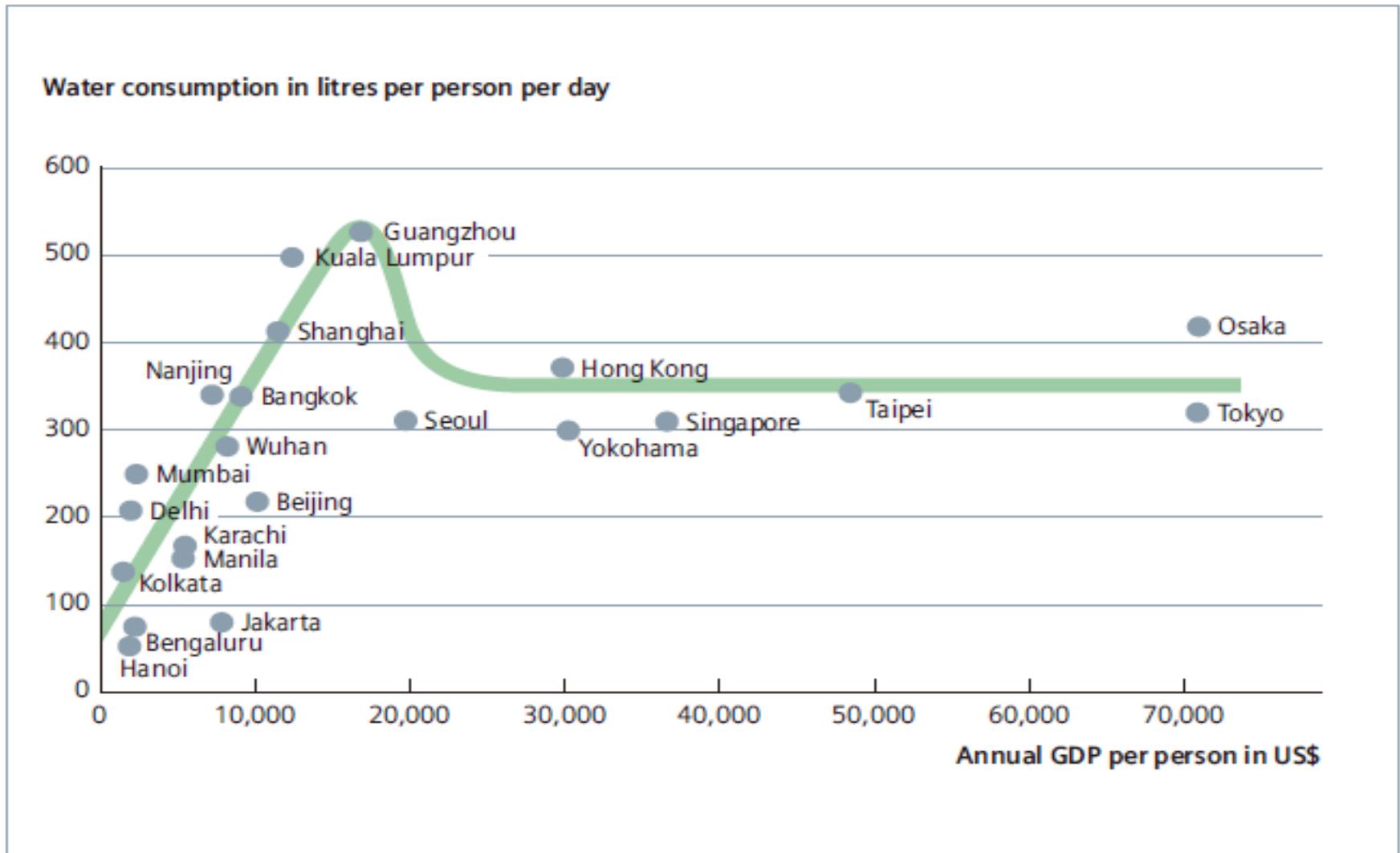


# Economics of Mega-Cities in Asia

Metropolitan	Land Area (sq. km)	Population in 2010 (thousand)	GDP per capita (US\$)
Bangkok	7,762	11,970	3,893
Jakarta	13,601	24,100	2,349
Metro Manila	4,863	21,420	1,796
Ho Chi Minh	2,095	7,163	1,032
Kuala Lumpur	243	1,720	20,837
Yangon	10,171	3,973	238
Hanoi	1,979	6,451	
Phnom Penh	678	1,501	769
Bandar Seri Begawan	5,765	203	25,914
Vientiane	3,920	795	1,302



