Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

# New challenges for adaptive urban governance in highly dynamic environments: revisiting tools and strategies

**Case study Vietnam and Indonesia –**

**PD Dr.-Ing. Jörn Birkmann**



Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

## Overview

**A) Introduction**
- Questions
- Key research fields
- Challenges linked to climate change

**B) Case studies: Vietnam and Indonesia**
- Dynamics: Urbanization and governance
- Case Studies: Can Tho / Mekong Delta and Padang/ Sumatra
- Mismatches?

**C) Adaptive urban development and outlook**
- Elements of adaptive urban development
- Conclusions

PD Dr.-Ing. J. BIRKMANN

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

# Questions

1. Why is adaptation to climate change a key issue for cities in the global South - particularly in Asia/ Southeast Asia?
2. What are important changes in the discourse about climate change adaptation in urban areas?
3. What are core **mismatches** in present urban development strategies (case studies) that adaptive urban development has to address?
4. What are important elements of a more adaptive urban development?



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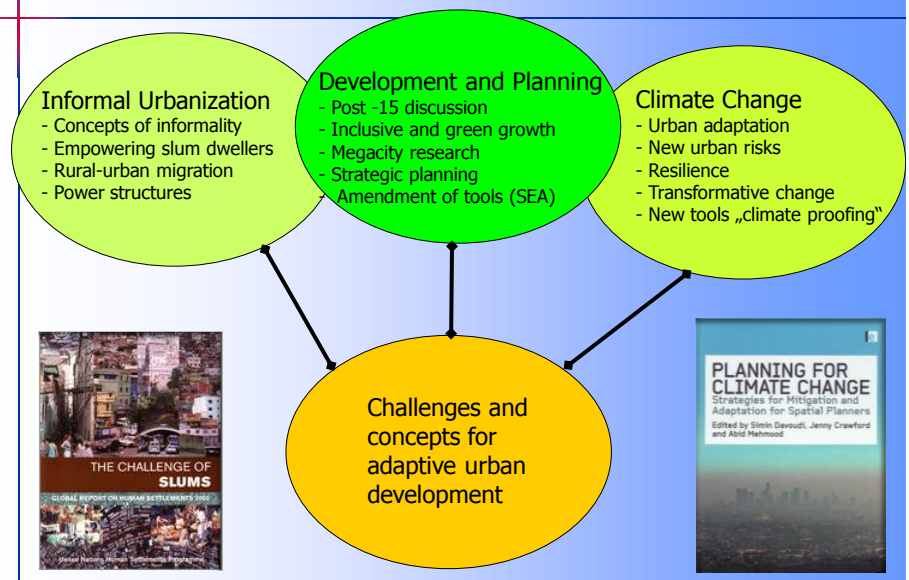
# Research fields







UNHABITAT 2003




Davoudi et al. 2010

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# A changing climate leads to changes in extreme events

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

*Since 1950, extreme hot days and heavy precipitation have become more common.*

Source: IPCC 2012



# Implications for planning

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

- Adaptation - responding to a relatively well-defined set of climate-driven changes. (Howard 2010)

  ***No, emerging risks depend on future climatic changes as well as socio-economic changes. (IPCC 2012)***

- Significant impacts of climate change have not yet occured. (IPCC 2013, WG I)

  ***This is an opportunity and a challenge for planning.***

- Proactive measures are cheaper than „doing nothing“. (Stern Report 2006)

