Selamat datang!

- Partnership IVM-VU and UGM
- Flood risk management
- Flood risk: concepts
- Research questions
- Flood risk modelling
- Flood risk reduction: examples
**Partnership IVM-VU and UGM**

- CDC: network of delta cities active in the field of climate change adaptation
  - CDC movie and 2 books

- ITB-IVM Symposium Flood Risk in Jakarta (Nov 2008)

- Jakarta Climate Adaptation Tools –definition phase
  - Prototype flood damage for northern Jakarta
  - Presentations at international conferences (Rotterdam; Hong Kong)
  - Scientific papers in *Natural Hazards* and *Public Administration and Development*
  - Book chapter on flood risk in Jakarta

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**Flood risk management**

- Major flooding is not new
- Neither is flood management...

![Netherlands, 1855](image1.png)

![Jakarta 1652](image2.png)

![Hong Kong: 1880s](image3.png)
Flood risk management

- But increasing recognition of need to address both causes AND consequences...

  → Flood risk management

Jakarta

Queensland, Australia, 2011

Pakistan, 2010

Flood risk: concepts

Risk-hazard framework (based on Kron, 2005)

- Exposure: the buildings/items/humans present at the location involved
- Hazard: the threatening natural event including its probability
- Vulnerability: lack of resistance to damaging or destructive forces
Draft research questions

1. Physical and socioeconomic factors affecting flood risk in Jakarta?
2. Sensitivity of flood risk to those factors?
3. How to assess spatiotemporal changes in flood risk?
4. Future flood risk in Jakarta?
5. Most effective adaptation strategies for reducing flood risk in Jakarta?

Flood risk modelling – Rhine example (1)

Land-use projections (EXPOSURE)  Damage maps per scenario

Inundation Map (HAZARD)  Stage-damage functions (VULNERABILITY)
Flood risk modelling – Rhine example (2)

Flood risk adaptation strategies

EXPOSURE

HAZARD

VULNERABILITY

Damage maps per scenario
Flood risk reduction: examples

Flood risk reduction: examples
Flood risk reduction: examples

Mean inundation depth at residential locations

Damage reduction (%) due to dry flood proofing (DFP)

Terima kasih!

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