Cities and Decoupling

Prof. Mark Swilling – Resource Panel
Prof. Edgar Pieterse - African Centre for Cities, Cape Town
Dr. Mike Hodson - Centre for Sustainable Urban and Regional Futures, Manchester
Prof. Simon Marvin - Centre for Sustainable Urban and Regional Futures, Manchester
Katherine Hyman - Sustainability Institute, Stellenbosch

Resource Panel members interested in being involved:
Maarten Hajer, Marina Fischer-Kowalski, Paty Romero Lankao
Terms of Reference

Core focus: the 2nd urbanisation wave and the environmental limits to the current economic growth model. Specifically:

- relationship between material flows & the city
- material & ecological consequences of 2nd urbanisation wave
- cities as key sites for the intermediation of flows, specially via networked infrastructures (energy, water, sewage, waste, food & mobility)
- styles of responses to urban transition in cities around the world
Foundations

• Decoupling Report: 500 Exajoules of energy & 60 b tons of used materials – majority consumed in cities – hence Scenarios 2 or 3 dependent on reconfiguring cities

• Environmental impacts report: mobility, food and housing
• global population: from 6 b to 9 b by 2050
• by 2007 more than 50% of the world population living in cities
  • 1st urbanisation wave: 1750-1950 – 400 m people
  • 2nd urbanisation wave: 1950-2030 – 3.9 billion people
• next 3 billion people will land up in Asian & African cities
  • future is not mega-cities
• Africa has the fastest urbanization rate - 375 m in cities by 2010,
  1.2 b in cities by 2050
• 40% of cities in the developed world are shrinking
one billion people worldwide live in slums
One third of the total urban population!

6% of urban pop in developed countries live in slums
78% of urban pop in the least developed countries live in slums

The Challenge of Slums – UN-HABITAT Report

Kibera, Nairobi
Car First Planning

Based on DMC of 3-20 t/c/yr & cheap oil.......oil meets 60% of world energy needs – but IEA says ‘era of cheap oil is over’
STATE OF THE WORLD'S CITIES 2008/2009
Harmonious Cities

UN-HABITAT
Competitive Cities and Climate Change

Lamia Kamal-Chaoui and Alexis Robert (eds.)

JEL Classification: Q54, Q55, Q58, Q42, Q48, R00

Please cite this paper as:

UNEP Green Economy Report
Sustainable Cities
Summary Report
"Innovative cities have demonstrated that with the appropriate strategic approach they can greatly enhance their resource efficiency by realizing the same value from a much smaller and renewable resource base – while simultaneously decreasing harmful pollution and unnecessary waste. "
The Global Infrastructure Challenge

Top Priorities for the Public and Private Sectors

Marco Airoldi, Lamberto Biscarini, and Vito Saracino

July 2010
Sustainable Cities

Key results from the München and London study

Jean-Paul Peers
Energy and Climate Policy
Siemens AG
Booz Allen Hamilton

- $41 trillion – energy, water, transport
- Water = $22.6 trillion
- Energy = $9 trillion
- Road and rail = $7.8
- Air/sea ports = $1.6

What kind of urban infrastructure? What technologies? Who sets the criteria?

“...cities that ignore environmental impact will themselves face another collapse of infrastructure 30 or 40 years from now ...” Booz Allen Hamilton,

*Strategy and Business*, 2007
DMC/capita

• Lisbon: 20 t/c/yr
• Singapore: 18
• Geneva: 7.6
• Paris: 5
• London: 3.6
• Cape Town: 3.3

density & income key
factors, not
urbanisation per se

(Weisz & Steinberger, 2010)
CT material flows – 2006/7

- **Electricity**: 10 billion KWh - 3500 KWh/c/yr
- **Oil**: 2 b litres - 666 l/c/yr
- **CO2**: 20m t from all energy users = 7 t/c/yr
- **Water**: 247 million Kl/a = 82 Kl/p/a per - higher than the global ave of 57 Kl/c/yr
- **Sewage**: 200 million Kilolitres of sewage for the year 2005/6, or 67 Kl/c/yr
- **Solid waste**: 2.9 million t of solid waste - over 2 Kg/c/yr, higher than the European average - 0.4 m t recycled
- **Building materials**: 6 m t of building materials for conversion into buildings and infrastructure, with an output of about 1 million tons of builder’s rubble.

Integration/Systemic

New Urban Developments as ‘Integrated Eco-Urbanism’

New Build/ New Construction

Reconfiguring Cities as ‘Systemic Urban Transitions’

Existing Cities/ Retrofitting

Constructing New ‘Urban Networked Technologies’

Retrofitting Existing ‘Urban Networked Infrastructures’

Network Based

hydrogen, biofuels, DHC, greywater/ recycled water systems, new PV infrastructures

low carbon cities, peak oil cities, solar cities, ‘TOP’ cities, Clinton C40 league, ICLEI, transition towns, progressive city coalitions

Water, food, energy, flood security
...imagining the ‘infrading’?

...within sustainable neighbourhoods
Transition pathways

• how resource constraints & impacts are experienced
• territorial governance vs management of socio-technical systems
• learning and adaptive capacity building
• Vision building
• Key role of intermediaries
Core message of scoping report of cities

• 2nd urbanisation wave is inevitable, but the future is not mega-cities
• Global decoupling will depend to a large extent on decoupling at city level
• Decoupling at city level will mean rethinking urban infrastructures to ensure a shift to circular material flows
• Recovery packages are an opportunity
• Many case studies pointing the way
Programme

- Workshop in February/March
- 2\textsuperscript{nd} draft by July 2011
- 3\textsuperscript{rd} draft (long report) by November 2011

Experts: case studies, sector technologies, urban governance, important to draw in developing country experts