  ***But what are useful and accepted proactive measures? How do present urban / spatial planning approaches look like?***

PD Dr.-Ing. J. BIRKMANN

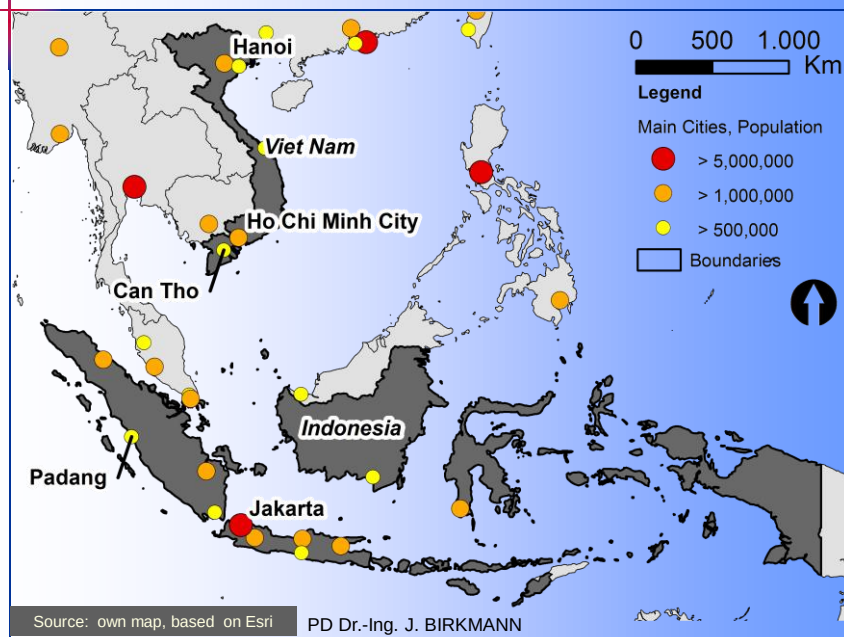
Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

# Case Studies



Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

## Can Tho and Padang




Source: own map, based on Esri

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# Urbanization, Governance, Planning

| Vietnam (population 92 mio.) | Indonesia (population 252 mio.) |
|---|---|
| Urban growth: from 2010 to 2025 increase by approx. 10 million people (increase of 30%) | Urban growth: from 2010 to 2025 increase by approx. 29 million people (increase of 22%); |
| 10% of the precent urban population would be directly affected by 1m SLR | 9% of the land area and about 42 million people are living in the low elevation coastal zone |
| Centralistic governance system | Decentralized governance system (regional autonomy, 1999) |
| Planning system 4 levels: national/central, province*, district* and ward* (*urban planning) | Planning system 3 levels: national, provincial and district (Kabupaten/Kota) level |