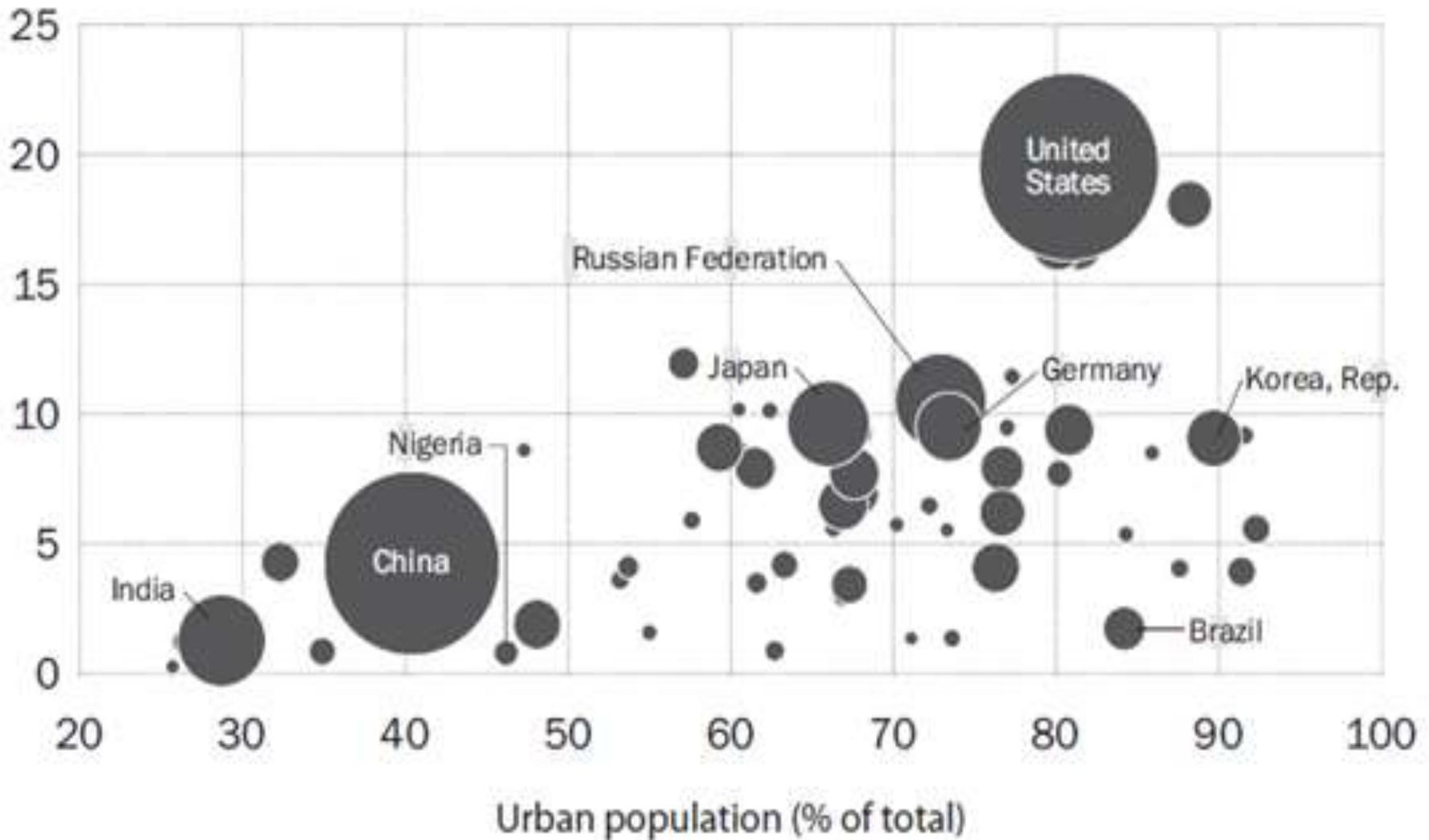
# Mega Cities As Tipping Point in Resource Consumption



Source: World Bank, 2011



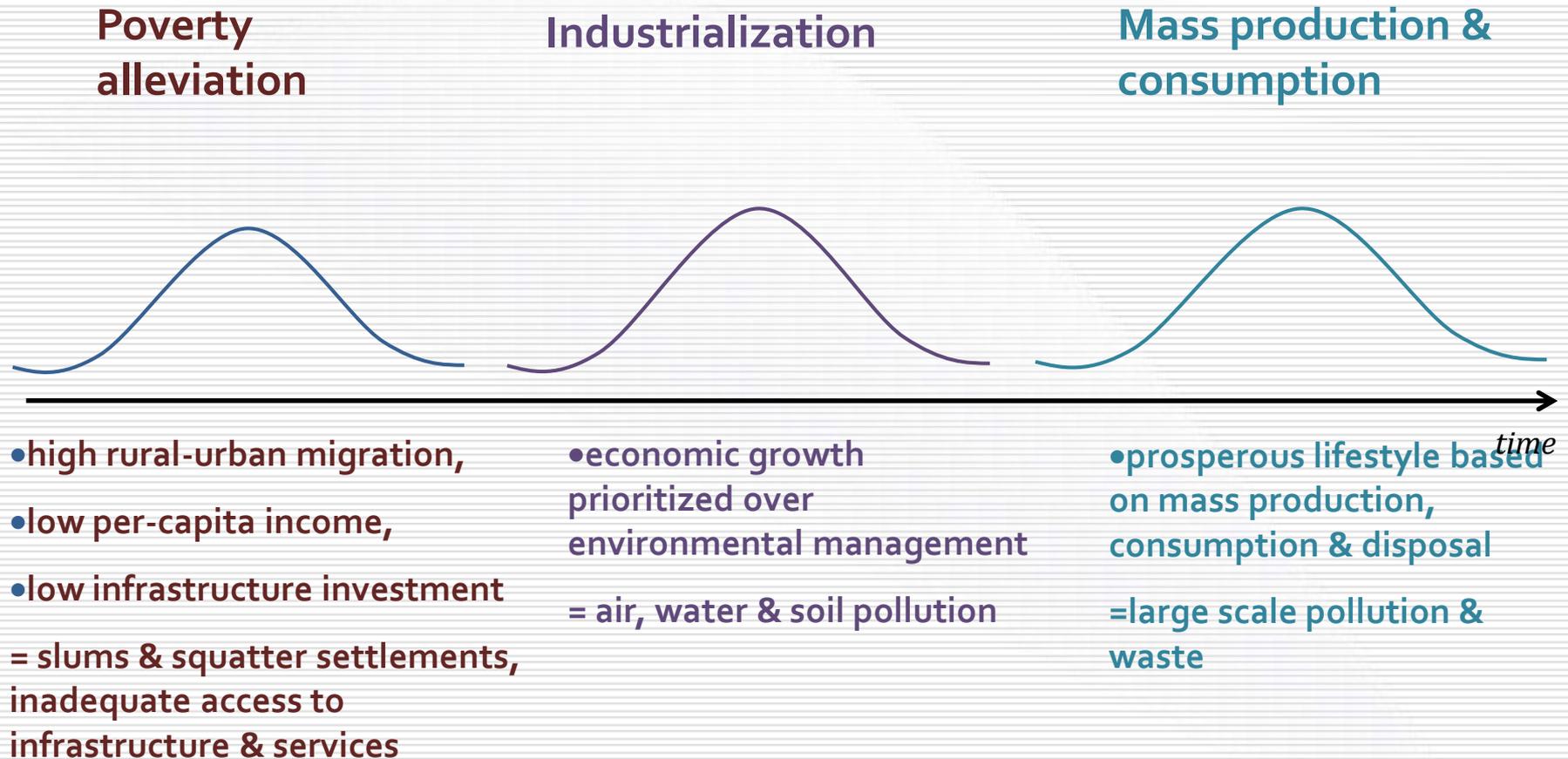
# Relationship Between Urbanization and Per-capita Carbon Emissions



