



# **Bridging state and non-state divides in Vietnam's transforming adaptation governance: Lessons from the Mekong**

Dr. Matthias Garschagen & Dipl.-Geogr. Dunja Krause

United Nations University – Institute for Environment and Human Security (UNU-EHS)

Deltas in Times of Climate Change II | Rotterdam | 24-26 September 2014

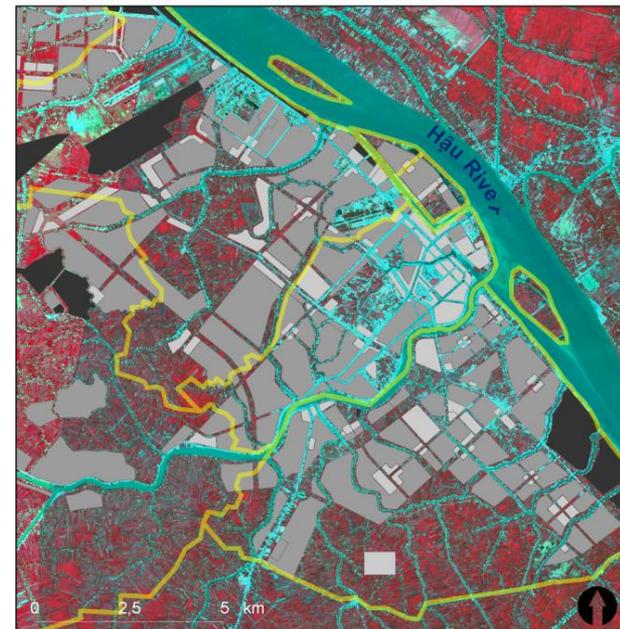
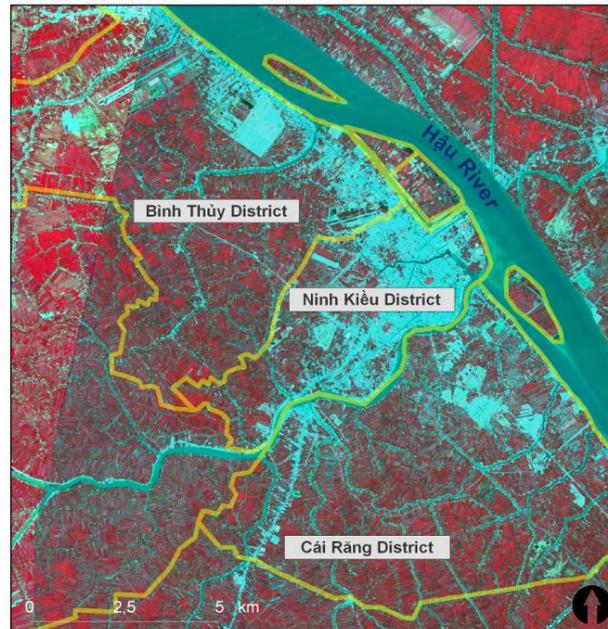
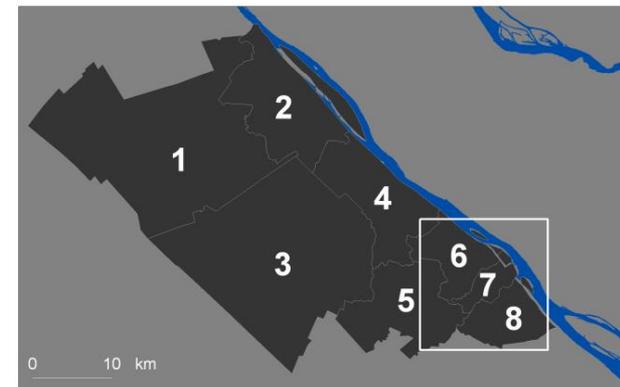
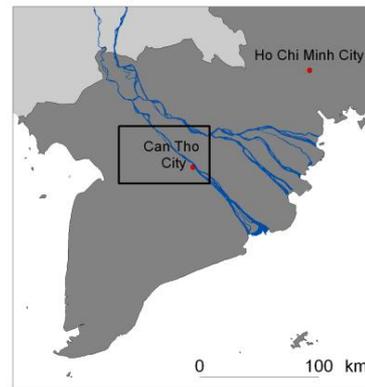


## ***Objective and research question:***

In order to facilitate effective adaptation governance in one of the most hazard-exposed deltas globally, the presentation asks how the responsibilities and capacities for risk reduction and adaptation are negotiated and shared in selected urban risk hot-spots of the Mekong Delta, focusing in particular on the shifting roles of state vs. non-state actors within Vietnam's changing political economy.

# Case study context

- ca. 450,000 residents and rapidly growing
- urban areas not coherently covered under 'Living with Flood'-policy
- increase in flood occurrence (Hoa et al. 2007)
- increase in flood variability (Delgado et al. 2010; Huong & Pathirana 2013; Västilä et al. 2010)
- projected climate change impacts, e.g. 75cm SLR: 22% of current topography and 19% of current pop. of MKD (IMHEN 2010)



Current Conditions (Left Frame)

Projected Future Conditions (Right Frame)



Districts in Can Tho City

- 1-8**
- 1 = Vinh Thanh
  - 2 = Thot Not
  - 3 = Co Do
  - 4 = O Mon
  - 5 = Phong Dien
  - 6 = Binh Thuy
  - 7 = Ninh Kieu
  - 8 = Cai Rang

Sources and map info:

The built-up areas planned for the year 2020 are based on the city's master plan. The satellite imagery is a false colour representation based on SPOT, SPOT Image Mosaic 2005, 2009 (WISDOM) Can Tho City Master Plan to 2020 (SRV 2008) District Boundaries (DUPA, CTC) UTM Zone 48N, WGS 84

Layout and cartography: M. Garschagen

# Flooding context



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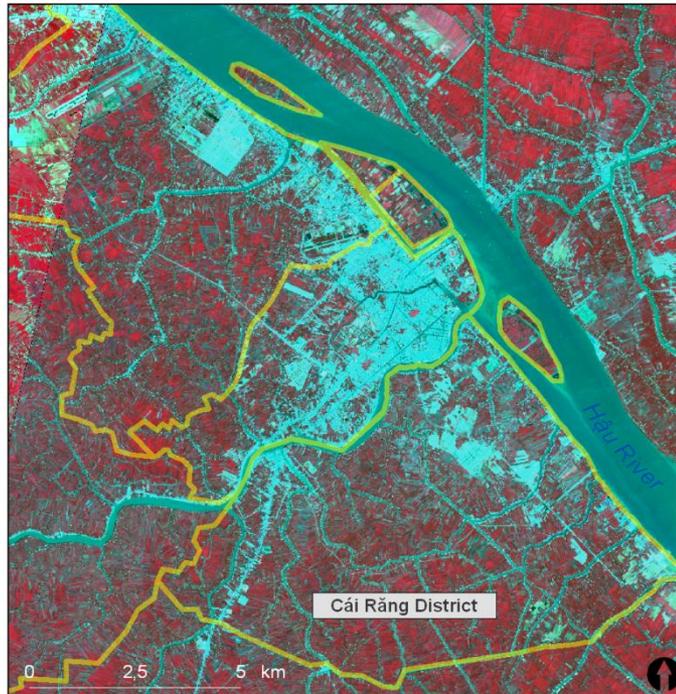
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Source: Garschagen 2011