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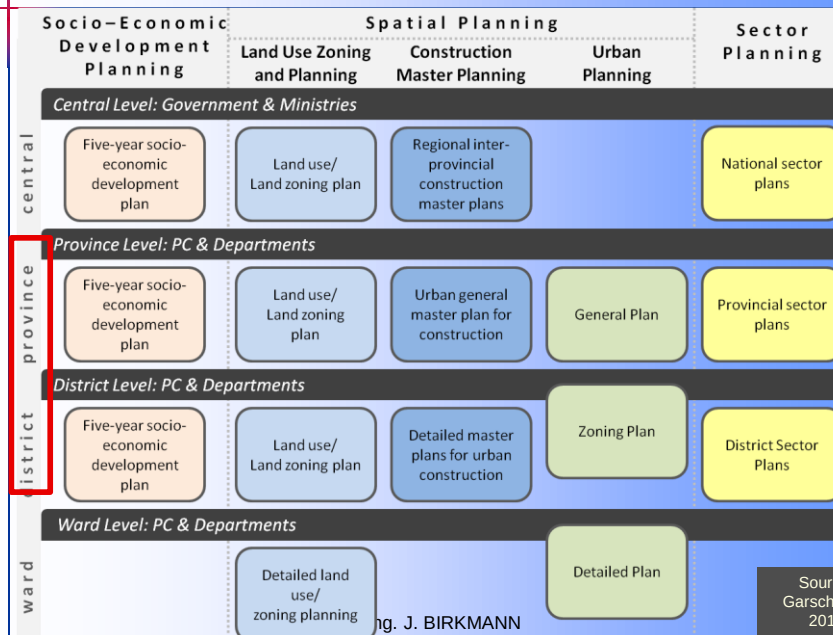
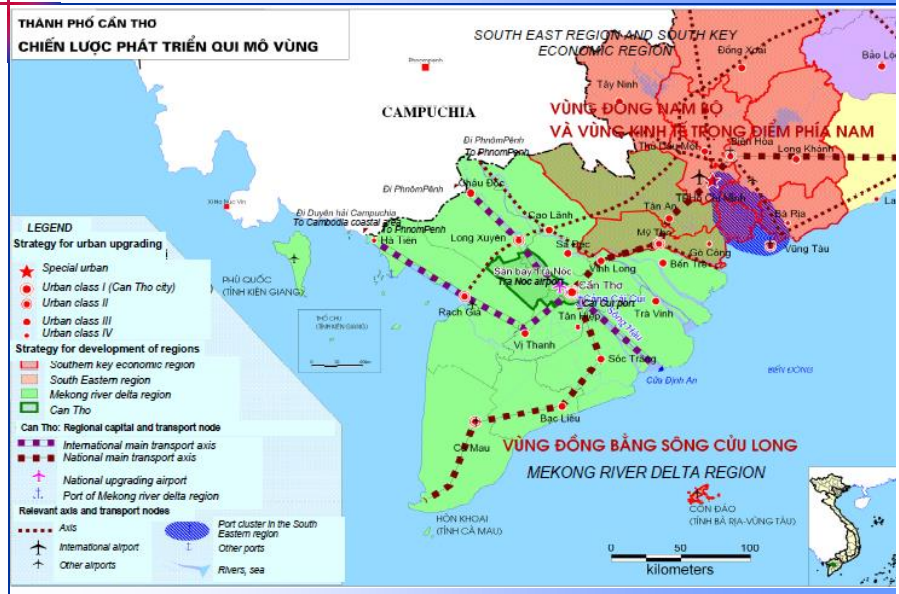
# Planning systems Vietnam




Source: Garschagen 2012

# Vietnam: Mekong delta – Can Tho




Source: National Institute for Urban and Rural Planning (NIURP) under Vietnam Ministry of Construction 2007

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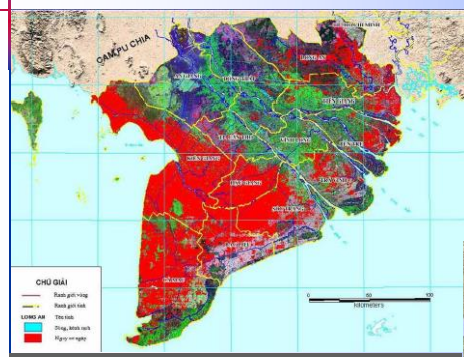
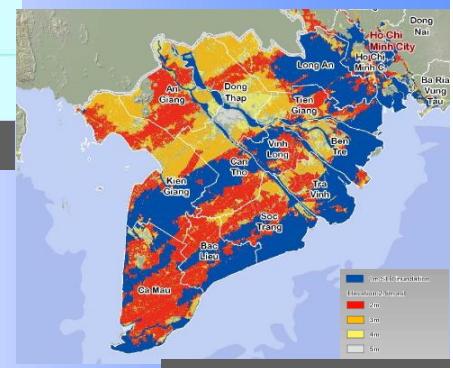
# Sea level rise – Mekong Delta



Source: Vietnam Institute of Meteorology, Hydrology and Environment (IMHEN) under MONRE



Source: Carew-Reid, 2008

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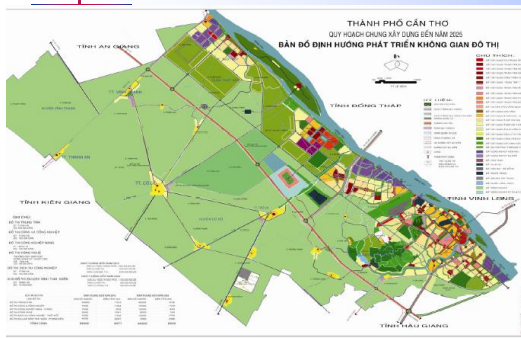
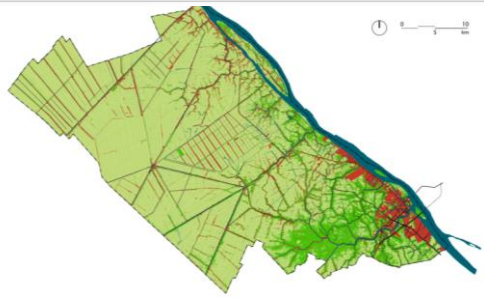
# Master Plan - Can Tho



