

LOICZ

Land-Ocean Interactions in the Coastal Zone

Vulnerability of Coasts Home to Mega-Cities in Asia APN, 29 August 2011

Professor Mark Pelling, King's College London

- LOICZ and the *Megacities and the Coast* Synthesis
- Key questions already emerging
- Identifying gaps in policy for resilience: Heatwaves and drought in London



A LOICZ/IGBP Synthesis Report: Megacities and Urban Regions on the Coast



LOICZ: Four priority themes:

- Islands at risk
- River-mouth systems
- Arctic coasts
- Urbanization in coastal zones

Megacities and Urban Regions on the Coast

www.loicz.org

1. Impacts of megacities on the coastal environment, ecosystem goods and services, economy and welfare
2. Impacts of pollution on human health
3. Effects of global environmental change (e.g. sea level rise) on megacities
4. Contributions to environmental changes at regional and global scales
5. Policy/technological responses for reducing risk from natural hazard and pollution
6. Co-benefits or cancellation of benefits from risk management for climate change mitigation and development
7. Using past and present knowledge to assess future risk for and the impacts of megacities.



A LOICZ/IGBP Synthesis Report: Megacities and Urban Regions on the Coast

A Global assessment of knowledge

1. Empirical evidence base
2. Local, urban, regional and global resolutions

Please participate:

Asia is a critical world region for:

- urbanization – most urbanized and rapidly urbanizing
- climate change - impacts and drivers
- globalization – high exposure
- governance – innovation and diversity

Timetable

Scoping meeting: London Meeting, May 2011

http://www.loicz.org/science/hotspot/Urbanization/News_Reports/index.html.en

Finalise report structure and lead authors: Yantai, China, September 2011

Draft report: IGBP Planet Under Pressure Conference, London, March 2012



A LOICZ/IGBP Synthesis Report: Megacities and Urban Regions on the Coast

Scoping Report: Key Observations

Limited reliable, comparable data. But macro-trends are clear

	Population (millions)	Contribution to GDP	Main hazards
Shanghai	18	10	Storm, sea-surge
Manila	14	30	Earthquake, volcano, storm
Tokyo	12	40	Earthquake
Kolkata	12	10	Storm, flood
Osaka-Kobe-Kyoto	12	20	Earthquake
Jakarta	12	30	Earthquake, volcano, flood
Dhaka	12	60	Earthquake, storm, flood
Hong Kong	11	10	Storm
Karachi	10	20	Earthquake
Mexico City	9	40	Earthquake, volcano
Alexandria	7	?	Earthquake, flooding

Big events distort trends: New Orleans, Caracas...