Source: World Bank, 2011

# Eco-Business Evolution in Advanced Economies

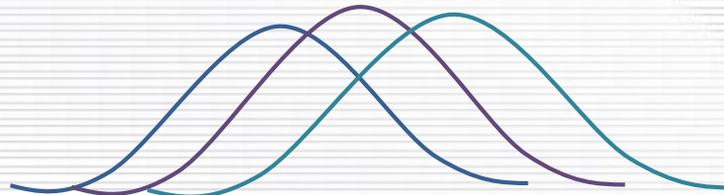
*Sequence followed by developed countries like Japan*



# Eco- Business Evolution in Developing Countries of Asia

## Challenges for Mega-Cities in Developing Countries of Asia

Poverty-alleviation  
Industrialization  
Mass production & consumption

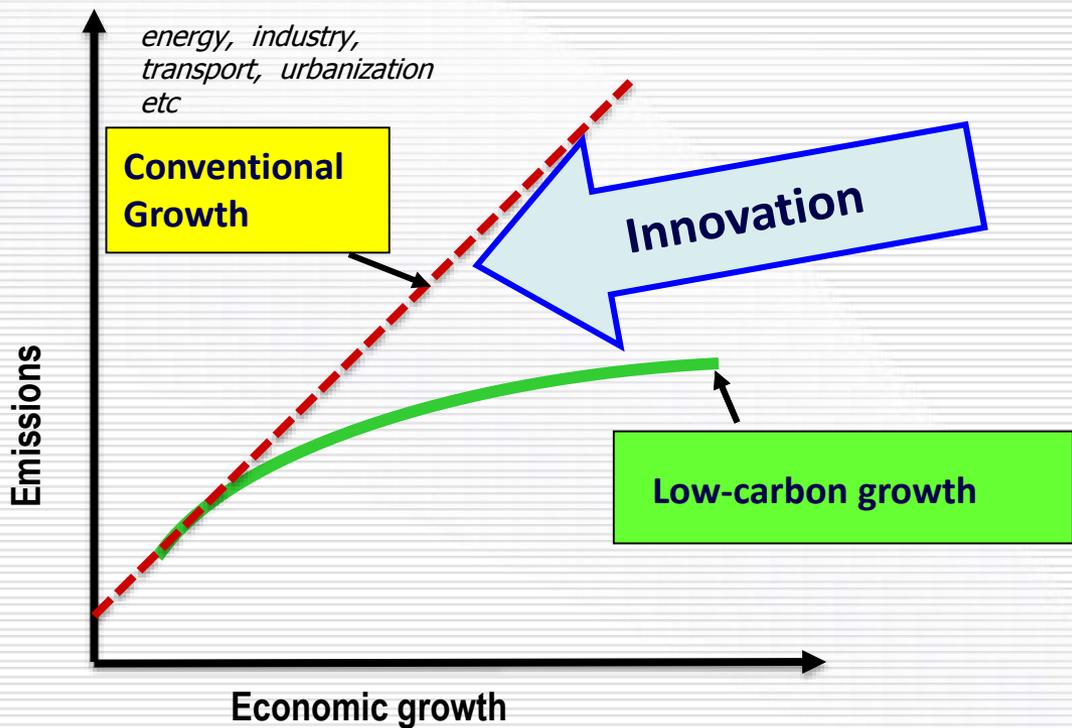


- high rural-urban migration,
  - low per-capita income,
  - low infrastructure investment
- = slums & squatter settlements,  
inadequate access to  
infrastructure & services

- economic growth  
prioritized over  
environmental management
- = air, water & soil pollution

- prosperous lifestyle based  
on mass production,  
consumption & disposal
- = large scale pollution &  
waste