- Can Tho is to a large part a peri-urban area with rather poor households and has an inner city area with about 400,000 inhabitants.
- Province 1. Mio. Inhabitants

# City development strategy 2005-2020

Goals of the socio-economic development plan:

- National policy: growth of medium and small size cities
- target: GDP growth rate of 17-18% per year
- increase the share of industrial sector in GDP (38% – 54%)
- spatial planning: new housing areas and industrial zones.

Assumption: large scale in-migration to Can Tho

Urban Structure – Can Tho Master Plan Revision 2030

Cai Rang Development


Source: Socio Economic Development Plan for Can Tho City 2020; in: National Institute for Urban and Rural Planning (NIURP) under Vietnam Ministry of Construction 2007 ; figure 1: Urban structure / Can Tho Master Plan Revision 2030

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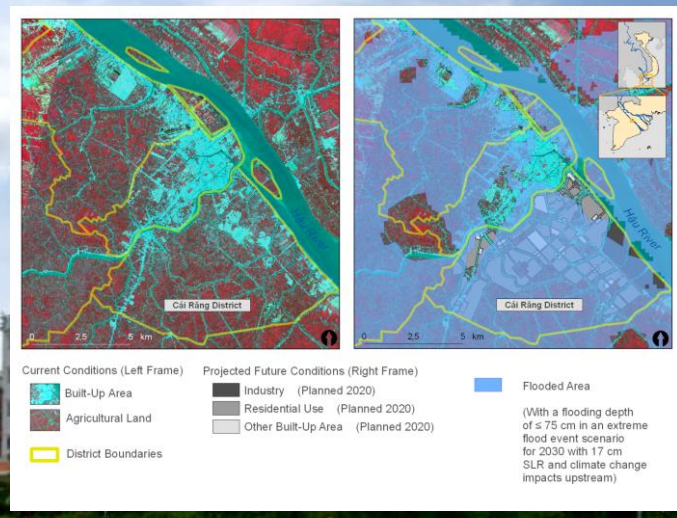
## Mismatch flooding (Cai Rang)

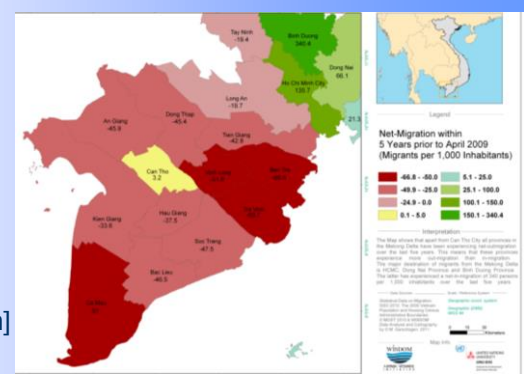



**Flood saftey standards: past experiences were used, rather than different flood hazard maps that account for changes due to climate change**

Source: Garschagen and Blaetgen 2013

## Mismatch migration

- Cai Rang project assumes significant increase of middle class
- Significant out-migration from rural areas;
  Net-out-migration: 664,000 people in 5 years
- 97% of interregional out-migration to Southeast;
  Ho Chi Minh City
- Vision of Can Tho as a rapid growing urban middel class center does not macht the present migration dynamics.
  [knowledge for orientation]




Source: General Statistics Office (GOS) of Vietnam 2010 and Garschagen et al. 2012

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## Mismatch "formal – informal"