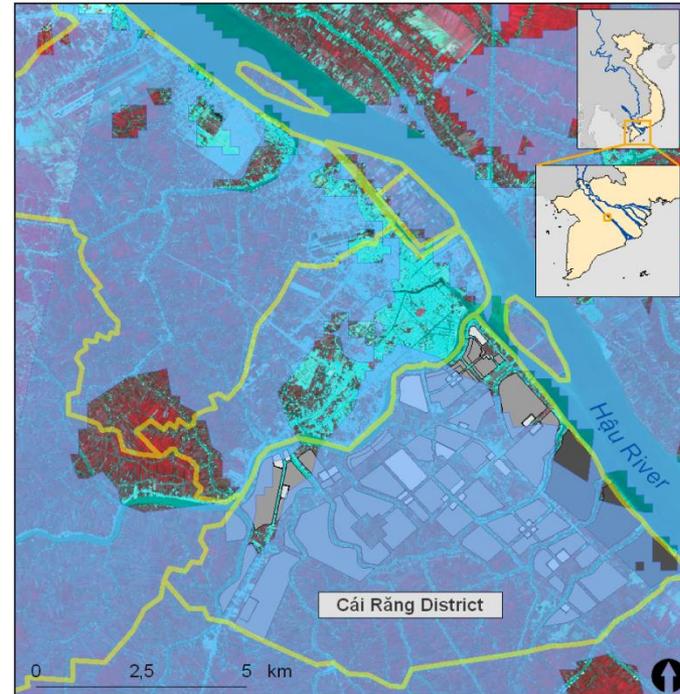
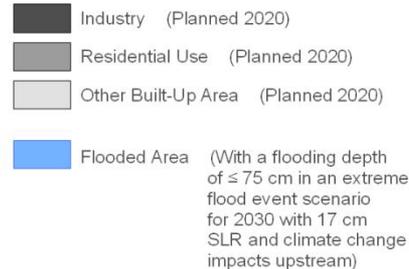
# Future flood risk



Current Conditions (Left Frame)



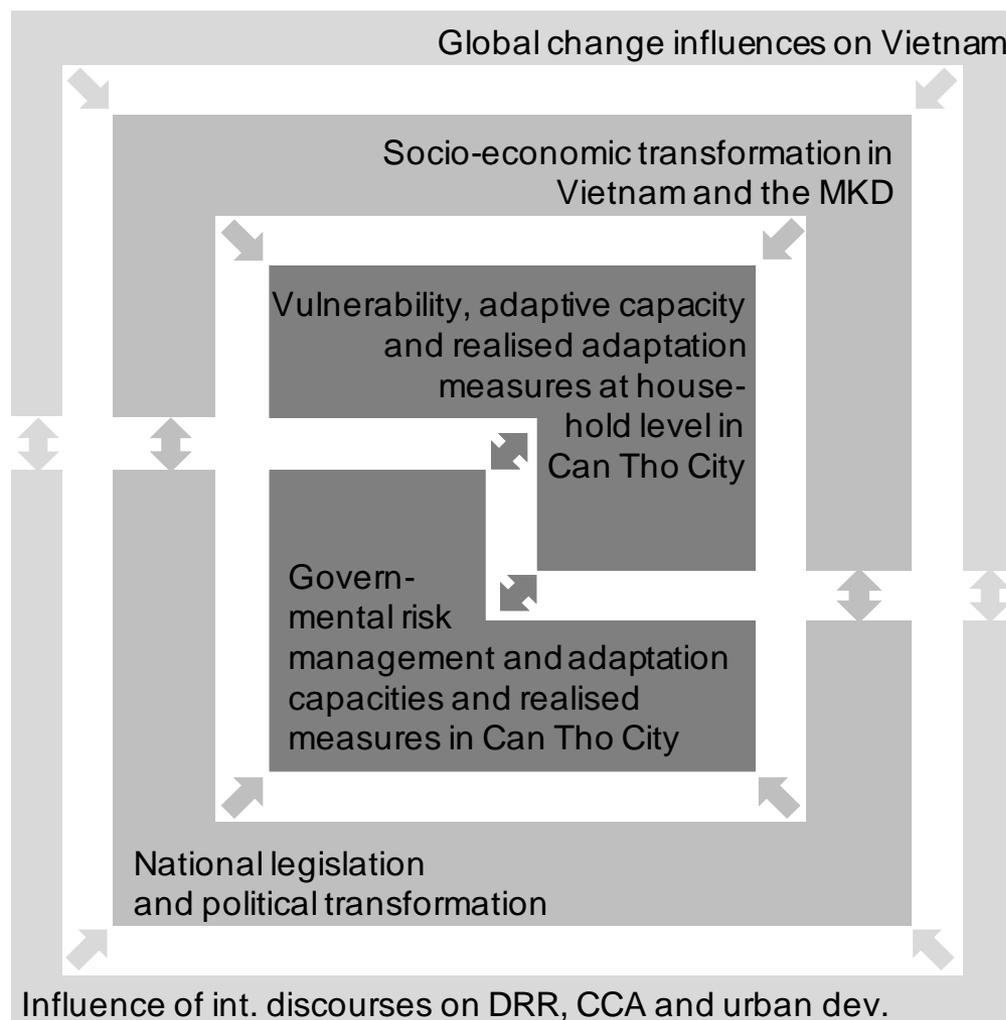
Projected Future Conditions (Right Frame)



Sources and Interpretation:

The flooded areas represent the median probabilistic flood hazard map projection for 2030 for an extreme event with a probability of exceedance of 0.01 (roughly equivalent to a 100-year event). The maps are derived from a quasi-2D hydrodynamic model (Dung et al. 2011) and consider the uncertainties in the hydrological load of the Mekong defined by peak flood discharge and flood volume. For the future scenario a static sea level rise of 17 cm is assumed for 2030 (MONRE 2009). The built-up areas planned for the year 2020 are based on the city's master plan. The satellite imagery is a false colour representation based on SPOT. Data Sources: SPOT Image Mosaic 2005 and 2009 (WISDOM) Can Tho City Master Plan to 2020 (People's Committee Can Tho City) Flood Scenario (Dung et al. 2013) Cartography: M. Garschagen & T. Blätgen 2013

