Vulnerability and Urbanisation

Mark A. Pelling

Senior Lecturer
Department of Geography
King’s College London
Vulnerability and Urbanisation

• Global Science and Policy Context
  – Language
  – Challenges to mainstreaming
  – UN World Conference on Disaster Reduction

• Urban Vulnerability
  – What is different about cities? Manizales
  – Adaptive potential and social capital, Los Manguitos

• Measuring Vulnerability
  – Group work
  – Challenges to measuring vulnerability
Global Science and Policy Context

• Language is an unresolved barrier
  – risk
  – hazard
  – vulnerability
  – mitigating hazard
  – coping or adapting?
  – root causes, dynamic pressures and local endangerment

  – Disaster Risk Management
Negative linkages between failed risk reduction, disaster response and development

**Risk Accumulation**
- Inadequate early warning
- Inappropriate land-use planning and construction standards.
- Failure to include risk assessment in development projects and planning
- Failure to engage community in risk management
- Inadequate insurance (financial and social), productive assets exposed.

**Disaster Losses**
- Direct impacts on buildings, infrastructure and stocks.
- Human deaths and injury. Damage to the natural environment.
- Indirect and systemic economic losses.

**Failed Development**
- High levels of poverty and inequality.
- Food and livelihoods insecurity, inadequate health care, education and physical infrastructure.
- Macro-economic decline and financial instability tied to uneven global trade and debt agreements.
- Political crisis and violence.

**Household and government resources directed towards emergency relief and away from preparedness, prevention and development.**

**Reduces capacity to cope with or adapt to risk. Increases human exposure to hazard and susceptibility to harm.**

**By constraining the building of social or human capital and failing to encouraging political participation within prevention work opportunities for human development are missed.**

**Stalls socio-economic development. Undermines or destroys individual livelihoods.**

**Limits resilience producing a weak base for emergency response.**

**Increased numbers of exposed people and assets. Low level hazards magnified by high vulnerability.**
Virtuous linkages between risk reduction, disaster response and development

Risk reduction
E.g. early warning, land-use planning and appropriate construction, risk assessment in development projects and planning, community-based risk management, insurance (financial and social), asset protection through social safety nets.

Reduces human exposure to hazard and susceptibility to harm.

Development
Poverty alleviation, food and livelihoods security, extending access to health and education, physical infrastructure, macro-economic growth and financial stability tied to global trade and debt agreements, political participation

Enhances resilience building a strong base for emergency response.

An opportunity for building risk reduction into reconstruction projects.

Constrains secondary (e.g. health) and systemic impacts of disaster on livelihoods and the macroeconomy.

Emergency response and reconstruction
Humanitarian life saving, restoring productive systems and livelihoods, regaining market access, rebuilding social capital, human capital and physical/psychological health.

By integrating the building of social or human capital and encouraging political participation within prevention work, development is enhanced.

Lowers the exposure of people and assets. Reduces loss and the costs of emergency response.

Enhances resilience building a strong base for emergency response.
Challenges to mainstreaming disaster risk reduction into development

- Incentive, institutional and funding structures
  - Low visibility and lack of national political commitment
  - Government-donor relations and moral hazard
  - Donors and the media
  - Institutional separation of humanitarian and development wings
  - Funding support for disaster risk reduction
  - Pressures of work
  - The primacy of the MDGs
  - NGOs
• Assumptions about the risk-reducing capacity of development

• Lack of exposure to disaster issues
  – Communication failures, weak evidence
  – Disaster rarity and fatalism
UN World Conference on Disaster Reduction

• UN IDNDR 1990-1999

• Yokohama Declaration 1994

• Hyogo Framework for Action 2005-2015
  – UN negotiating rules
  – The tsunami and lobbying
  – Civil society presence
  – Outcomes:
    • Climate change and urbanisation
    • Targets and time-frames for action
Urban Vulnerability

• Why are urban risks underestimated?
  – Professional and academic bias
  – Population and poverty data
  – A problem of demography or governance?
    • Munich Re Vulnerability of Megacities
      – New York, Seoul and Mexico City
# Urban Functions, Metaphors and Vulnerable Components


<table>
<thead>
<tr>
<th>Function</th>
<th>Metaphors</th>
<th>Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material support</td>
<td>Machine</td>
<td>Performance failure</td>
</tr>
<tr>
<td>Metabolism</td>
<td>Organism</td>
<td>Life-support systems</td>
</tr>
<tr>
<td>Site of Creativity</td>
<td>Muse, Carnival</td>
<td>Repressive conformance, sanctions against experimentation</td>
</tr>
<tr>
<td>Learning</td>
<td>Information network</td>
<td>Barriers to information exchange</td>
</tr>
<tr>
<td>Regulation</td>
<td>Command and control</td>
<td>Failures of trust and authority</td>
</tr>
</tbody>
</table>
Adaptive Potential and Social Capital

- Vulnerability:
  - Hazard specific (known threat): social organisation
  - Intrinsic (future, unknown threat): social capital

- Social Capital: asymmetric and latent properties
- Burden shifting
- Individuals, networks or regimes (communities of place or practice)?
Adaptive Potential