- Adaptation is often interpreted by state actors and the media as a task of the central or local government;
- Limited acknowledgement of autonomous adaptation of households;

Source: Photos : http://weadapt.org/knowledge-base/urban-adaptation-to-climate-change/climate-resilience-can-tho-vietnam

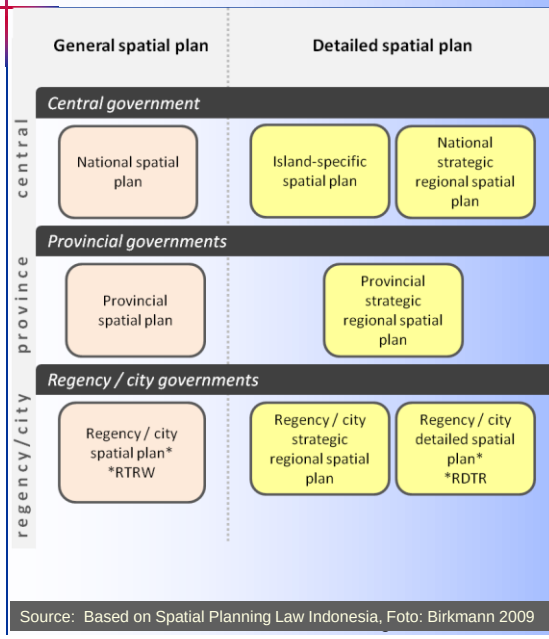
Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

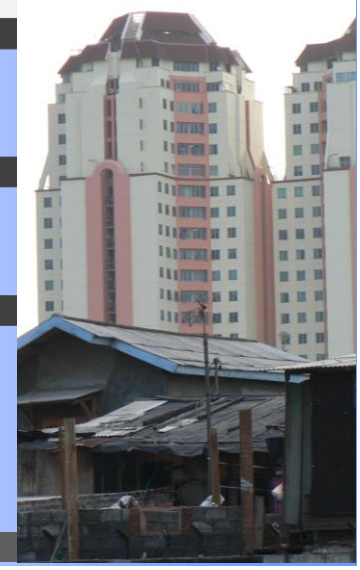
# Indonesia

PD Dr.-Ing. J. BIRKMANN

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

## Planning system Indonesia since 1992



Source: Based on Spatial Planning Law Indonesia, Foto: Birkmann 2009

## Indonesia: Padang

Community participation is a goal in the planning legislation (UU/Law 26/2007).

Participation/consultation:

- language challenges (technical issues);
- comments are made available, responses not; [BAPPEDA and TRTB].

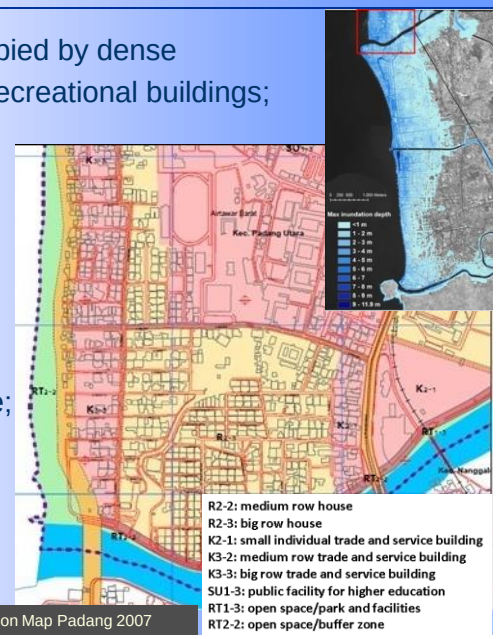
The City Spatial Plan (1:25,000) consideres floods, earthquakes, tsunamis, coastal erosion and landslides.

Hazard maps are used to distinguish between high and low risk zones; - restrictions for urban development.

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

## Indonesia: Padang

- High risk zones are occupied by dense housing, commercial or recreational buildings;
- Goals:
  - improvement of building standards;
  - reduction of density;
  - relocation;
  - increase of green space;
  - new road;
  - commercial buidlings.




