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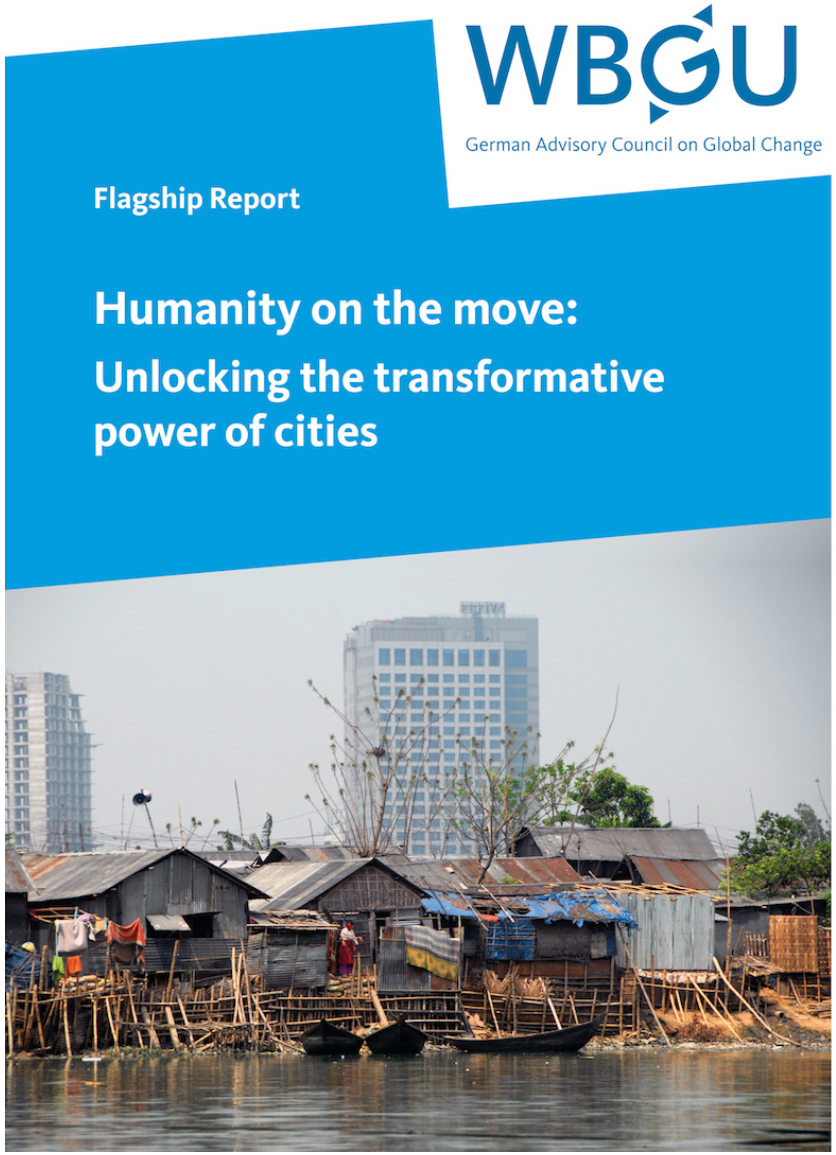
German Advisory Council on Global Change

Humanity on the move – Unlocking the transformative power of cities

Inge Paulini, WBGU, Secretary-General

European Resources Forum, Berlin, 10 November 2016



25 April 2016:

Report submitted to the German Government

Contribution to Habitat III, October 2016

WBGU

1) WBGU report 2011: „A Social Contract for Sustainability”

Great transformation towards sustainable development.

