Hidden Vulnerabilities of Asian Cities and Climate Change: Shattering the Myths

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Coastal Cities: Risks from Climate Change and Natural Hazards
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What we Perceive of Cities?

- Cities have everything at their disposal:
  - Engines of economic growth
  - Better quality of life
  - Better infrastructure and communication facilities
  - Diversified livelihoods: You can be what you want to be!
  - Immense skill base
  - Better governance (well, most of the time)
  - Immediate response to address issues

But there are a whole lot of things we ignore and these bring vulnerability to climate change
What is at Sight?

We heard from Mr Gordon in the morning that cities are vulnerable to climate change

- 21% of global population live on coasts and projected to increase as indicated by Mr Hassan in the morning.
- About 70% of the coastlines worldwide are projected to experience a sea level change within 20% of the global mean sea level change.
- **East Asia:** increased rainfall extremes of landfall typhoons on the coast; reduction in the midwinter suppression of extratropical cyclones.
- **West Asia:** Increased rainfall extremes of landfall cyclones on the Arabian Peninsula.
- **South Asia:** Increased rainfall extremes of landfall cyclones on the coasts of the Bay of Bengal and Arabian Sea.
- **Southeast Asia:** Increased rainfall extremes of landfall cyclones on the coasts of the South China Sea, Gulf of Thailand, and Andaman Sea.

(IPCC AR5 WGI, 2013)

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Coastal Cities and Hidden Vulnerabilities

- In order to deal with the new dimensions, we need to understand geological, social, economic and political vulnerabilities of cities that we don’t understand to date in a great deal.

Flood vulnerability of coastal cities (1 is highly vulnerable)
Hidden Vulnerabilities: Livelihoods and Food Security

- Cities were the worst affected during the 2008 food price crisis
  - Instance of 10-15% decline in food consumption (15-20% increase in food expenditure) in 50-70% of poor households from 2007 to 2008 (WFP 2009)
  - Impact on food security: poorer section of the urban population (casual and unskilled laborers)
  - Impact on livelihoods: petty traders, laborers and peri-urban agriculturists (Dr. Hassan gave a hint of it in his morning presentation)

- Vulnerability factors include:
  - High average food prices
  - High reliance on imported food (from within and outside)
  - Disposable income for food

Hidden Vulnerabilities: Floods

- Bangkok floods 2011 (USD 45 billion loss) and Mumbai floods 2005 reveal issues with infrastructure, planning and communication:
  - Infrastructure limitations:
    - Insufficient flood prevention measures
    - Encroachment into flood plains
    - Blocking natural drainage
    - Creating short-term engineering solutions
  - Planning and communication
    - Unclear response plans leading to delayed response time
    - Lack of proper communication between relevant agencies
Risk Mitigation and Communication

• General ignorance on risks and means to manage them
• General lack of risk communication by city government to its residents
  – There is a lot to learn from cities in Japan in this aspect.
• Flood and fire insurance either do not exist/costly/not mandatory in many cities in Asia

The Levee Effect

This word was used by A. Keating at Int. Conf. on CC and L&D, Bangkok

• World wide, dykes have become a major means of protection from sea level rise/high tides and related flooding.
  (As research has indicated in Hanoi for e.g.)
• These have also resulted in complacence and false sense of security among residents and ignoring early warning making them more vulnerable.
Other Vulnerability Factors

• Dilemma of vertical vs horizontal growth
• Resource dependence: Food, water
• Unregulated immigration: Bearing on fixed infrastructure, congestion and safety issues
• Poorly staffed and resource starved urban planning departments

Opportunities that Urban Areas Provide for Fighting Climate Change

• High potential for maximizing co-benefits of GHG mitigation and climate change adaptation
• Greater opportunity for addressing food-water-energy nexus through infrastructure and technology solutions in water sector (International Water Association, WWW, 2013)
Food for Thought

• How to make cities closed loop systems (in terms of resource dependence)
  (Considering that cities have so complex dependency with outside, should it even be the objective for us to pursue/is it practical?)
• How to uncover hidden vulnerabilities to make cities resilient?
• How can we move from incremental approaches to transformative approaches in urban risk reduction?
• How to make land use plans forward looking and ensure proper implementation?

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THANK YOU!