Source: Zoning Regulation Map Padang 2007

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## Mismatches

- Scientific studies versus local knowledge and believes (role of cultural/religious leaders);
- High risk zones are only high hazard zones;
- Relocation reduces exposure, but might increase vulnerability of people relocated;
- Housing versus buisness (value of the property; power structures).

Source: Photos Birkmann 2007, 2009

## Gaps in present planning approaches

- Discourse „informal urbanization“ is the problem. However, also the „planned“ urban development implies significant adaptation deficits.
- Urban planning regulations are (if at all) based solely on physical phenomena, social vulnerability is not sufficiently considered.
- Public participation is required (e.g. Indonesia), however, communication is „one-directional“.
- The success of planning is measured in physical outputs, rather than in qualities of the planning process.
- Deeper conflicts rooted in power imbalances are not addressed.

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu



# Way forward

## Adaptive urban development

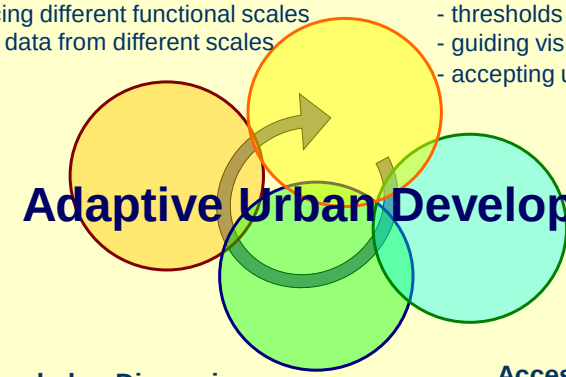
Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

PD Dr.-Ing. J. BIRKMANN

## Adaptive Urban Development

**Scale-Dimension**
- capturing different temporal scales
- balancing different functional scales
- linking data from different scales

**Normative-Dimension**
- legal versus informal rules
- thresholds versus scenarios
- guiding visions (resilience)
- accepting uncertainty




**Knowledge-Dimension**
- combination of different data and knowledge sources
- acknowledgement of the limits of knowledge

**Access-Dimension**
- access to information and resources
- access to target groups

Source: Birkmann et al. 2014; Birkmann et al. 2010

## Conclusions

- Complex societal and environmental changes require a shift from a one-dimensional-linear planning approach towards the consideration of pluralistic futures and uncertainty.
- Integrative settlement and infrastructure planning will not be achieved by physical means, rather it will depend on the nature of the planning approach and system.
- Even though Indonesia and Vietnam are quite different in terms of the governance system, similar challenges are linked to the dominant focus on physical outputs.
- Spatial/urban planning has an important broker role to play (formal-informal; knowledge types, scales), however, realizing this would require also changes in the overall governance framework/ culture.

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

Joern Birkmann – UNU-EHS – birkmann@ehs.unu.edu

# Thanks!

*Further details in:*

Birkmann, J. and M. Garschagen (2014): New challenges for urban and spatial governance in highly dynamic environments – comparison of guiding visions, planning systems/approaches and actor networks; *Urban Climate* (accepted for publication)

Birkmann, J.; Cutter, S.; Rothman, D.; Welle, T.; Garschagen, M.; Van Ruijven, B.; O'Neil, B.; Preston, B.; Kienberger, S.; Cardona, O.D.; Siagian, T.; Hidayati, D.; Setiadi, N.; Binder, C.; Hughes, B.; Pulwarty, R. (2013): Scenarios for Vulnerability - Opportunities and constraints in the context of climate change and disaster risk; *Climatic Change* ; (DOI 10.1007/s10584-013-0913-2).

Birkmann, J.; Garschagen, M.; Kraas, F.; Quang, N. (2010): Adaptive urban governance: new challenges for the second generation of urban adaptation strategies to climate change. *Sustainability Science* 5(2), p. 185-206