Mobilise social capital for private or public benefit

Manipulate social capital for private or public benefit

Purposeful adaptation

Raising a house or public building

Join a CBO focussed on risk reduction

Coping mechanism

Community policing

Institutional modification

Carnival, elections

Incidental adaptation
## Social Capital and Social Organisation, Los Manguitos

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informal Social Support</strong></td>
<td></td>
</tr>
<tr>
<td>Spoke with a neighbour today?</td>
<td>91%</td>
</tr>
<tr>
<td>Closest friend lives in Los Manguitos</td>
<td>44%</td>
</tr>
<tr>
<td>Have you ever cleaned the street with neighbours?</td>
<td>66%</td>
</tr>
<tr>
<td>Have you ever celebrated carnival or Christmas with neighbours?</td>
<td>60%</td>
</tr>
<tr>
<td>Have you ever shopped for a neighbour?</td>
<td>44%</td>
</tr>
<tr>
<td>Have you ever played sport with a neighbour?</td>
<td>39%</td>
</tr>
<tr>
<td>Have you ever joined in a neighbourhood tree planting programme?</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Local Community Group Membership</strong></td>
<td></td>
</tr>
<tr>
<td>Member of any local group</td>
<td>77%</td>
</tr>
<tr>
<td>Member of a local church</td>
<td>46%</td>
</tr>
<tr>
<td>Member of a Junta de Vecinos</td>
<td>19%</td>
</tr>
<tr>
<td>Member of a cultural or youth group</td>
<td>15%</td>
</tr>
<tr>
<td>Member of a sports group</td>
<td>2%</td>
</tr>
<tr>
<td>Member of a <em>sang</em> (a saving circle)</td>
<td>28%</td>
</tr>
<tr>
<td>Member of a political party</td>
<td>39%</td>
</tr>
<tr>
<td><strong>Participation in Elections</strong></td>
<td></td>
</tr>
<tr>
<td>Voted in last national election (1996)</td>
<td>70%</td>
</tr>
<tr>
<td>Voted in last municipal election (1998)</td>
<td>63%</td>
</tr>
<tr>
<td>Plan to vote in the next national elections (2000)</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Responses to Hurricane Georges</strong></td>
<td></td>
</tr>
<tr>
<td>House was damaged by Hurricane Georges</td>
<td>64%</td>
</tr>
<tr>
<td>If your home was damaged where did you refuge with a…</td>
<td></td>
</tr>
<tr>
<td>Neighbour</td>
<td>50%</td>
</tr>
<tr>
<td>Family</td>
<td>30%</td>
</tr>
<tr>
<td>Church</td>
<td>11%</td>
</tr>
<tr>
<td>Government refuge</td>
<td>7%</td>
</tr>
<tr>
<td>Shop</td>
<td>2%</td>
</tr>
<tr>
<td>CBO building</td>
<td>1%</td>
</tr>
</tbody>
</table>
## Comparative Advantage of Scaled Social Organisation, Los Manguitos

<table>
<thead>
<tr>
<th>Organisational Level</th>
<th>Actions</th>
<th>Advantages</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal social organisation</td>
<td>Local environmental improvements. Neighbourliness and reciprocity. Disaster refuge.</td>
<td>Risk Averse strategy. High degree of flexibility. Little social capital or economic resources required. Self-contained strategy.</td>
<td>Ad hoc. Actions limited by the individual or family’s resources.</td>
</tr>
<tr>
<td>Community Based Organisation</td>
<td>Local environmental improvements. Disaster evacuation, repair and rehabilitation. Build social networks through sports and cultural activity.</td>
<td>Can bring local knowledge and values into planned strategy. Can give a voice to minority groups or socially isolated individuals. Can respond rapidly to changing local demands.</td>
<td>Politicisation of leadership. Youth ambivalence. Unrepresentative leadership. Lack of cooperation between CBOs.</td>
</tr>
<tr>
<td>External, Non-Governmental Organisation</td>
<td>Strategically address local poverty and environmental hazard. Build young leaders. Strengthen ties between CBOs. Increase local human capital through skills training. Access external funds for projects.</td>
<td>Can access external resources. Can mediate local tensions. Can facilitate exchange of ideas and information horizontally between CBOs or vertically from other external actors. Can facilitate or enter into public-private partnerships.</td>
<td>Short/medium-term commitment, any longer risks dependency. Rivalry with CBOs for community support. Agenda limited by funding priorities of donors.</td>
</tr>
</tbody>
</table>
Challenges to Measuring Vulnerability

- Bottom-up and Top-down views

- Vulnerability and Capacity Assessments
  - Descriptive or discursive

- Deductive approach: UNDP, Disaster Risk Index
  - Relative vulnerability
  - Socio-economic indicators of vulnerability
  - Historical
  - 20 year data span (volcanoes and earthquakes)
  - Defining drought and mapping flood
  - Mortality
  - How to measure performance?
Relative Vulnerability (UNDP, 2004)

Relative Vulnerability for Floods

Average Annual Deaths, 1980 - 2000

Average Population Exposed to Floods, 1980 - 2000

Source: The ORC Macro International Disaster Database and WEHIGIS Genes
• An Inductive approach: The Americas Indicators Programme

  – Disaster Deficit Index, Local Disaster Index, Vulnerability Prevalence Index, Disaster Management Index

  – Theoretical constructions
  – Intrinsic vulnerability
  – Language
  – Comparative power is limited
  – Subjectivity in selection of input variables and weighting
Americas Programme: comparing vulnerability with disaster risk management performance.
Lecture Summary

• DRM has a complicated vocabulary
• Mainstreaming (after 30 years!)
• Urban contexts… a greater challenge
• Measuring vulnerability in the city
• Measuring vulnerability at different scales