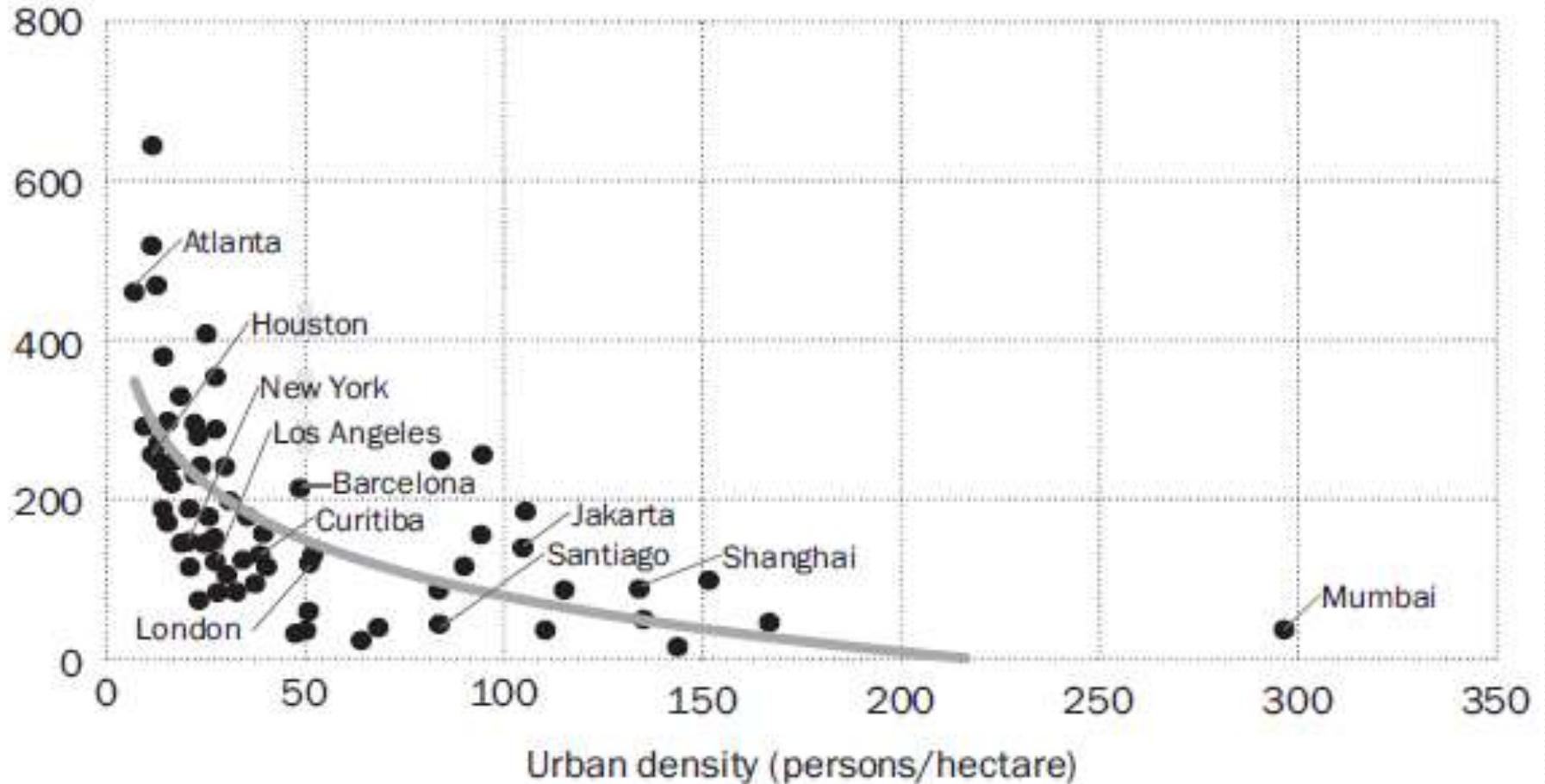
# Low-carbon Green Growth = Meeting the Triple Challenges



