


# Studying Spatial Plan in Coastal Urban Environment – facing global threat and adapting to local condition

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## Introduction


- Focus on coastal cities
  - Economically strategic, environmentally sensitive
  - Likely to be affected by climate change and local hazard
  - Long term measures are needed to ensure sustainability
  - Pressures from population growth and limited available space create tension on competing use of space
  - Spatial planning is essential for long term decision on multi functional use of space

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## Coastal Urban Environment

Landward activities



Seaward activities

- 14 out of 25 biggest coastal cities located on coastal zone
- High population growth vs. limited space
- Competing use of space


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## Global Threat and Local Natural Hazard


- Global climate change :
  - Change in sea level (rise)
  - Change precipitation pattern
- Local natural hazard:
  - Flooding
  - Land subsidence
  - Storm surge
  - Landslides

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## Disaster Risk Reduction and Spatial Planning (1)


- Disaster risk reduction
  - reduction of **exposures** of element at risk
  - lessened **vulnerability** of people and property
  - better **land management** practices
  - improvement in preparedness



Disaster risk reduction

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## Disaster Risk Reduction and Spatial Planning (2)

- Incorporation of DRR into Spatial Planning:
  - Law and regulation
  - Organizational aspect
  - Data interoperability
  - Platform


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## Disaster Risk Reduction and Spatial Planning (3)

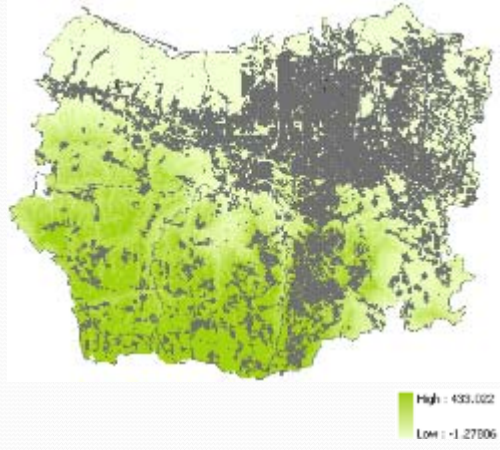
- Role of Spatial Planning in DRR:
  - Restrict development
  - Allocate different land-use setting
  - Legally binding land-use plan or zoning
  - Modify hazards intensity and frequency
- To propose appropriate strategy
  - Need to know how to incorporate
  - What is the current practice

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## Case Study: Semarang City, Indonesia (1)

- Medium size city of 373 km<sup>2</sup>
- Population in 2006 1.4 million
- The hilly areas prone to landslide
- Lowland areas seriously affected by flooding, land subsidence and sea level rise



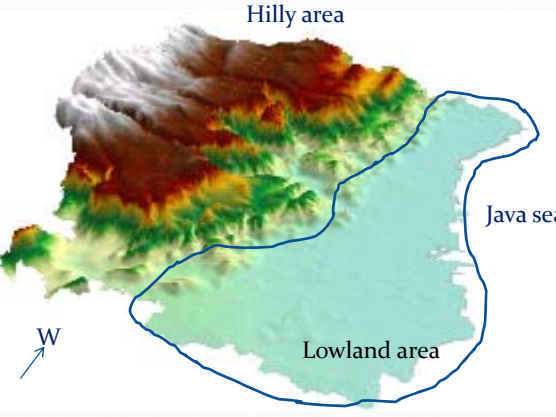
High : 433.022  
Low : -1.27506

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## Case Study: Semarang City, Indonesia (2)

**Hilly area**




Java sea


Lowland area

W

**Impact of disaster**



July 2009



March 2005

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## Case Study: Semarang City, Indonesia (3)

- Spatial planning
  - Developed by private consultant with close supervision from the local government
  - Public participation -> public hearing
  - Consist of general plan (RTRW) and detailed plan (RDTRK)
  - Evaluated every five years
  - Existing: 2000 – 2010 (disaster less visible), will be operational 2010 – 2030 (disaster clearly visible).



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## Case Study: Semarang City, Indonesia (4)

- Natural hazard in the spatial plan:
 

- Three types of natural hazards were listed
  - No hazard maps available

**RTRW/RDTRK 2000-2010**

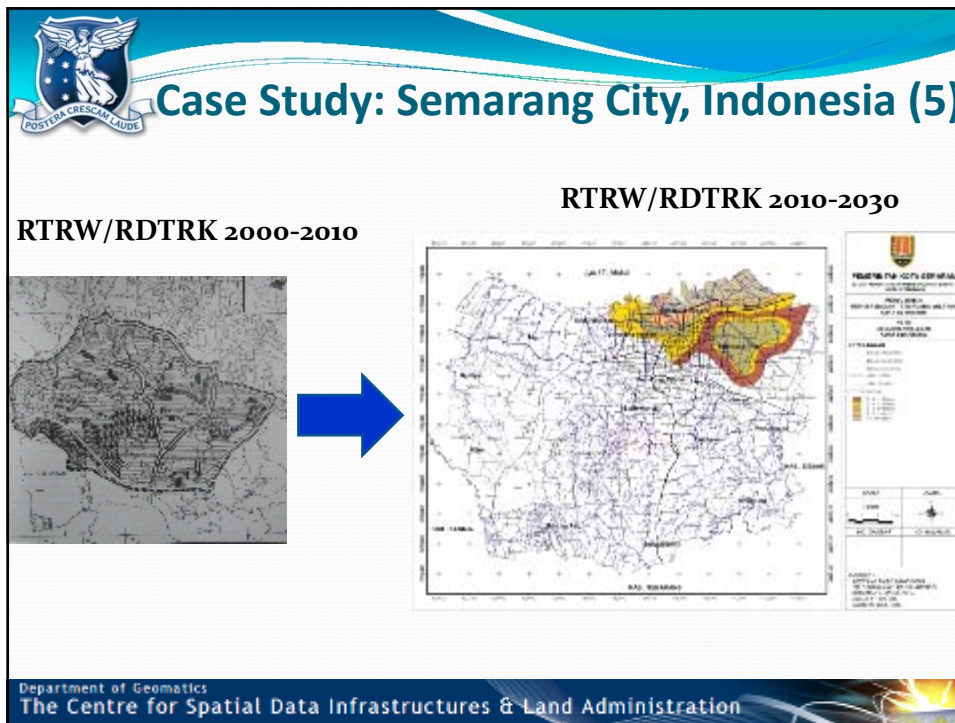
➔

- Five types of natural hazards were listed
  - Hazard maps were available
  - Insertion of two sub-sections on flood control & disaster mitigation
  - Acknowledgement of the severe impact of disaster
  - Restriction on development and hazard modification were presented

**RTRW/RDTRK 2010-2030**

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- Case Study: Semarang City, Indonesia (6)**
- The city of Semarang has made considerable progresses in addressing natural hazards
  - The obvious impact of disaster has contributed to the incorporation
  - Guidelines and directives from law and regulation from central government are indispensable
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## Conclusion (1)

- Coastal cities are facing increasing events of natural disaster, thus disaster risk reduction effort are urgently needed
- Global threat and local hazard should all be taken into account appropriately in long term basis
- Law and regulation, from central government, are needed to provide directive to local government to incorporate disaster risk reduction into spatial planning



## Conclusion (2)

- The first step of incorporation is acknowledgement of the related hazard in the area
- It the followed by assigning appropriate measures in spatial planning domain
- The case study area, Semarang city – Indonesia, has shown some considerable progresses in incorporating disaster risk reduction into spatial planning, despite some deficiencies