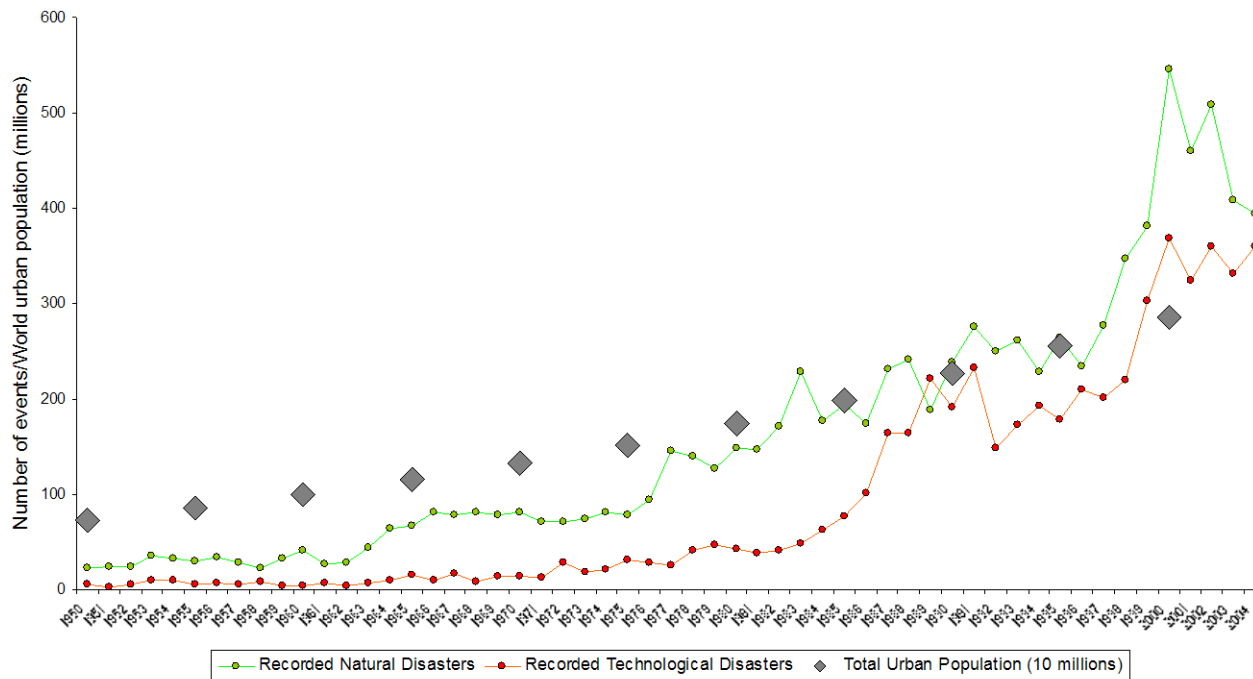
MunichRe/UN HABITAT



A LOICZ/IGBP Synthesis Report: Megacities and Urban Regions on the Coast

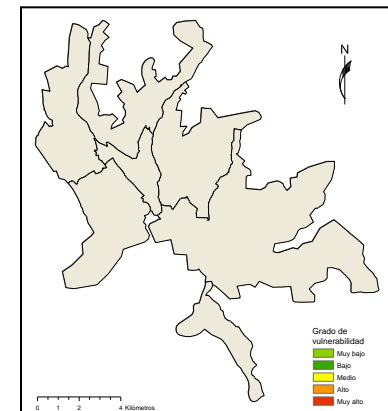
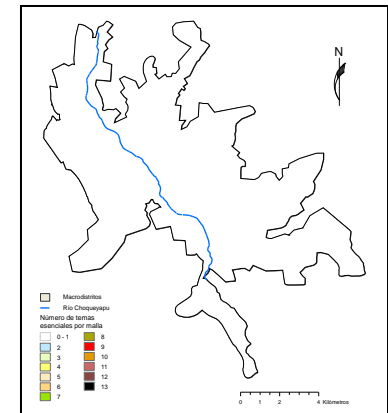
Scoping Report: Key Observations

Recorded disaster events and world urban population 1950 onwards



Source: UN-HABITAT (2007)

La Paz, Bolivia



Source: Luis Alberto Salamanca Mazuelo (2007)



A LOICZ/IGBP Synthesis Report: Megacities and Urban Regions on the Coast

Scoping Report: Key Observations

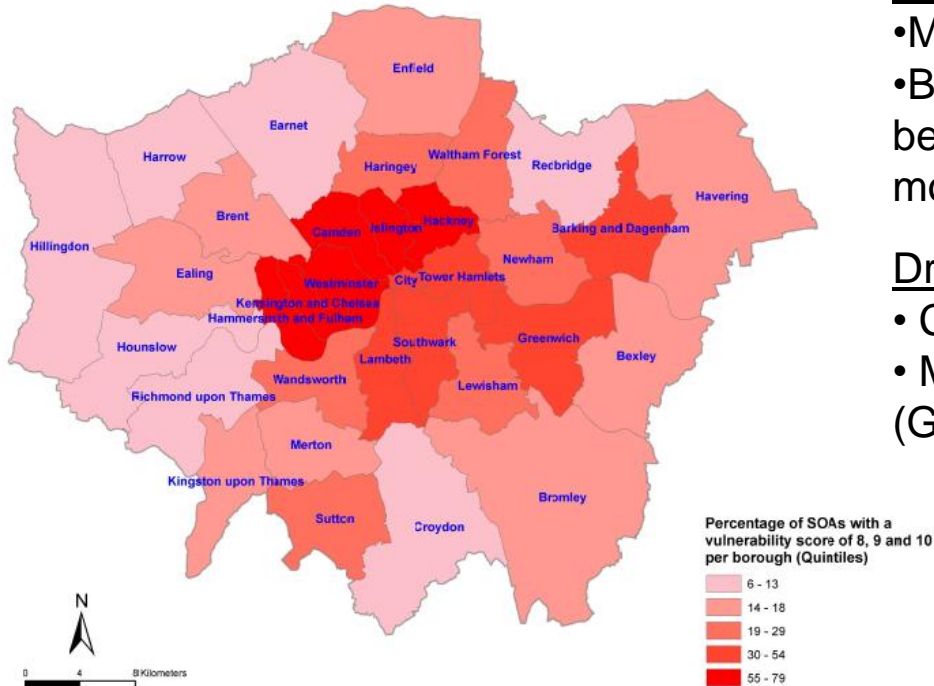
- Urban slum populations:
Concentrated vulnerability but with lessons to share (high density living, social capital)?
- Urban ecology:
Virtuous relationships? Water quality/livelihoods; coastal defence, quality of life.
- Urban design and risk:
Disaster management: Can the city region be re-designed for evacuation?
Disaster risk reduction: Can we design for flexibility of land-use, air circulation and shade?
Mitigation: Can we reduce transport, heating/cooling costs and compounding factors e.g. pollution?.