Accelerated Economic growth, Local Wealth Creation and Reduced Emissions

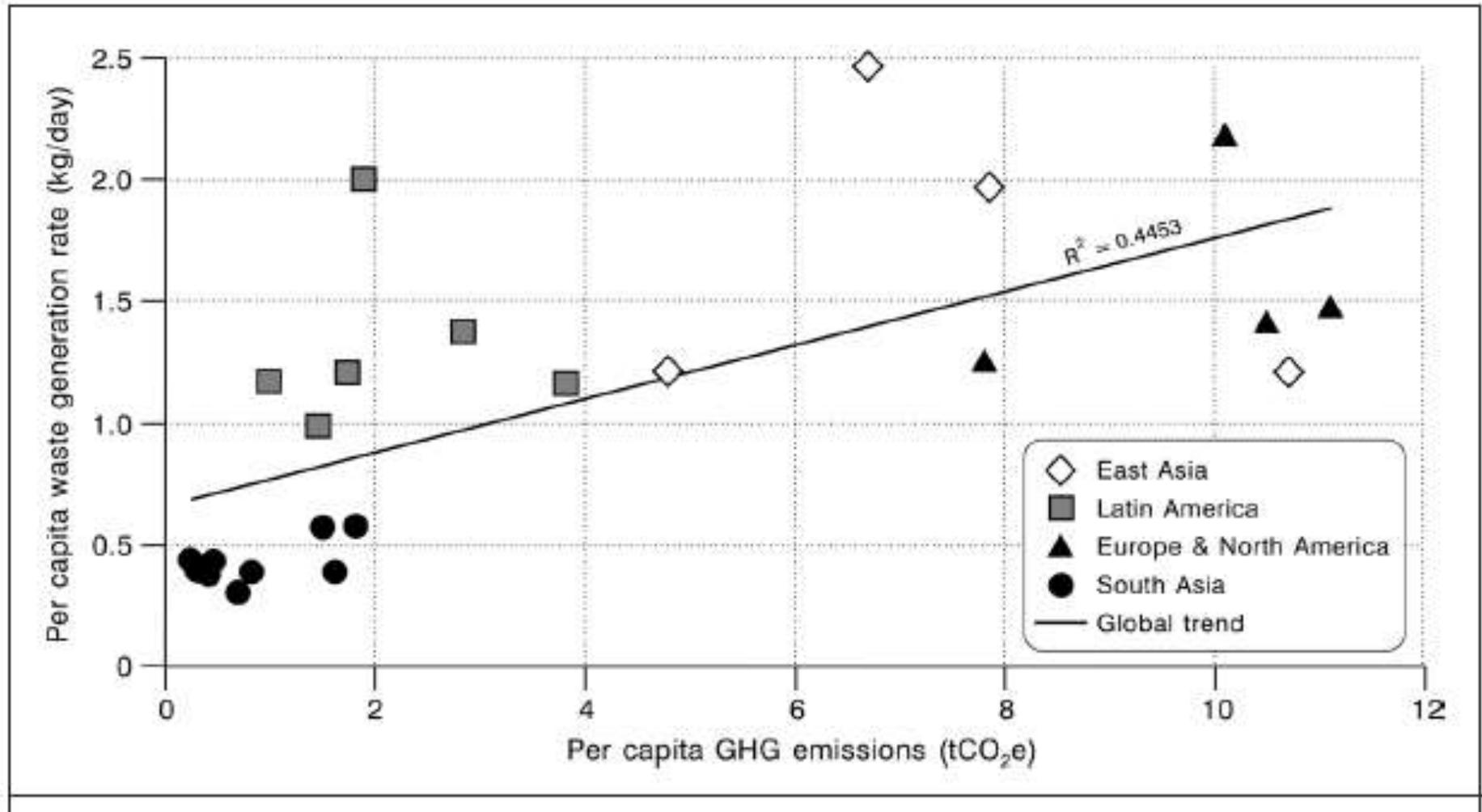
# Innovative Choice 1: Smart Transport

## Transport Related Emissions from Asia



# Innovative Choice 2: Waste to Energy

## Per Capita Emissions and Waste Generation



Source: World Bank, 2011

# Innovative Choice 3 – Smart Housing

## Urban density and Carbon Emission



Source: Accenture, 2011

# Low - Carbon Pathways for the ASEAN Cities

## A liveable low-carbon smart city

- Easy access to quality and affordable infrastructure
- Availability of quality services
- Improved social cohesion and safety

Liveable,  
low-carbon,  
smart city

- Smart economy
- Smart mobility
- Smart governance

- Emission intensity decoupled from economic growth
- Use of Renewable Energy Technologies
- Energy Efficiency optimized

# Designing low carbon Green Growth for Megacities in ASEAN – Sectoral Plans

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## ENERGY

- Access to quality, reliable energy services
- Use of low carbon technologies

## TRANSPORT

- Efficient public transport system
- More rapid transit system
- Smart transport e.g. electric vehicles

## HOUSING

- Available and affordable housing
- Living near to work, minimising vehicle commuting
- Energy efficient building through codes and regulations

## WASTE

- Availability of waste management services
- Sustainable waste management practices
- Viewing waste as a resource

# Designing low carbon Green Growth for Megacities – Sectoral Plans

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## WATER

- Availability of safe water for all
- Smart and efficient water use, e.g. rainwater harvesting

## ICT

- Access to quality digital communication system
- Services, e.g. health care, are optimised using ICT

## FOOD

- Availability of quality and affordable food
- Maximising home grow food
- Changing food habit to low-km-food

## HEALTH

- Access to quality and affordable health services for all
- Encouraging healthy community – open space, bicycling

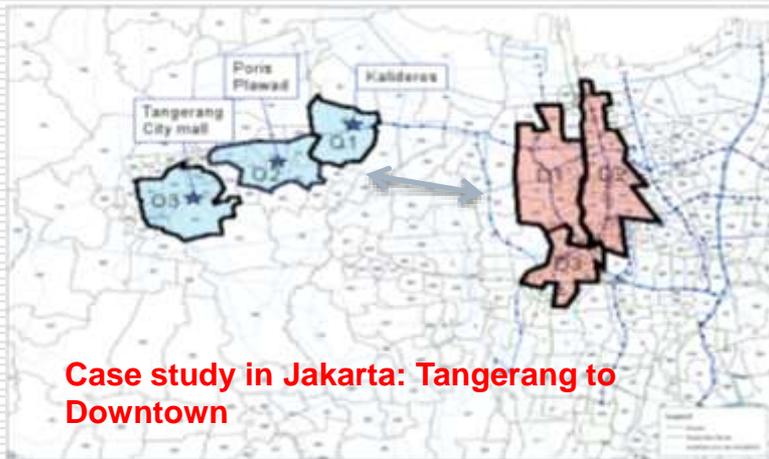
# Hard Choice: Case of Smart Transport in Jakarta

Key questions:

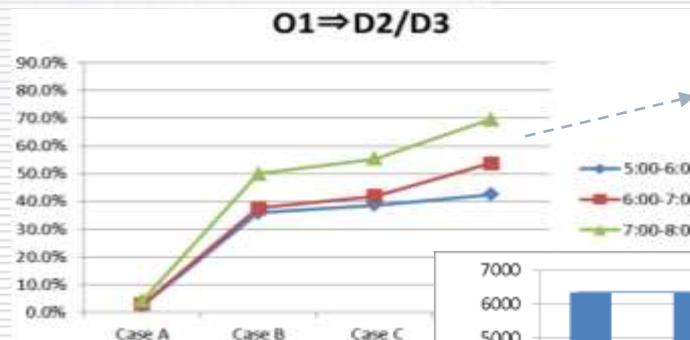
- How to promote the modal “Shift” from private cars to public transportation?
- What are the levels of “shift” to different measures to improve the public transportation?
- How much energy savings could be achieved?