Source: Garschagen 2013



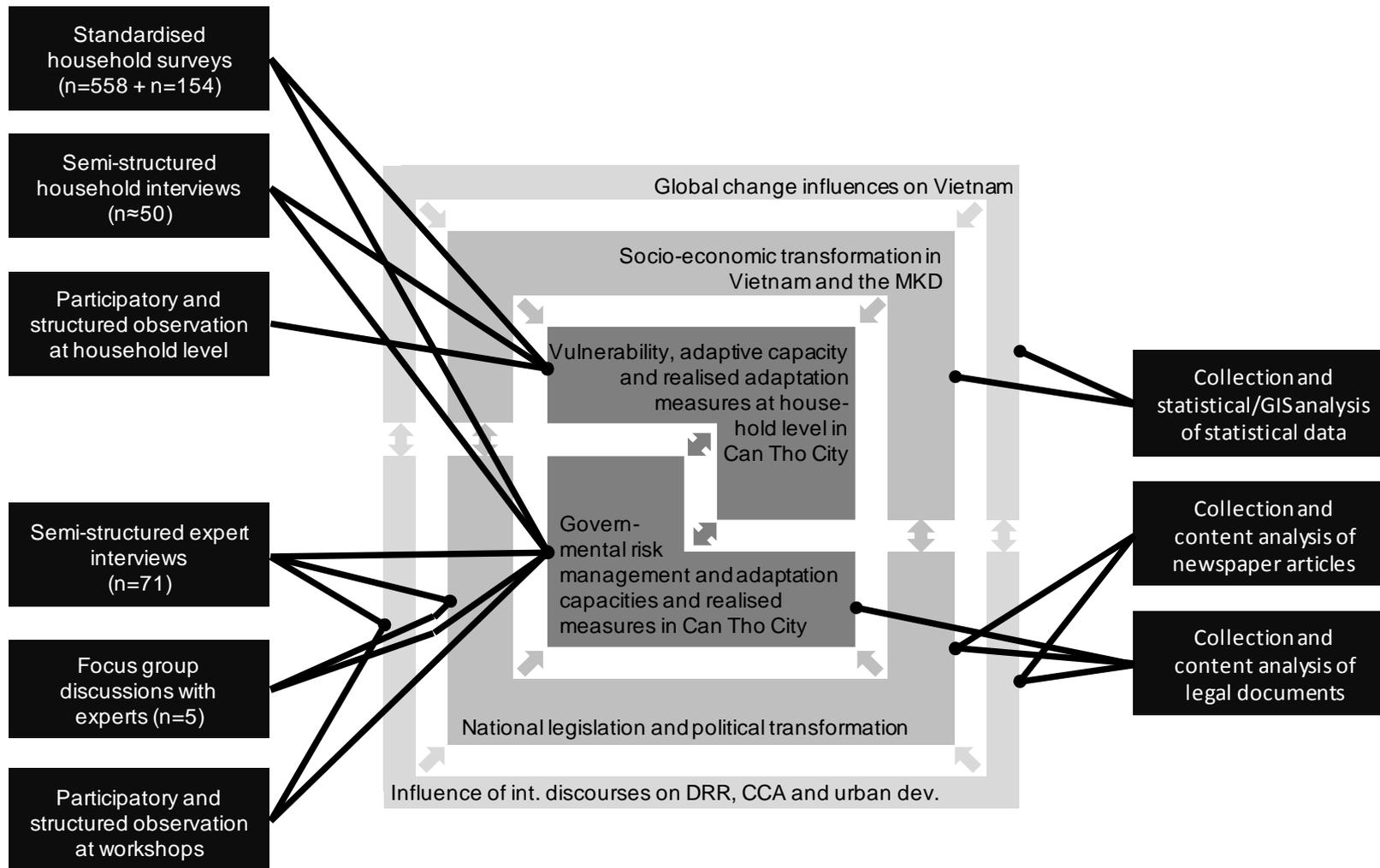
# Research elements and methods



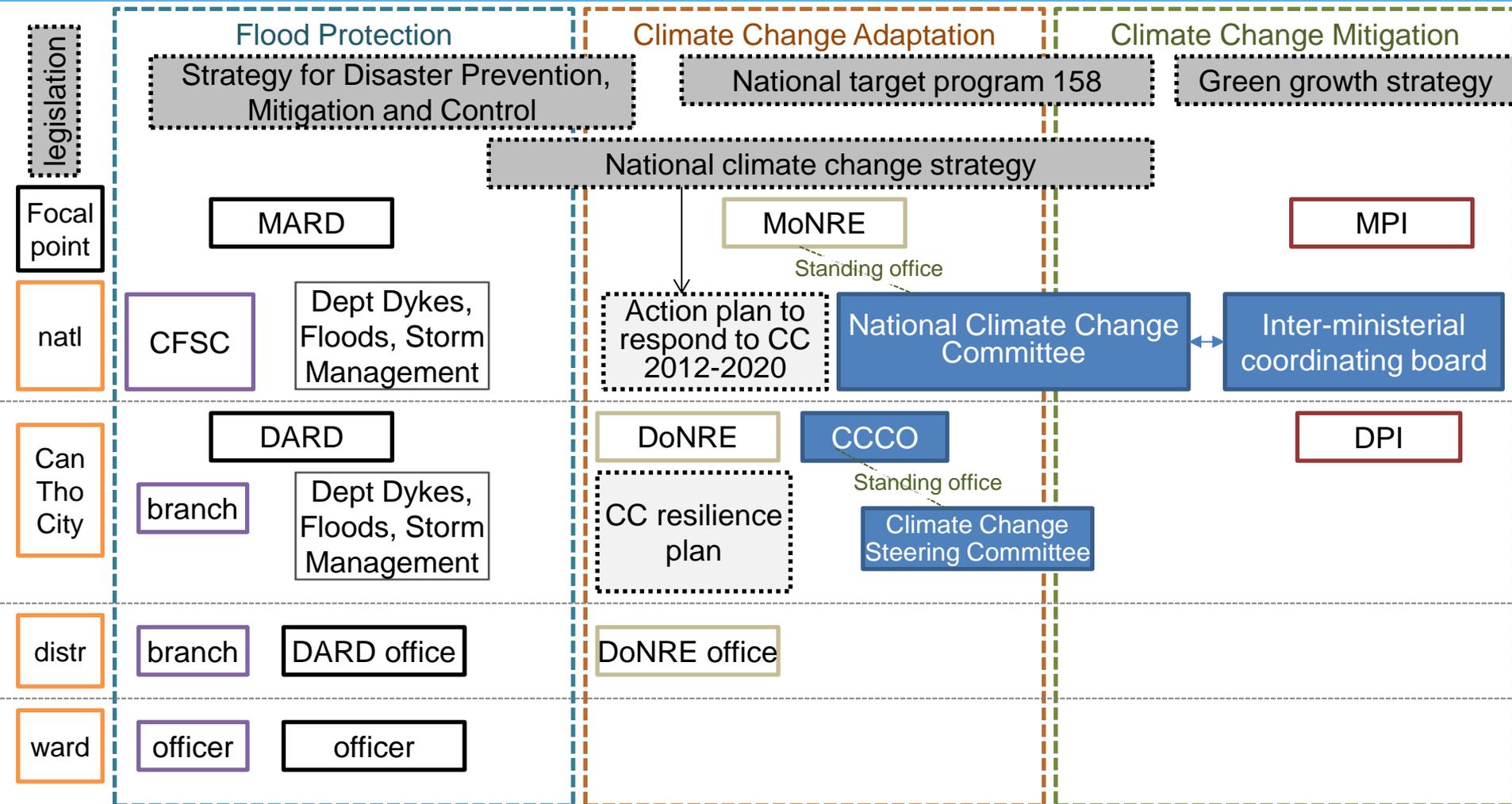
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# Overview: state measure infrastructure



Source: own draft Krause, based on legal documents

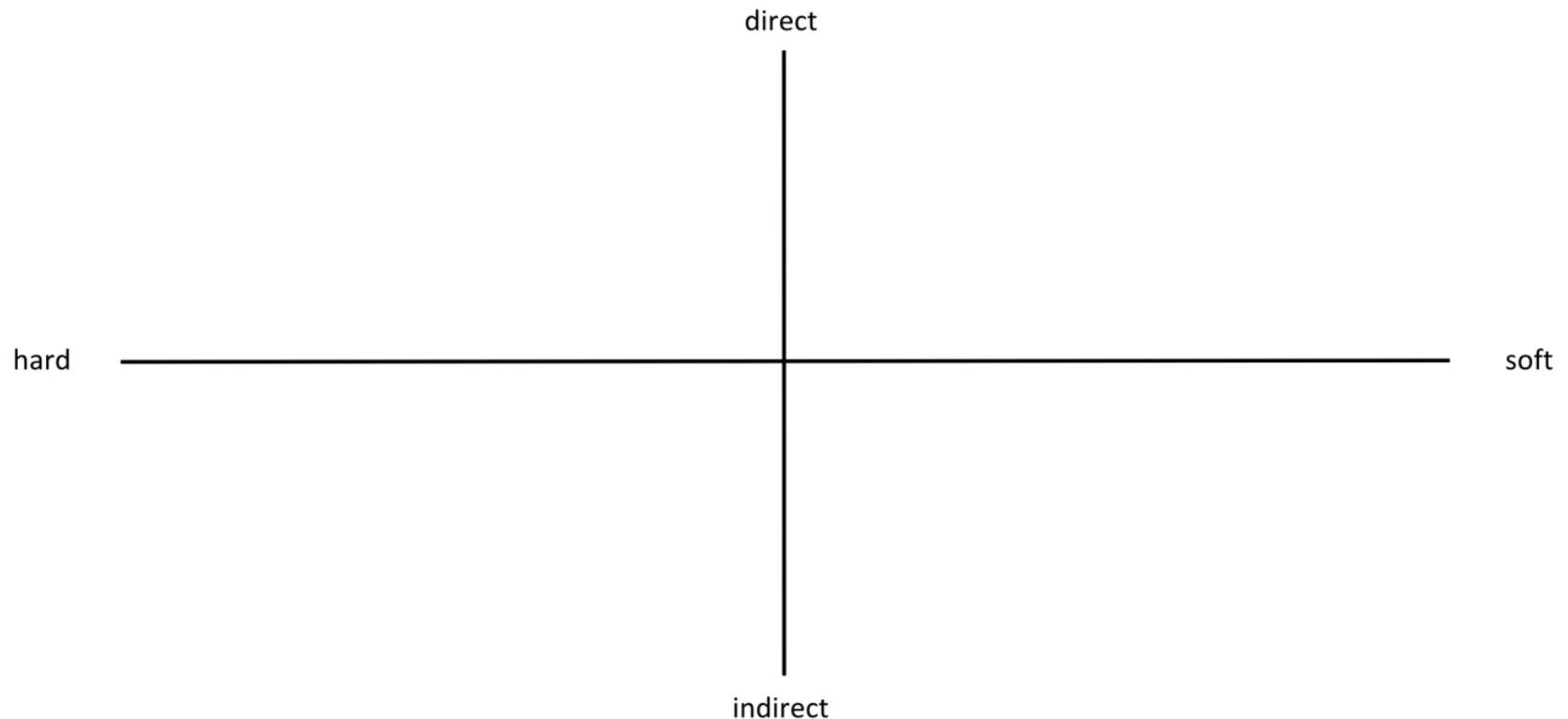
# Conceptions of state-driven adaptation



