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Urban Planning for Climate Change

FIG Working Group 8.1

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Rome
May 9, 2012

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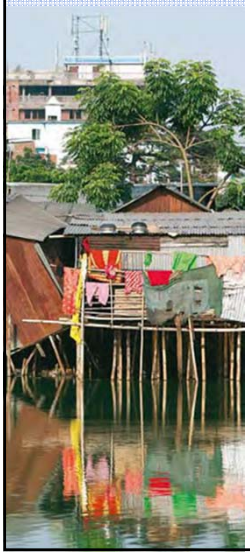
AGENDA



1. Introduction
2. Urbanisation and Climate Change
3. Need of the Surveying Profession in Dealing with Climate Change – Urban Planning Strategies
   - 3.1 Contribution of the Surveying Profession
   - 3.2 Urban Climate Change Mitigation Strategies
   - 3.3 Urban Climate Change Adaptation Strategies
   - 3.4 Climate Change Governance
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INTRODUCTION

'Cities are part of the climate change problem, but they are also a key part of the solution'

(Kamal-Chaui and Robert 2009:3)

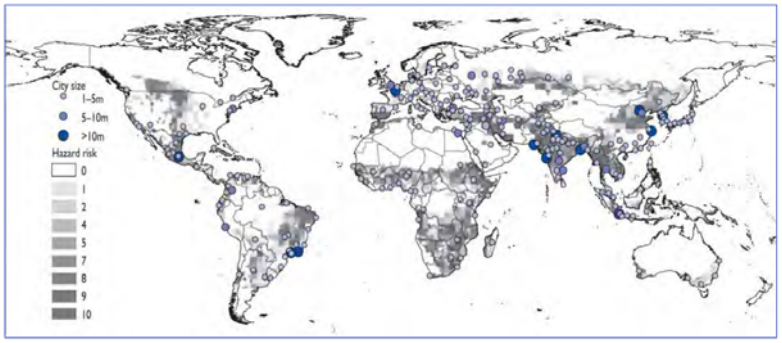

Figure: Cities in relation to current climate-related hazards (UN-HABITAT 2011: 24)

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URBANISATION AND CLIMATE CHANGE

- Urban population will rise from 52% (2011) to 67% in 2050
- Increasing number of megacities (mainly in Asia and Africa)
- According to high population densities in megacities, concentration of (weak) urban infrastructure and industries will rise
- Urban areas are likely to suffer from unpredictable weather events like hurricans or heavy rainstorms as impacts of climate change

Increase of cities' vulnerability to severe impacts of climate change

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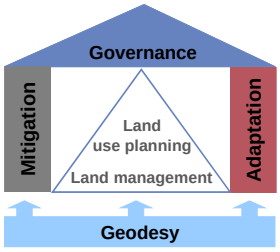
CONTRIBUTION OF THE SURVEYING PROFESSION

- Need for cross-sectoral and interdisciplinary cooperation to develop safe and secure urban environments
- Surveying profession as bridge builder in managing and fighting climate change
- Interdisciplinary tasks of land management and land use planning as basis for climate change strategies



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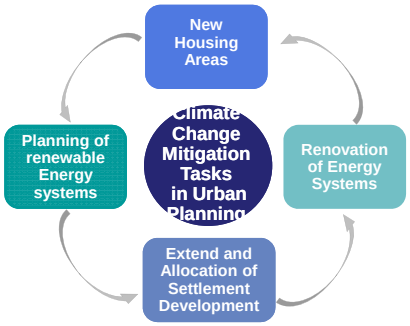
MITIGATION STRATEGIES

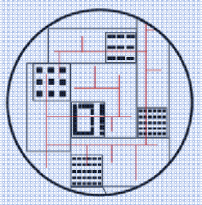
Mitigation: *Action to decrease the potential effects of climate change.*

- Four types of mitigation tasks in urban planning
  (German Institute of Urban Affairs)
- Analysis exemplified on the two fields *Energy* and *Settlement development* as game changers for sustainable urban planning:

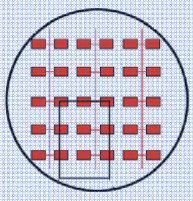


MITIGATION STRATEGIES

City



District



1. Extent and allocation of settlement development

Complex, concerted actions and strategies are needed despite of single measures.