Case setting (improve in BRT operation) for the simulation analysis

Measures		Case A	Case B	Case C	Case D
Soft	Strengthening restriction of inflow	✓	✓	✓	
	Express service		✓	✓	✓
	Extension + direct operation		✓	✓	✓
Hard	Overpass construction			✓	
	Total elevation				✓
Estimated Extra Cost (million USD) *Does not include land acquisition or operation costs		0	6	31	519

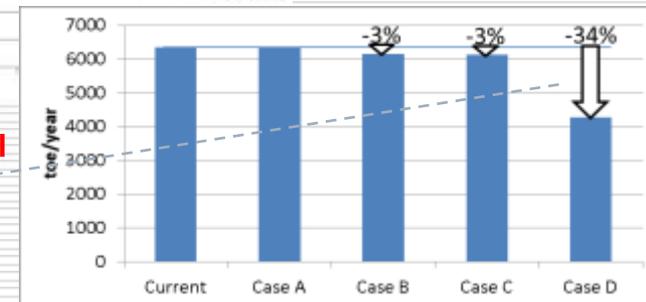


Case study in Jakarta: Tangerang to Downtown



Estimated rate of modal shift by case (high rate of the “shift” can be anticipated)

Estimated reduction in oil consumption (modal shift & smoother traffic will reduce oil demand)



# Hard Choice: Smart Transport in Jakarta

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## Key Observations:

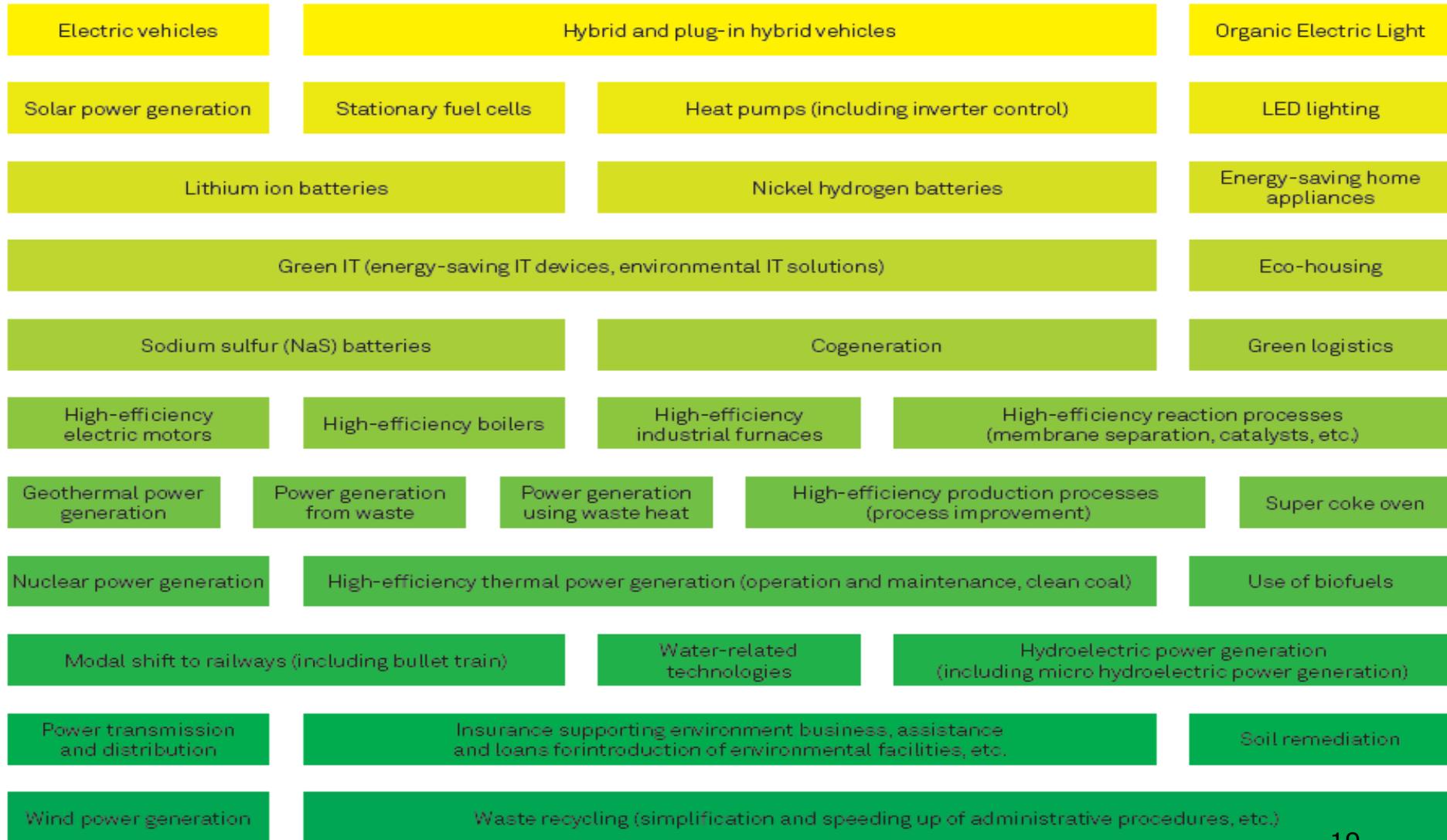
- Accessibility and economic attractiveness are keys to promote the modal shift.
  - Extend/expand public transport network
  - “Rapidness” of public transport will increase its attractiveness.
- Mega-city requires Mass Rapid Transit (MRT) such as metro that has their dedicated lines to mitigate car traffic congestion, and thus oil consumption.
  - BRT is also effective as a short to mid term measure.

## Policy Implications:

- The urban transport issue shall be part of energy policy.
- Comprehensive measures required. (the ASIF approach)
- Long-term planning (policy + infra.) and implementation are the key.