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measure\* implemented

measure\*\* debated or planned in official  
policy documents and/or  
state bureaucracy organs

measure\*\*\* suggested by  
individual actors only

Source: own draft Garschagen, based on key informant interviews and legal documents



# Flood response and adaptation at HH level

<b>Flood response strategies implemented (cop. &amp; adapt.)</b>	<b>% of hh</b>
Elevate floor of house	73
Build private dyke	44
Vocational training programme	8
Move away	12
Elevate alley (collaboratively)	--
Reconstruct House	34
Elevate supplies	67
Reduce sleep	58
Switch off electricity on flood days	43
Spend savings	40
Block drainage	37
Ask local government for help	13
Send children away during flood days	13
Join saving group	12



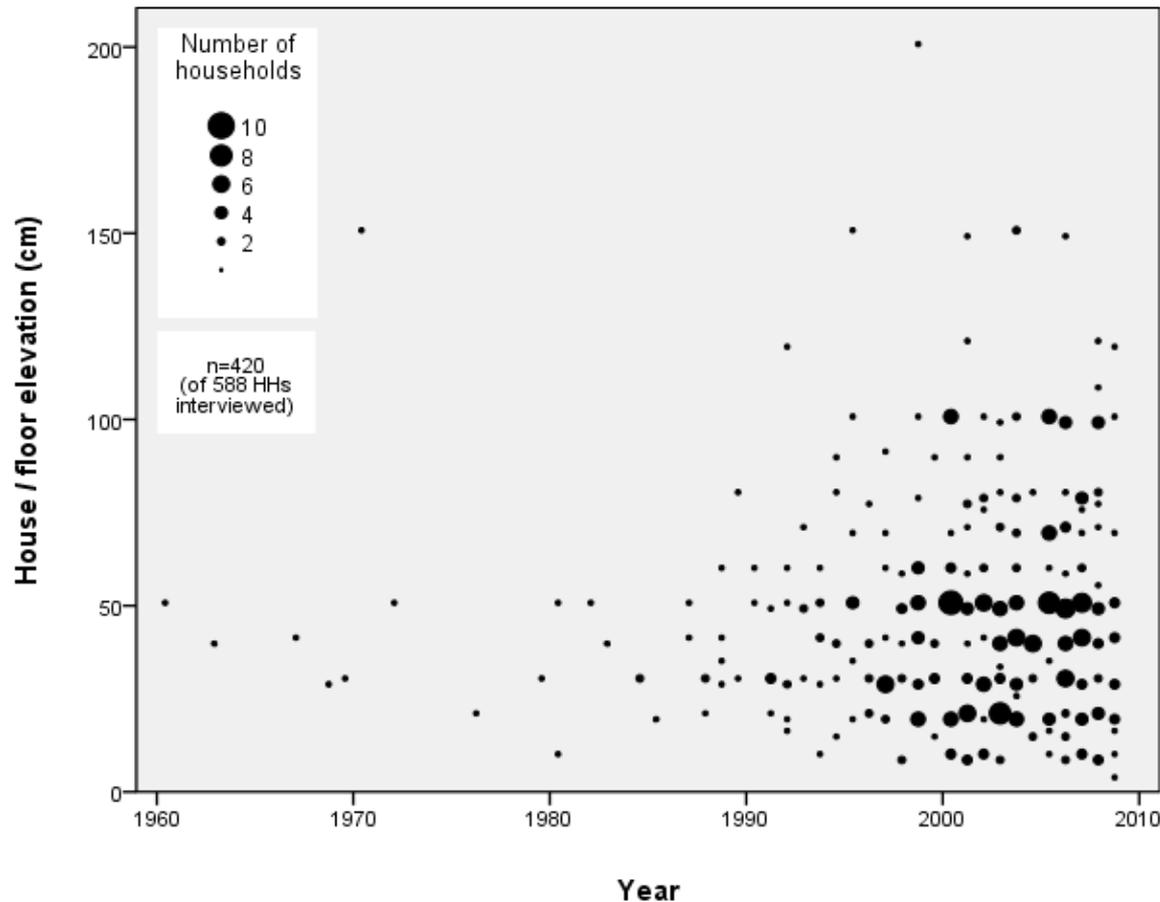
<b>Adaptation strategies evaluated</b>
Elevate floor of house
Build private dyke
Vocational training programme
Move away
Elevate alley (collaboratively)

<b>Measure</b>	<b>Perceived as</b>	<b>Total in % (n=331)</b>
House elevation	Good option	89.7
	Bad option	10.3
Alley elevation	Good option	81.6
	Bad option	18.4
Participating in vocational training class	Good option	42.3
	Bad option	57.7
Building small flood barrier	Good option	56.8
	Bad option	43.2
Moving to another area	Good option	29.6
	Bad option	70.4

Source: own draft Krause, based on household survey data

# House elevation as adaptation option

71% of all households interviewed elevated their house/floor at least once over the last 50 years



Source: M. Garschagen 2009-2011

Source: own draft, based on household survey data

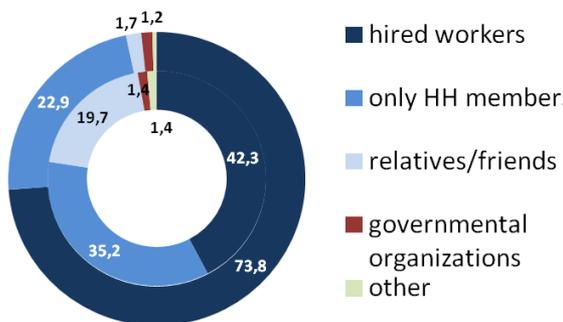


# House elevation: sources of input factors

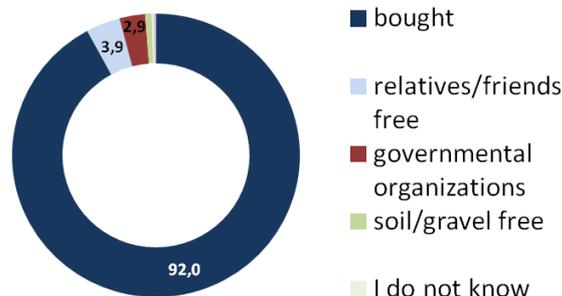
*“[H]ouseholds are then eligible of receiving support [from DOLISA] for improving their houses. [...] In addition, the Fatherland’s Front mobilizes funds [...] in Cai Rang in order to improve or rebuild the houses of poor households. [...] Moreover, the district level sometimes takes money from other budgets in order to improve the housing structure of poor households.” (KI-23-GOD: 49-52)*

*“People’s Committee officers usually go to the households in question and assess how much money the household would need. [...]. So in detail, the ward officers send the residential block officer to estimate the costs and needs of the household. [...] Then the ward – if the price is agreed on – pays the craftsmen and they repair the house.” (KI-17-GOW: 35-36)*

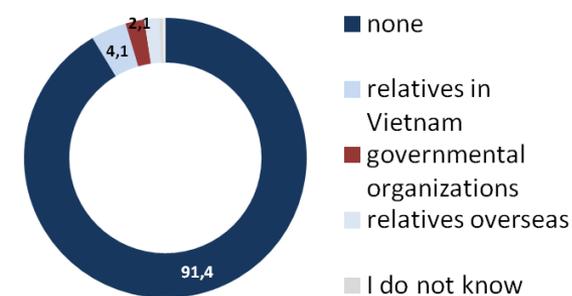
Primary and secondary workforce



Sources of building material



Financial support



n=420

governmental support received  
governmental support received

ass. poverty certificate:  
ass. income index:

C\*=**0.233** with  $p \leq 0.001$   
C\*=**0.250** with  $p \leq 0.01$

Source: own draft, based on household survey data



# Resettlement: urban upgrading and adaptation



- goal to decrease vulnerability and „make city more beautiful“
- ~ 300 households resettled to date
- another ~ 1,200 in the current project phase (and more in future)



Source: M. Garschagen 2010



# Resettlement: adaptation or risk production?

	Risk prior to resettlement	Risk after resettlement
Risk regarding natural hazards		
Other risks		
Economic		
Social		
Institutional		

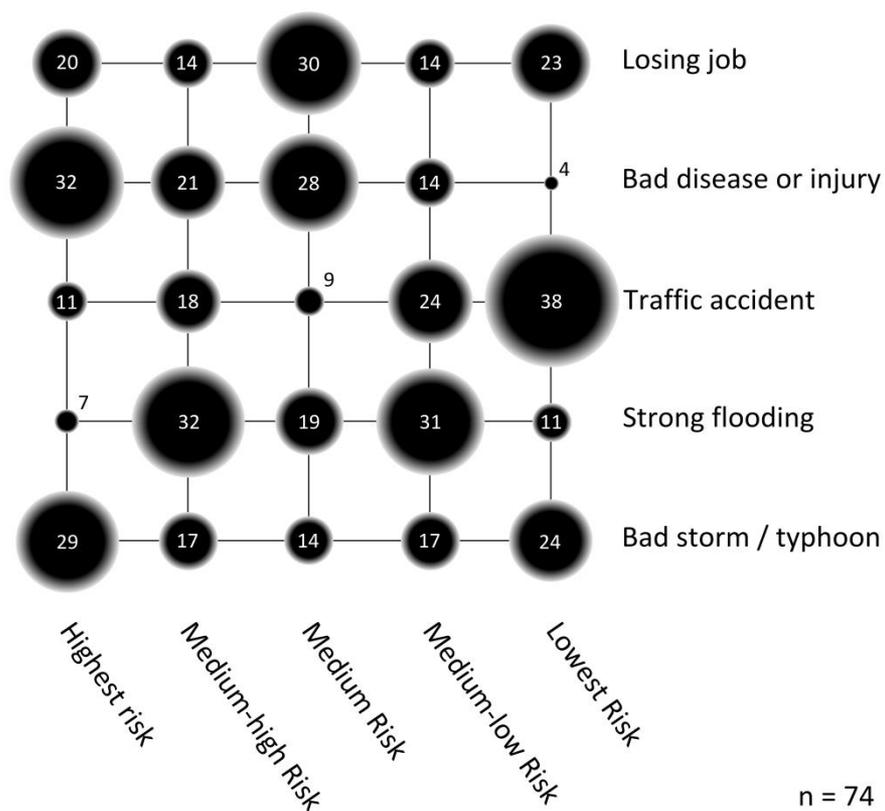


Source Photos: M. Garschagen 2009-2011

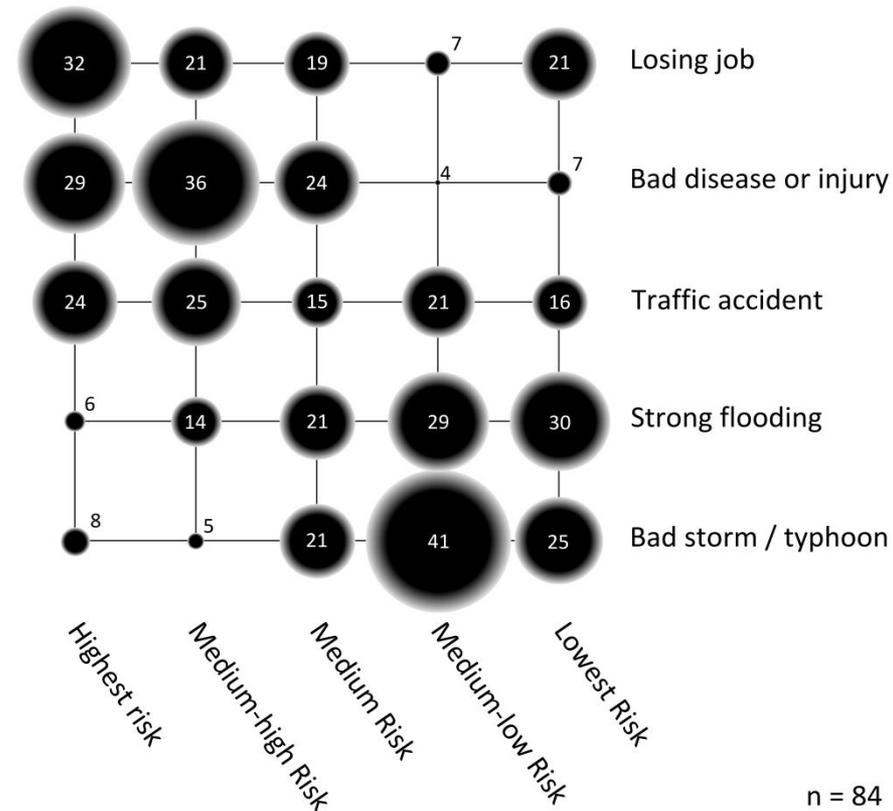


# Risk ranking: before and after resettlement

### Before resettlement (An Lac Ward)

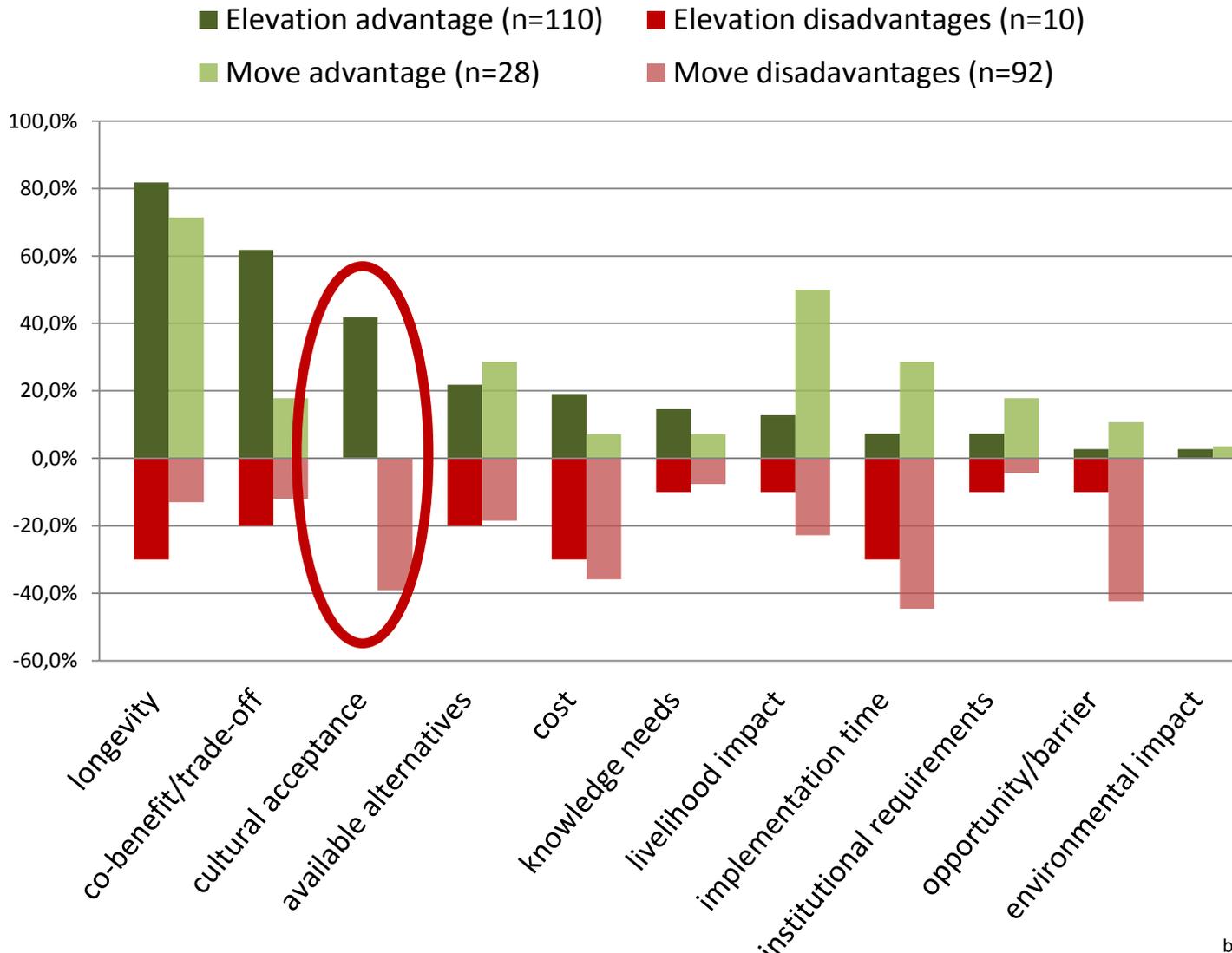


### After resettlement (An Khanh Ward)

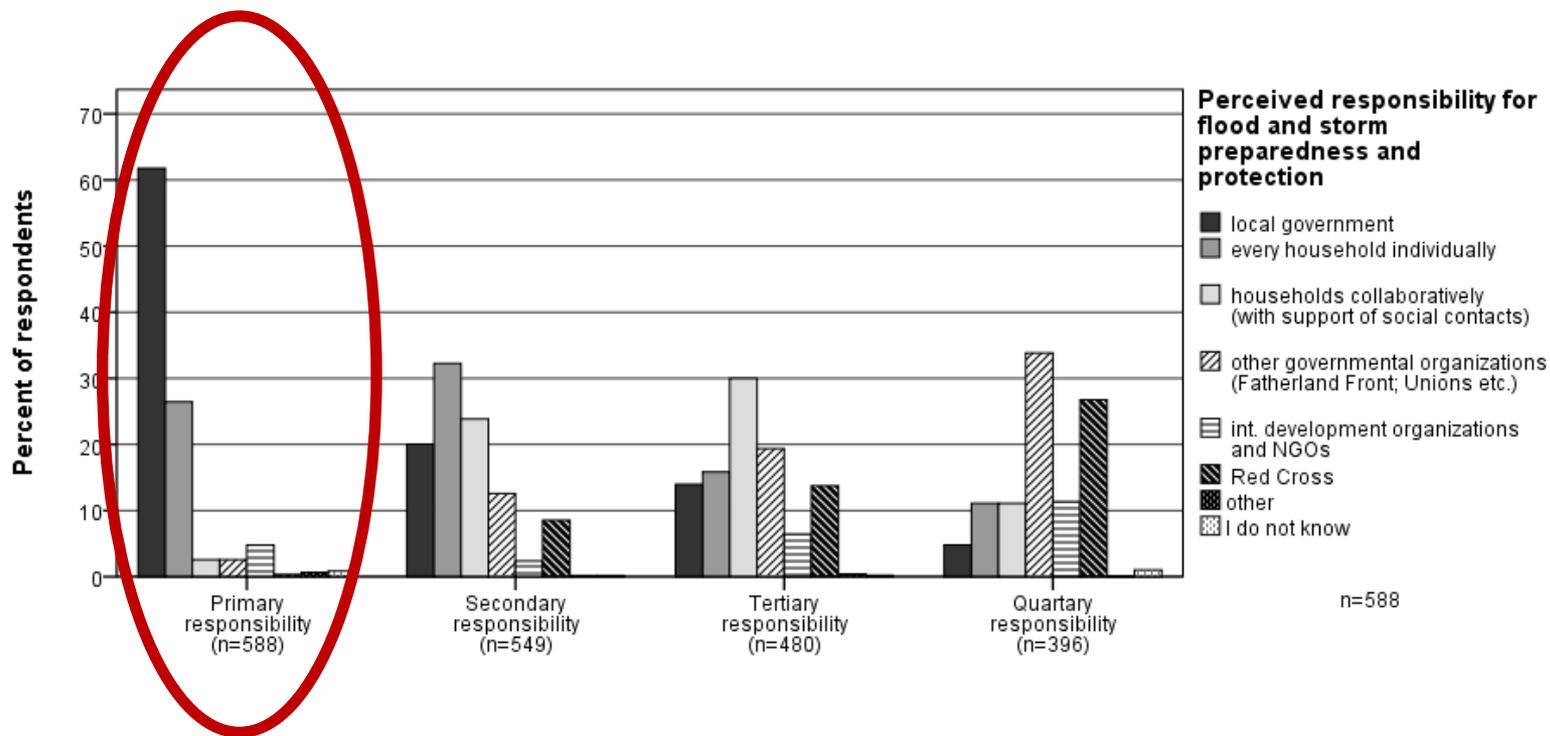


Source: own draft Garschagen based on household survey data

# Evaluation: moving vs. elevation



Source: own draft Krause, based on household survey data



Source: own draft Garschagen, based on household survey data

- Lessons learned:
  - considerable rifts btw. state and non-state adaptation action
  - physical vs. soft-measures
  - responsibilities for adaptation is an increasingly sensitive topic
  - linked to political participation and political legitimacy
  - inclusion of state actors essential when doing adaptation assessments (often neglected, especially in politically sensitive contexts)
- Ways forward:
  - adaptation of institutional mechanisms needed (not just physical infrastructure) in order to more strongly integrate state and non-state adaptation action
  - state vs. non-state perceptions of problems need to be considered
- Remaining challenges:
  - re-distribution of adaptation funding and larger institutional infrastructure
  - re-consideration of adaptation plans (timelines, quality criteria etc.)
  - adaptation action is embedded into wider set-up of state-society-relations => adaptation can be a trigger of change; but it can also be slowed down by the inertia and resistance in the wider system

# Thank you very much for attention and questions !

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## Chapter 10 Vulnerability, Coping and Adaptation to Water Related Hazards in the Vietnamese Mekong Delta

Jörn Birkmann, Matthias Garschagen, Vo Van Tuan,  