Political will is needed, evidence of innovation and experiments can help

A scoping study of 118 experiments in large (6m+) coastal cities found only 24 experiments in adaptation, only 7 in flooding or coastal protection. Innovation conceived differently, undertaken more locally?



Heatwaves and drought in London



Heatwave

- Managed by a National Heatwave Plan
- By 2150 average summer temperatures will be as hot as the 2003 heatwave, which killed more than 600 people

Drought:

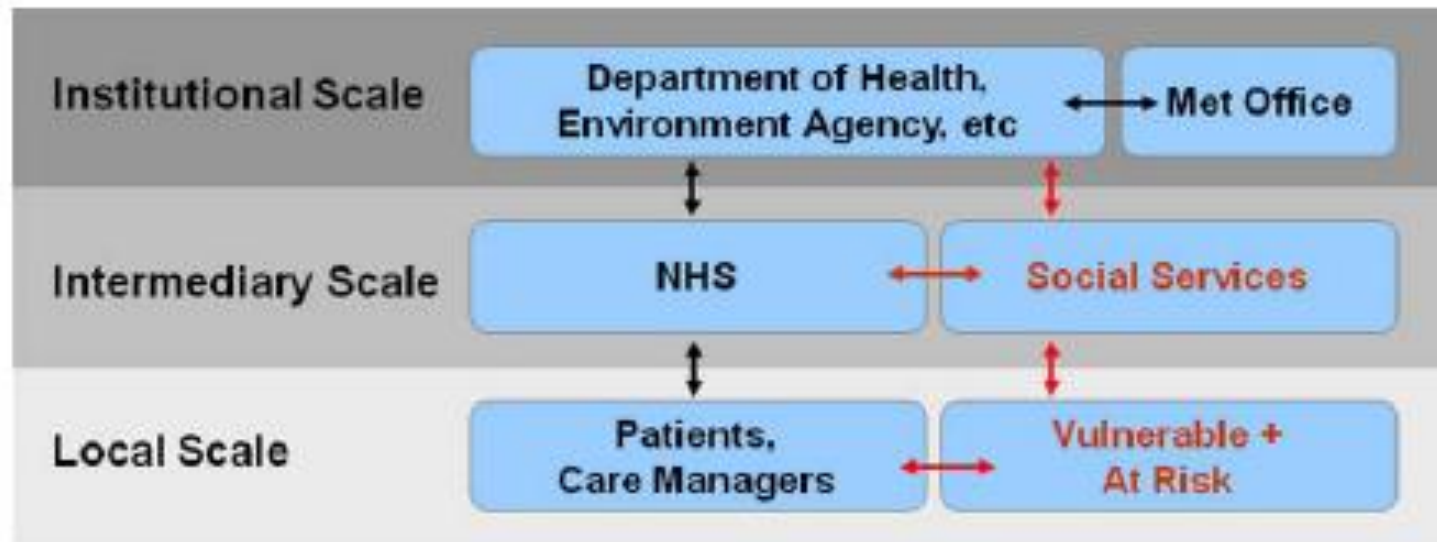
- City as a single unit
- Most water scarce capital city in Europe (GLA 2008)

Two scales:

- Institutional risk management and governance (**RMI**)
- Local risk management and adaptive capacity (**LAC**)