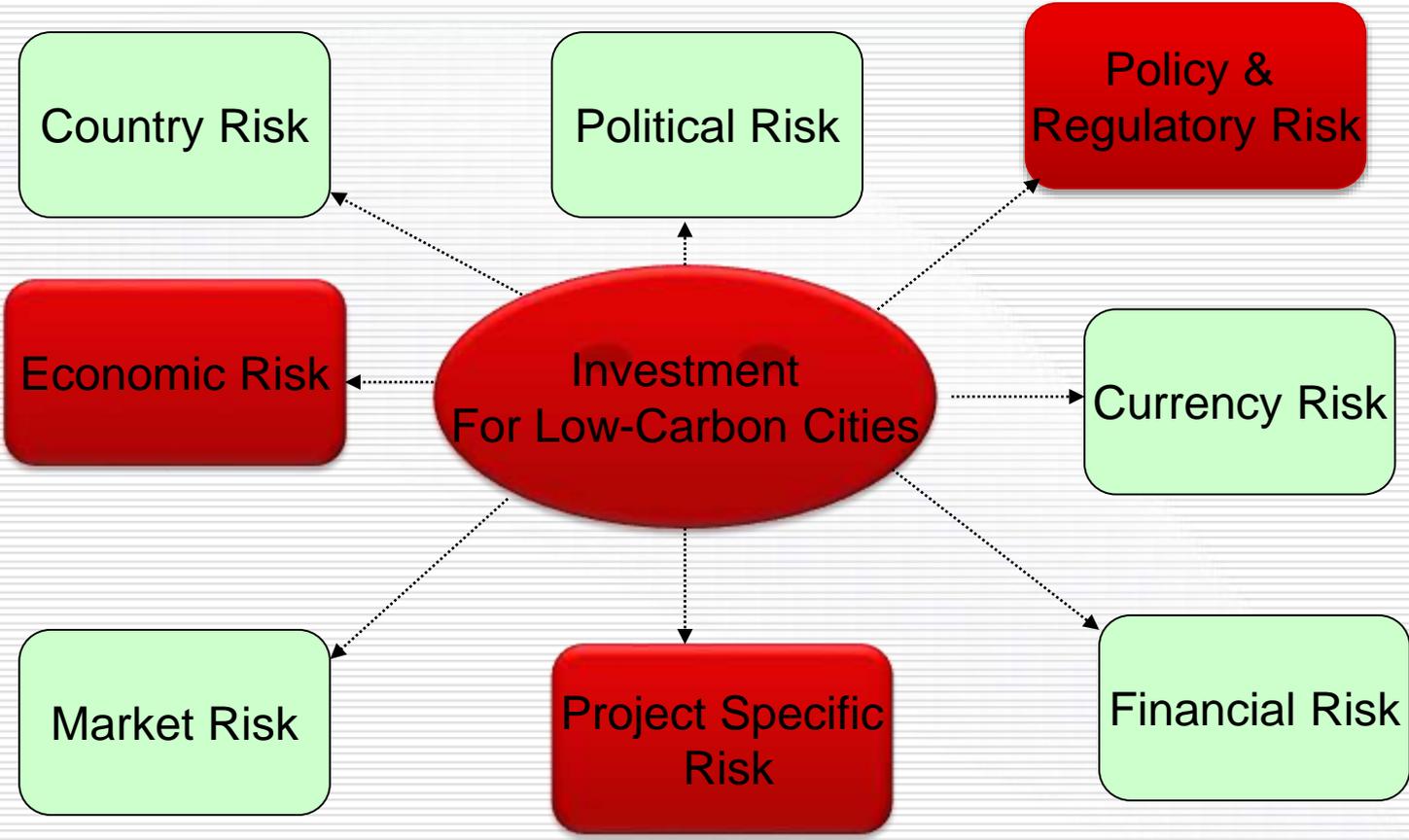


# Green Technologies and Services Made in Japan

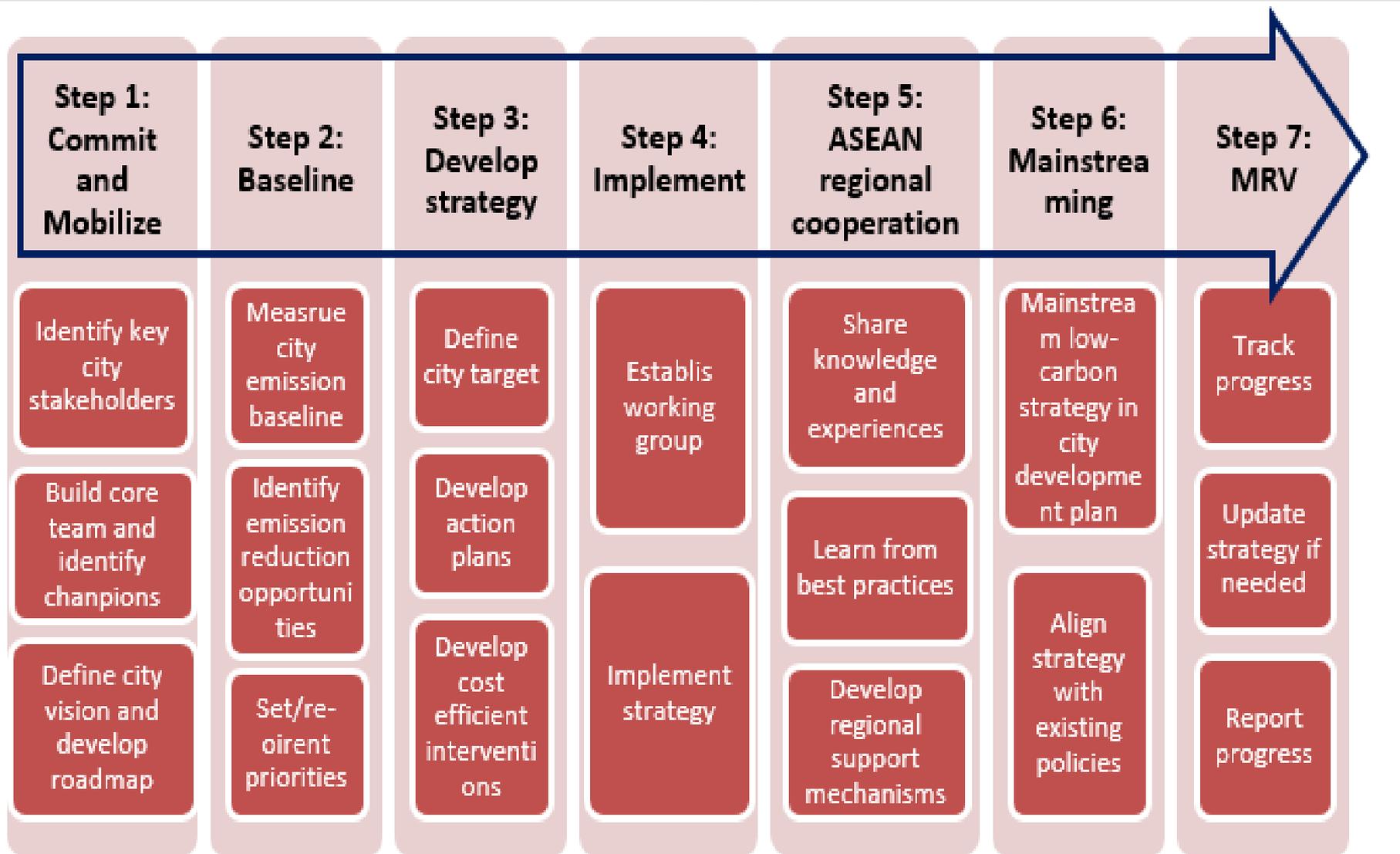


# Hard Choice: Managing the Investment Risks

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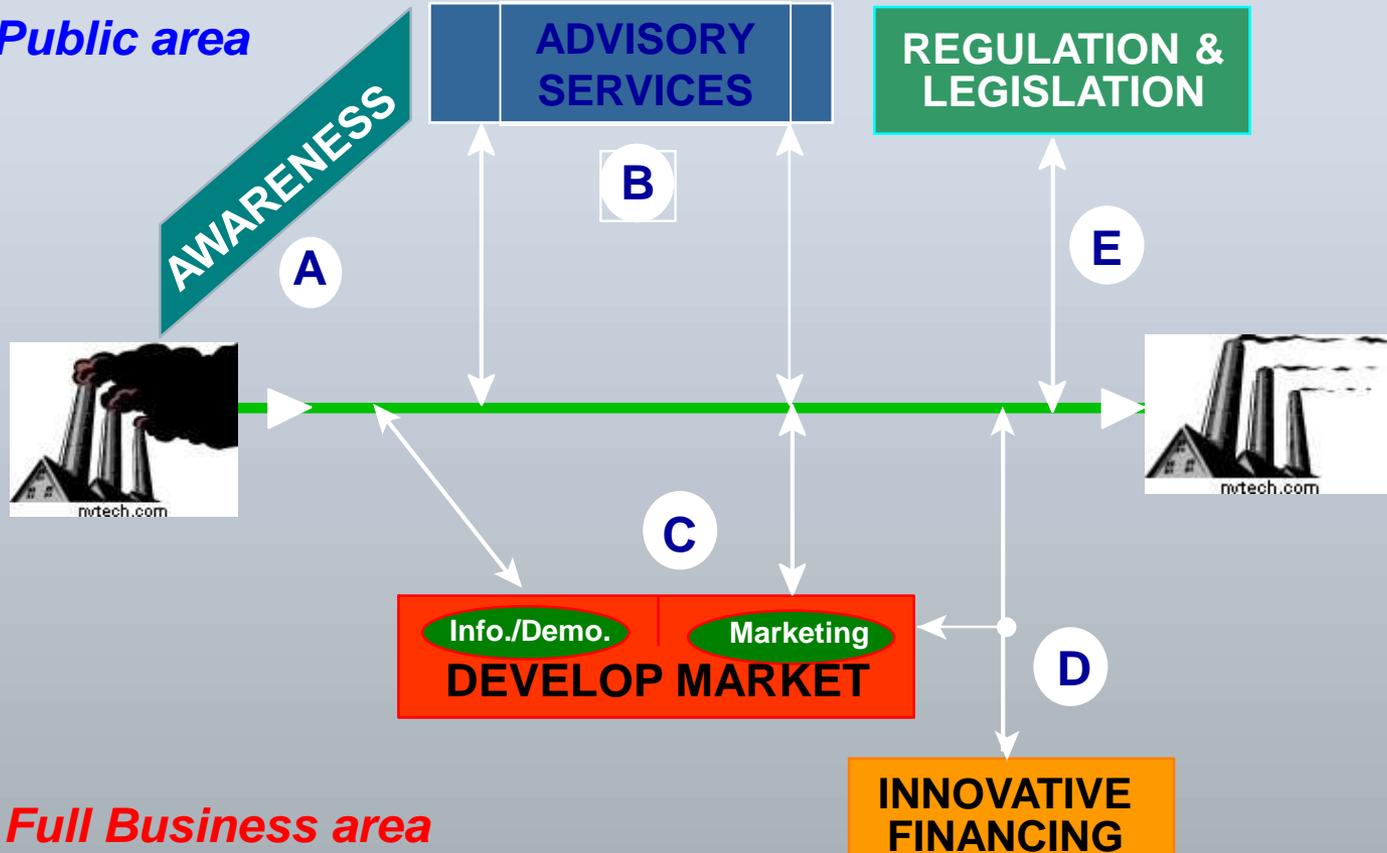


# 7 Step Approach to Optimize Hard Choices



# Public and Business Areas for Optimized Choices

*Public area*



*Full Business area*

# Formal and informal Approaches are needed for Optimising the Investment Decisions on Hard Choices

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## Informal

- ✓ An informal dialogue provides **flexibility and vitality**
  - Suitable for brainstorming and information sharing
  - Can generate a high degree of trust and understanding between business and governments
  - Often focused on specific topics

## Formal

- ✓ Formal processes provide **longer term solutions**
  - New formal bodies on finance and technology would benefit from a formal advisory structure including the private sector

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# Thankyou



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