and Nguyen Thanh Binh

## Chapter 9 Dynamic Resilience of Peri-Urban Agriculturalists in the Mekong Delta Under Pressures of Socio-Economic Transformation and Climate Change

Matthias Garschagen, Fabrice G. Renaud, and Jörn Birkmann

Abstract: Globally, and in Vietnam, coastal socio-ecological systems in the

## Chapter 4 Socio-Economic Development in the Mekong Delta: Between the Prospects for Progress and the Realms of Reality

Matthias Garschagen, Javier Revilla Diez, Dang Kieu Nhan,  
and Franke Kraus

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## New challenges for adaptive urban governance in highly dynamic environments: Revisiting planning systems and tools for adaptive and strategic planning

Joem Birkmann \*, Matthias Garschagen, Neysa Setiadi

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ABSTRACT

The paper explores new challenges for adaptive urban and spatial governance in highly dynamic environments. It examines whether or not we have to rethink existing planning systems and tools in the context of climate change, natural hazards and societal transformation, focusing particularly on emerging economies in Asia. Key pressures for urban governance and planning in these countries are explored. Against this background requirements for a more adaptive and strategic planning approach are discussed by examining the discourses about climate change adaptation – including adaptive urban governance – and strategic planning. Compared to earlier papers on urban governance in the context of climate change, this paper aims particularly to provide an entry point for the discussion of the adjustment and modification of specific planning systems and tools. Two case studies are used for a concrete exploration of the gaps and challenges of adaptive urban governance on the ground, considering particularly formal regulatory planning tools. The findings from the case study analysis show

Not Hazards  
DOI 10.1007/s11069-008-9319-2

## Extreme events and disasters: a window of opportunity for change? Analysis of organizational, institutional and political changes, formal and informal responses after mega-disasters

J. Birkmann · P. Buckle · J. Jaeger · M. Pelling · N. Setiadi ·  
M. Garschagen · N. Fernando · J. Krepp

Received: 16 May 2008 / Accepted: 3 November 2008  
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Published online:

## Chapter 13 Urban Climate Change Adaptation in the Context of Transformation: Lessons from Vietnam

Matthias Garschagen and Franke Kraus

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SPECIAL FEATURE: ORIGINAL ARTICLE

Vulnerability, risk, and adaptation  
in a changing climate

## Adaptive urban governance: new challenges for the second generation of urban adaptation strategies to climate change

Jörn Birkmann · Matthias Garschagen ·  
Franke Kraus · Nguyen Quang

Received: 16 Feb  
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Abstract The  
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Not Hazards  
DOI 10.1007/s11069-011-9753-4

ORIGINAL PAPER

## Resilience and organisational institutionalism from a cross-cultural perspective: an exploration based on urban climate change adaptation in Vietnam

Matthias Garschagen

Climate Change  
DOI 10.1007/s10584-013-0812-6

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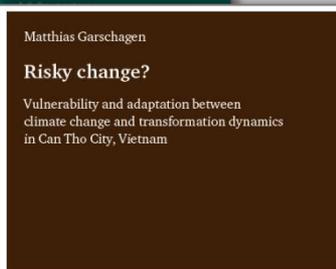
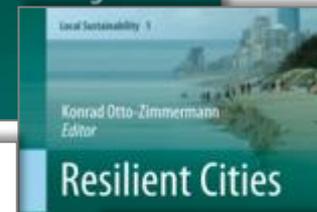
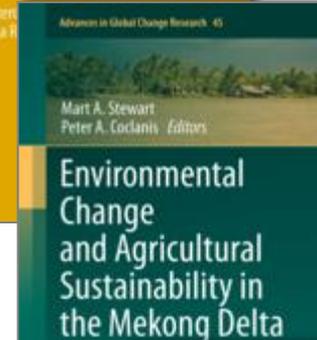
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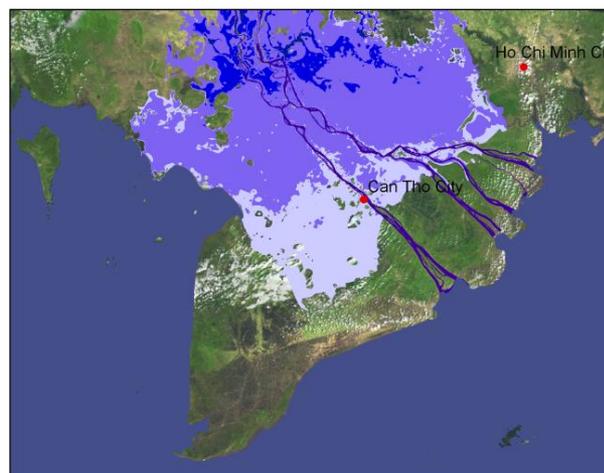
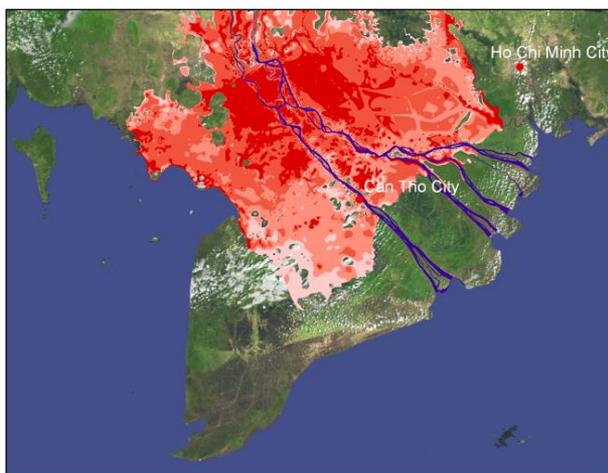
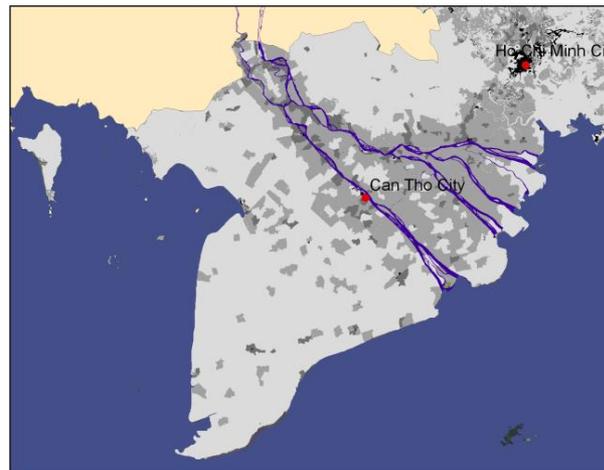
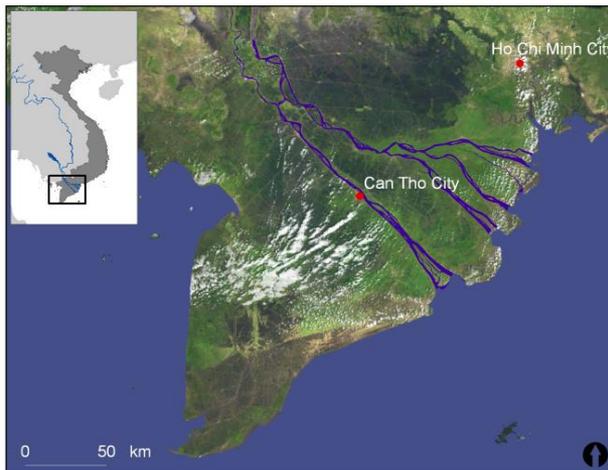
## Exploring the relationships between urbanization trends and climate change vulnerability

Matthias Garschagen · Patricia Romero-Lankao

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Abstract There is increasing scientific and political interest in the links between urbanization and human vulnerability to climate change. However, our literature review shows that the existing scholarship has largely focused on exposure resulting from urbanization, while other dimensions of urban vulnerability such as sensitivity or capacity to cope and adapt have been insufficiently represented or understood. Furthermore, most attention has been given to the negative effects of urbanization, while opportunities for vulnerability reduction have been underemphasized. Therefore, this paper takes a broader perspective to explore key relationships between urbanization, economic development and socio-economic vulnerability on a global scale. Using data with national resolution, we applied a clustering approach to identify ten country groups sharing similar patterns of urbanization and national income. We then explored associations between these country groups and selected indicators of exposure, sensitivity, coping capacity, and adaptive capacity drawing upon data from the World Risk Index. Our findings suggest that countries with rapid urbanization and economic transformation face significant challenges with respect to sensitivity and the lack of capacities. Additionally, these challenges tend to be greater for the lower income of the respective





Population density  
(people per km<sup>2</sup>)

Flood duration\*  
(months in year 2000)

Flood depth\*  
(meters in year 2000)