- Compact, energy-efficient and mixed use settlement structure
- Reduced demands for traffic and structure

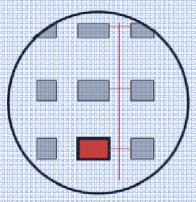
2. New housing areas

Measures for mitigation offered in terms of construction, e.g. distance between and orientation of buildings etc.

→ **Compact settlement to reduce land and energy consumption**

MITIGATION STRATEGIES

Building



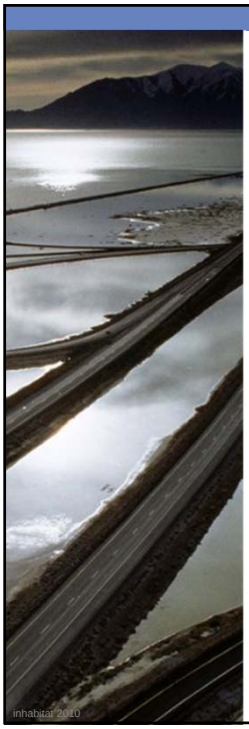
3. Renovation of energy systems

Existing housing stocks as an important elements of climate proof urban planning, e.g.

- Isolation of walls, roofs, ceilings
- Construction of ventilations systems
- …

4. Planning of renewable energy systems

Need for respective planning and legal conditions for supply and effective use of energy systems.



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ADAPTATION STRATEGIES

- **Definition: Adaptation (IPCC, 2007):**

  'all actions to reduce the vulnerability of a system, population group or an individual household to the adverse impact of anticipated climate change'

Examples for possible adaptation measures:

Bob McKerrow

Making constructions more resistant against climate Impacts

Canadian Ministry of Forests, Lands and Natural Resources 2011

Developing climate change adaptation maps at the national, regional and local level

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CLIMATE CHANGE GOVERNANCE

- Generally governance is defined as *'the exercise of political authority and the use of institutional resources to manage societies problems and affairs'*

  → translated into effective and sustainable mitigation and adaptation governance :

PPP / collaboration of community organisations	**market mechanisms** (allocating resources under government regulation)	**top-down methods** (government and state administration)

For **sustainable long-term success**, embedding **of mitigation** and **adaptation strategies** + support of all city-relevant **stakeholders** is inevitable

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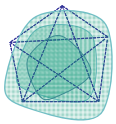
CLIMATE CHANGE GOVERNANCE

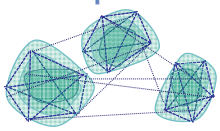
Inner City Networks



Networks for involving stakeholders from the private, public and commercial sector into climate policy governance

- Multi-directional communication and information exchange
- Coordination among stakeholders

Inter-Municipal Networks



Climate change impacts dont't follow administrative boundaries:

Networks for coordinating action:

- Coordination among municipalities
- Inter-municipal collaborative frameworks
- Technical infrastructure cross boundaries

Cooperation between different administrative levels, types of organisations and disciplines as critical factor in fighting climate change.

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CHALLENGES FOR URBAN CLIMATE CHANGE MEASURES

- Measures often developed outside integrated urban planning framework
- Some key challenges (e.g. urban sprawl) are still not adressed
- Lack of appropriate institutions/authorities
- Lack of funding or central support of regional government
- Insufficient expertise among parties in charge

Systematical evaluation of urban climate policy is indispensable !

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FUTURE DIRECTIONS

- In connection with climate change strategies, sustainable long-term urban planning is needed!

Essential measures for further action:

Identification of climate-proof areas and alternative sites, more suitable for urban development	Controlling the type of land use
Renovation of urban energy and transportation systems	Engineering measures and construction of climate-proof infrastructure

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CALL FOR CASE STUDIES

Surveyor's response to climate change:

- Supporting to build climate-proof infrastructure
- Increasing political relations both at national and international level
- Faciliating economic, social and environmental sustainability

FIG and especially Commission 8 invites critical research papers and best practice projects that investigate the relationship between urbanisation and climate change:

How can urban planning and land management respond to the challenge of urbanisation and climate change?

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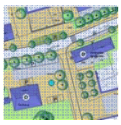

Thank you very much for your attention!

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