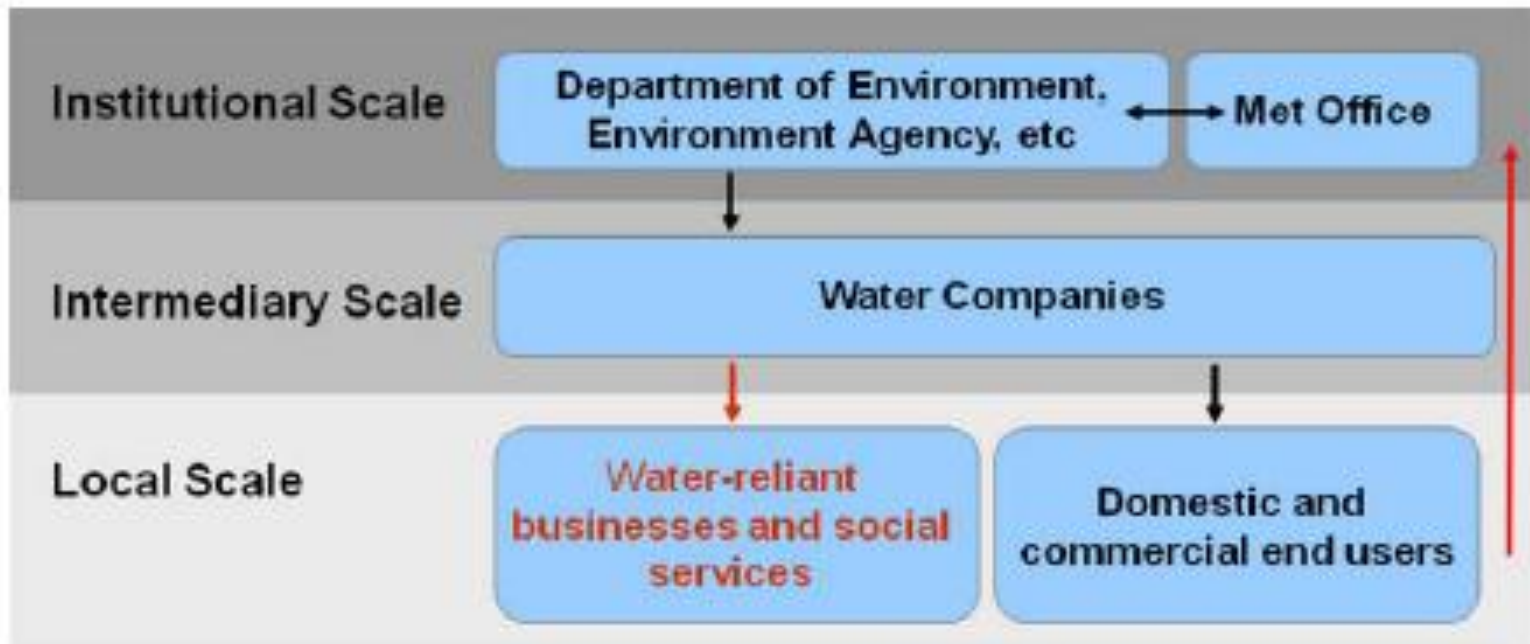
Heat-waves and drought in London

Heatwave risk management structure



Heat-waves and drought in London

Drought risk management structure



Heat-waves and drought in London

An Elderly Care Home Manager, Hackney:

I don't think we have a problem with very hot weather in our care home. Yes, three patients died last year when it was hot, but that is what elderly people do. They die.

Estates Manager, Kew Gardens

We are responsible for extremely high levels of water wastage here at Kew. Most of the water flows right through the poor quality sandy soil in the gardens and back into the Thames in a matter of hours. But we are not affected by any drought order so as long as we keep paying the water bill, Thames Water doesn't seem to care.

London Conclusions:

- Robust risk management processes **but:**
- Medicalization of risk (heatwaves) and Engineering-led supply side management (drought)
- Alienation between value and action/behaviour
- Need to incorporate social processes in assessing and understanding risk and its management



A LOICZ/IGBP Synthesis Report: Megacities and Urban Regions on the Coast

Final Thoughts

Economic globalisation makes the capacity of neighbourhoods, critical infrastructure and political systems to build resilience a question of global security.

Lack of systematic data collection and review hinders policy development

Lack of structured collection of experiences with innovation, experimentation and learning make adaptive risk management more difficult.

Much of the innovation in large cities takes place locally and may be perceived as deviant, by government. Tensions between resilience as stability and resilience for sustainability need to be made clear and addressed.

Please join us!

