TOWARDS A NEW URBAN AGENDA
Urbanisation and flood risks

Image: T. Loster/ Münchener Rück Stiftung
Urbanisation and Flood risks

Three case studies
- Natural condition
- Urban growth
- Flood risk
- Informal settlement

Understanding the urban fabric

Constituting new partnerships

Discussion

HCMC

Beira

Barranquilla

Dhaka

Jakarta*

Manilla

* Data limitations

* Data limitations

Source: EU-JRC Global Human Settlement Layer
Urbanisation and Flood risks

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- HCMC
- Beira
- Barranquilla

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Constituting new partnerships

HCMC
- 2015: 7,3 million
- Growth: 58% (1990 – 2015)

Beira
- 2015: 0,45 million
- Growth: 30% (1990 – 2015)

Barranquilla
- 2015: 2,0 million
- Growth: 38% (1990 – 2015)

Dhaka
- 2015: 8,5 million
- Growth: 57% (1990 – 2015)

Jakarta*
- 2015: 10,1 million
- Growth: 19% (1990 – 2015)

Manilla
- 2015: 1,8 million
- Growth: 10% (1990 – 2015)

Data: EU-JRC Global Human Settlement Layer
* Data limitations
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Populations:

- **HCMC**: 2015: 7.3 million, Growth: 58% (1990–2015)
- **Beira**: 2015: 0.45 million, Growth: 30% (1990–2015)
- **Barranquilla**: 2015: 2.0 million, Growth: 38% (1990–2015)
- **Manilla** (Metro Manilla): 2015: 12.9 million, Growth 38% (1990–2015)

*Data limitations*

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Information sourced from EU-JRC Global Human Settlement Layer.
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Dhaka
Jakarta*
Manilla

Data: EU-JRC Global Human Settlement Layer, Deltares Flood risk modelling

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Urbanisation and flood risks
understanding the urban fabric and constituting new partnerships
Urbanisation and flood risks

Three case studies
Three case studies

**Barranquilla, Colombia**
- Around 1.2 million inhabitants
- Pop. density: 7,000 people/km²

**Beira, Mozambique**
- Around 600,000 inhabitants
- Pop. density: 690 people/km²

**Ho Chi Minh City, Vietnam**
- Around 8 to 10 million inhabitants
- Pop. density: 3,800 people/km²
Natural condition

HCM City  Beira  Barranquilla

Legenda naar onderen?
Urban growth

Population

Indexed population

Density

(1950 = 100)

thousand inhabitants per km²

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pbl.nl
Urban growth

HCM City  Beira  Barranquilla

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Natural condition

Urban growth

Flood risk

Informal settlements

HCM City

Beira

Barranquilla
Informal settlements

- HCM City
- Beira
- Barranquilla

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- Understanding the urban fabric
  - HCMC

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Informal settlements

HCM City
Beira
Barranquilla
Understanding the Urban Fabric
Ho Chi Minh City, Vietnam
Looking at two neighbourhoods

- Thu Duc: unplanned growth
- Sunrise City: planned growth
Looking at two neighbourhoods

The Duc: unplanned growth

Sunrise City: planned growth

Informal settlement

Formal settlement

HCMC

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Thu Duc: plot and dwelling types

Along land roads

Along alleyways

In river beds
Thu Duc: growth patterns

Built-up area 2004
Thu Duc: growth patterns

Built-up area 2004

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Thu Duc: growth patterns

Built-up area 2005
Thu Duc: growth patterns

Built-up area 2010
Thu Duc: growth patterns

Built-up area 2011

Thu Duc neighbourhood, HCM City

Informal settlement

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Thu Duc: growth patterns

Built-up area 2013
Thu Duc: growth patterns

Built-up area 2014
Thu Duc: living standards

Built-up area 2015
Thu Duc: spatial relations
Thu Duc: urbanization drivers

- Thu Duc
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- Discussion

Diagram:

- Thu Duc
- Local commerce
- Local investors
- Urban infrastructure authorities
- Regional green authorities
- Local communities
- Urban water authorities

Informal settlement
Sunrise City: plot and dwelling types

Main road

Residential areas

District roads

Urbanisation and Flood risks

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Sunrise City: growth patterns

Built-up area 2003
Sunrise City: growth patterns

Built-up area 2006
Sunrise City: growth patterns
Sunrise City: growth patterns

Built-up area 2009

Formal settlement

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Sunrise City: growth patterns

Built-up area 2012

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Sunrise City: growth patterns

Built-up area 2014
Sunrise City: living standards

Built-up area 2015

High class

HCM City
Income
Life expectancy
Education

Formal settlement

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Sunrise City: spatial relations

Sunrise City

Local economy

Formal occupation patterns

Informal occupation patterns

Formal, hard, artificial infrastructure

Informal, soft, natural infrastructure

Local natural system

Formal settlement

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Sunrise City: urbanisation drivers

- local and outside commerce
- local communities
- urban water authorities
- regional green authorities
- outside investors
- urban infrastructure authorities

Formal settlement

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Unraveling the urban fabric: the hexagon model

Thu Duc

- formal occupation patterns
- formal, hard, artificial infrastructure
- local natural system
- informal, soft, natural infrastructure
- local economy

Sunrise City

- formal occupation patterns
- formal, hard, artificial infrastructure
- local natural system
- informal, soft, natural infrastructure
- local economy
Different interdependencies
Different interdependencies

From trade-off to synergy
Discussion topic

What are in your case positive and negative interdependencies between planned/formal and unplanned/informal urbanization?
Urbanisation and flood risks

Constituting new partnerships
Governance DNA settlements

HCM City

Belra

Barranquilla

Judicial capacity
Strategic/long term
Authorities in place
Transparency
Participation
Monitoring
Environmental Assessment
Executive capacity
Strategic/long term
Authorities in place
Transparency
Participation
Monitoring
Environmental Assessment
Financial capacity
Public investments
ODA (official development assistance)
Foreign investments
Domestic investments
Local investments

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Governance DNA infrastructure

HCM City

Beira

Barranquilla

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Green infrastructure
Grey infrastructure

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Building capacities ...

Fostering Sustainable Urbanization

Creating flood resilient urban areas are well thought, planned, and constructed to contribute to sustainable outcomes. The density of such housing is given to the urban fabric. The ideal density achievement is higher in compact, highly urbanized cities with high biodiversity and natural resources. The urbanization needs to reduce the number of vehicle trips to water bodies or other essential services (Carter, 2015). However, urban planners and developers should focus on creating safe and accessible environments for all. One of the options is to coordinate with the local government, local authorities, and public transportation. The density design should be such that it promotes sustainable urban environments.

Safety thanks to barrier-free reconstruction

After the earthquake early in 2010, Haiti had the opportunity to carry out not only a quakeproof but also a barrier-free reconstruction enabling persons with disabilities, restricted mobility or other physical impairment an optimum of independence and freedom particularly in access to their living areas and public institutions.

.... by using interventions

Safety thanks to barrier-free reconstruction

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Cities as agents of change ...
.... by constituting new partnerships
Discussion topic

Do you have examples of local projects who strive for a more inclusive or green approach?