- 0 - 500
- 501 - 1,200
- 1,201 - 6,000
- > 6,000

- < 1
- 1 - 3
- 3 - 5
- > 5

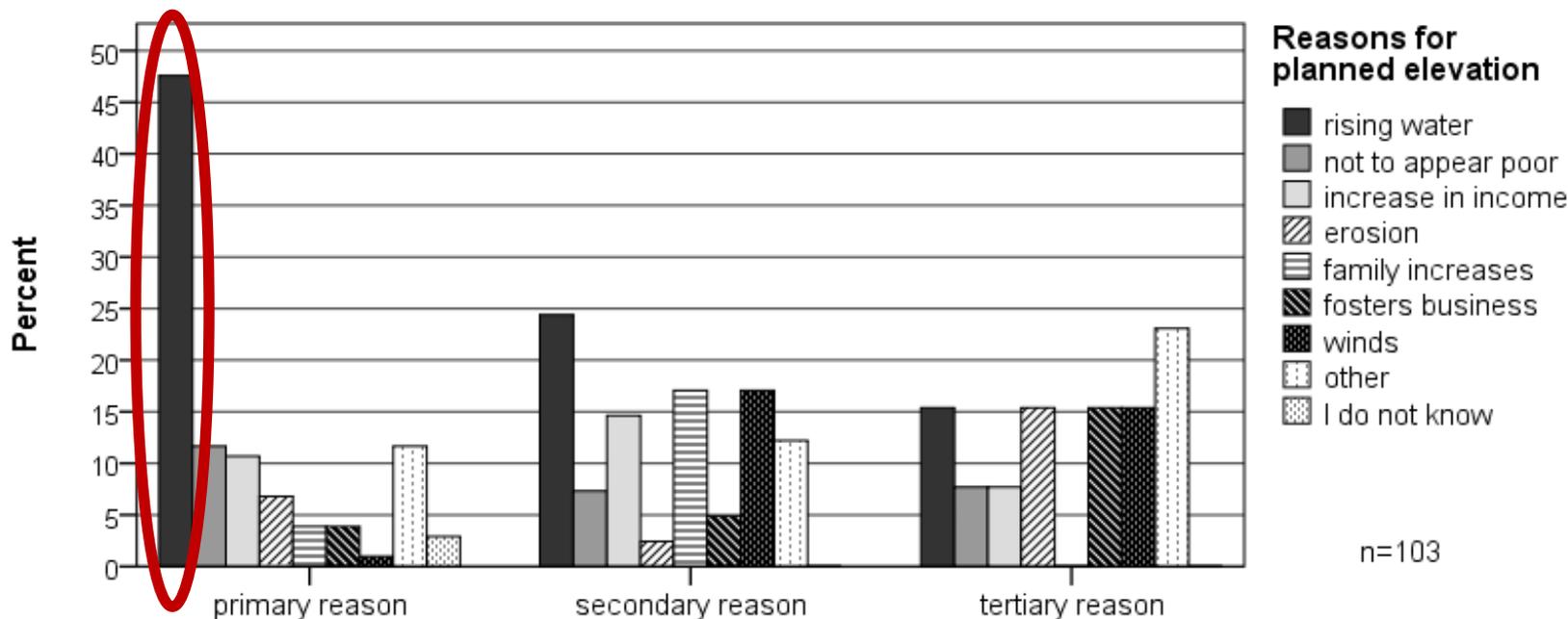
- < 1
- 1 - 2
- 2 - 3
- > 3

Sources and map info:

Satellite data: based Landsat Imagery (USGS)  
 Population data: own classification at the commune/ward level (year 2010)  
 based on population data from the Asia Pop Project (University of Florida)  
 Flood masks represent the flood in the year 2000 and are calculated  
 based on data from the Mekong River Commission  
 UTM Zone 48N, WGS 84;  
 Layout and cartography: M. Garschagen

\* Note that the map represents flooding in the Mekong Delta only. Hence,  
 the Dong Nai River catchment and flooding around HCMC are not considered.

# Reasons for house elevation



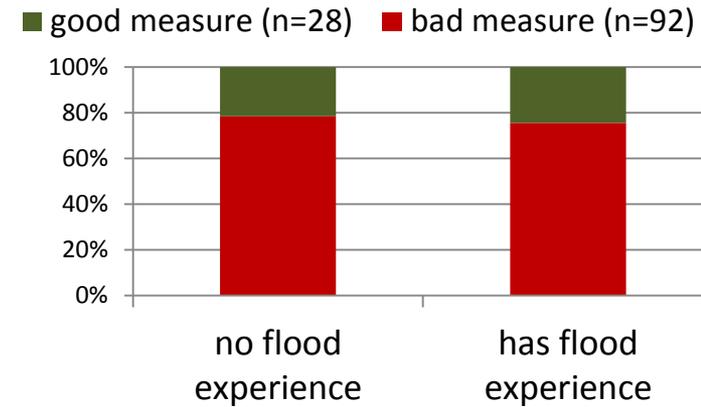
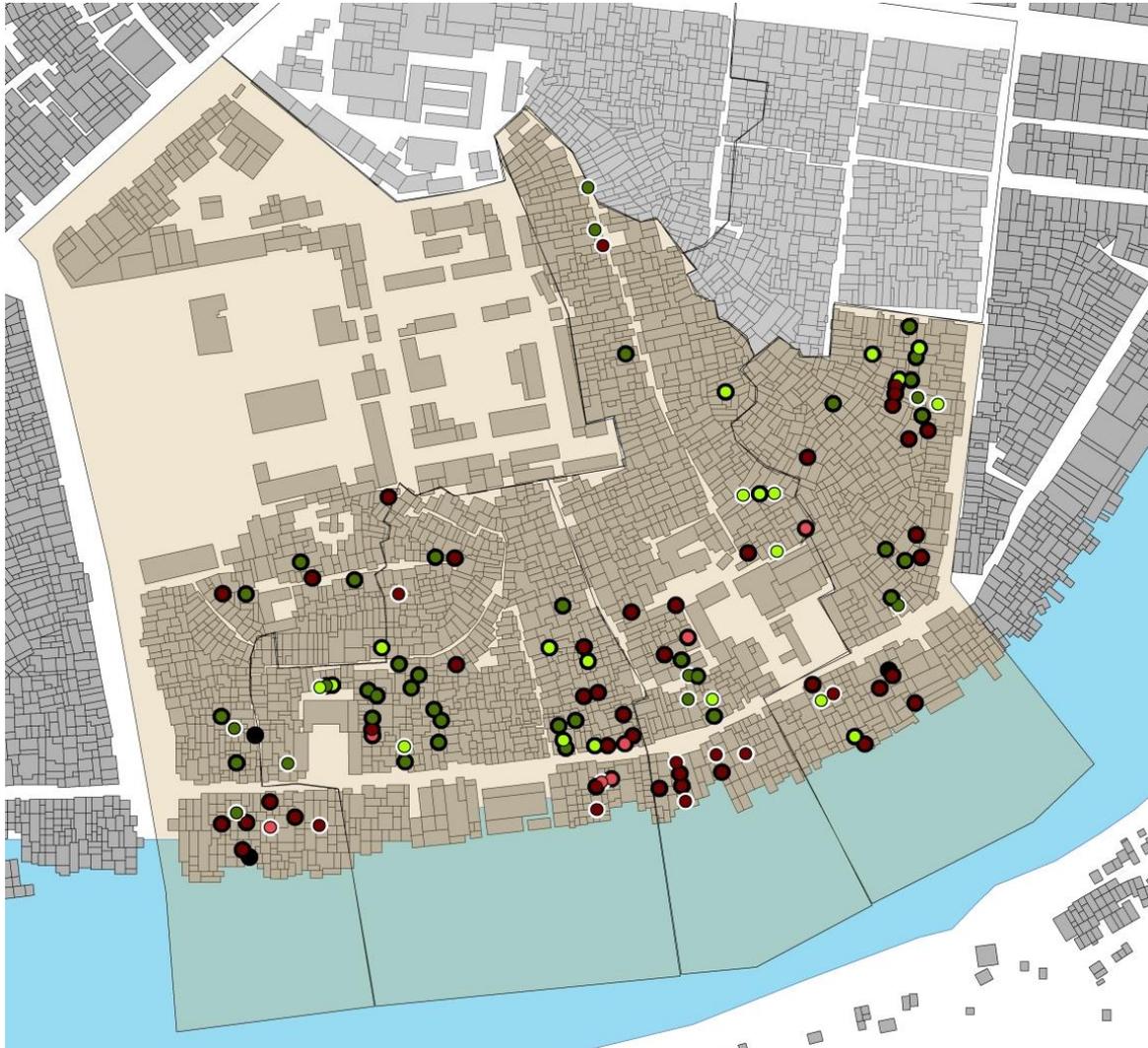
plan to elevate ass. primary reason rising water levels:  $C^*=0.838$  with  $p \leq 0.001$

plan to elevate ass. past flood exposure (regular flooding):  $C^*=0.304$  with  $p \leq 0.001$

plan to elevate ass. household assets or income: not statistically significant

Source: own draft Garschagen, based on household survey data

# Resettlement: evaluation and flood experience



## House flooded

- × no data
- never
- only in past
- in 2011 and past
- first flood 2011

## An Lac hamlets

- not surveyed
- surveyed
- Houses
- River network

## Moving preference

- bad measure
- good measure

Source: own draft Krause, based on household survey data