Three main transformation fields

- Energy
- **Urbanisation**
- Land-use

2) 2030 Agenda

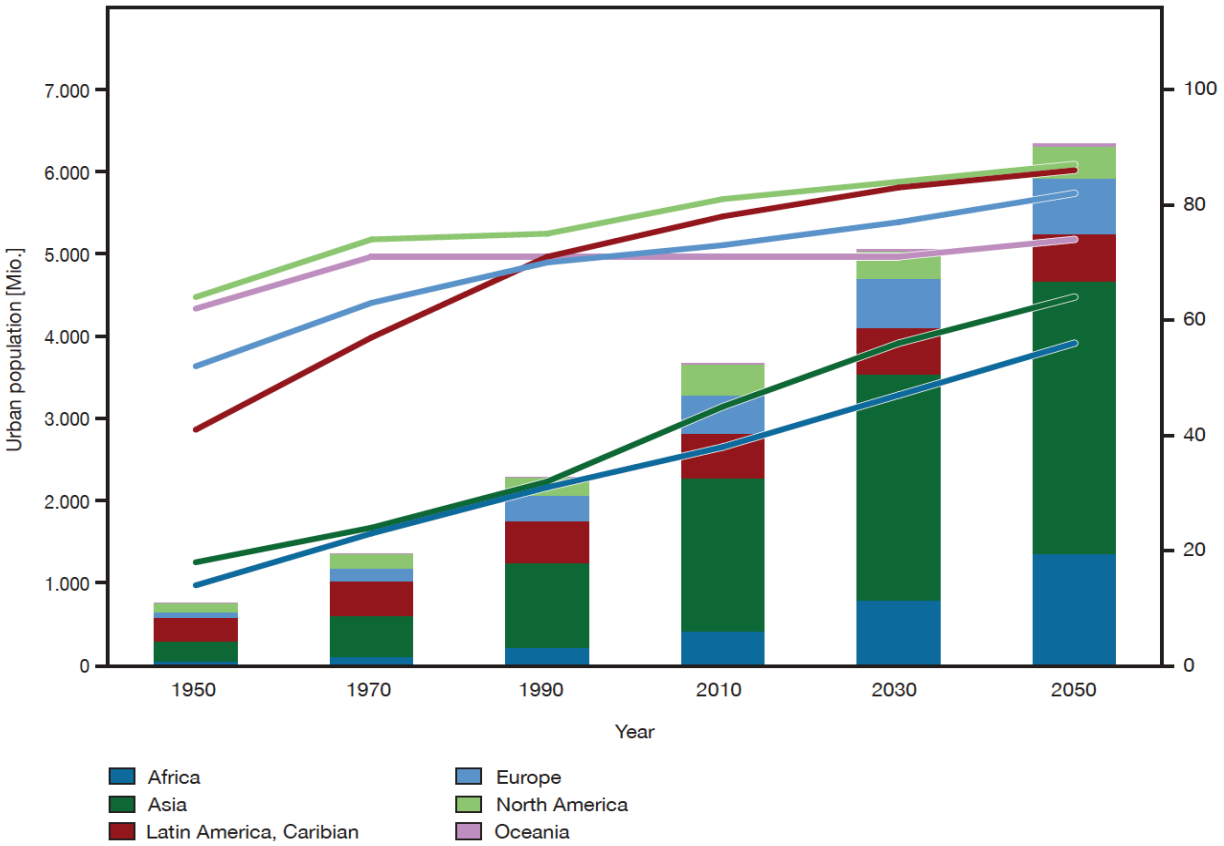
3) Paris Climate Agreement

21st century: The century of the cities

Growth of urban population

- Global urban population by 2050: 6.5–7 billion = 2/3 of global population
- Demographic growth within cities, rural-urban migration and population growth

Urban population and degree of urbanization in different continents



Surge of urbanization:

mainly in Asia and Africa

(dark blue + green)

Source: WBGU, Data: UN 2015

Urbanisation surge: Challenges (1)

- **New** urban settlements for ~2.5 billion people until 2050
- Basic infrastructure and **adequate** living conditions for todays 850 million slum dwellers
- **Modernize** existing cities in a sustainable way

Environmental impact and resource demand: Challenges (2)

- approx. same amount of infrastructure needed as built since 1850
- using conventional technologies / materials:
  construction would cause 350 Gt CO_2 emissions
  CO_2 budget from 2011: 400 Gt for 1.5° C,1.000 Gt for 2° C)
- China: more cement used in 3 years (2008–2010)
  than during entire 20th century in the USA

→ More than US$ 50 Trillion needed to finance sustainable cities

Poverty, sozio-economic disparities: Challenges (3)

Lack of basic services

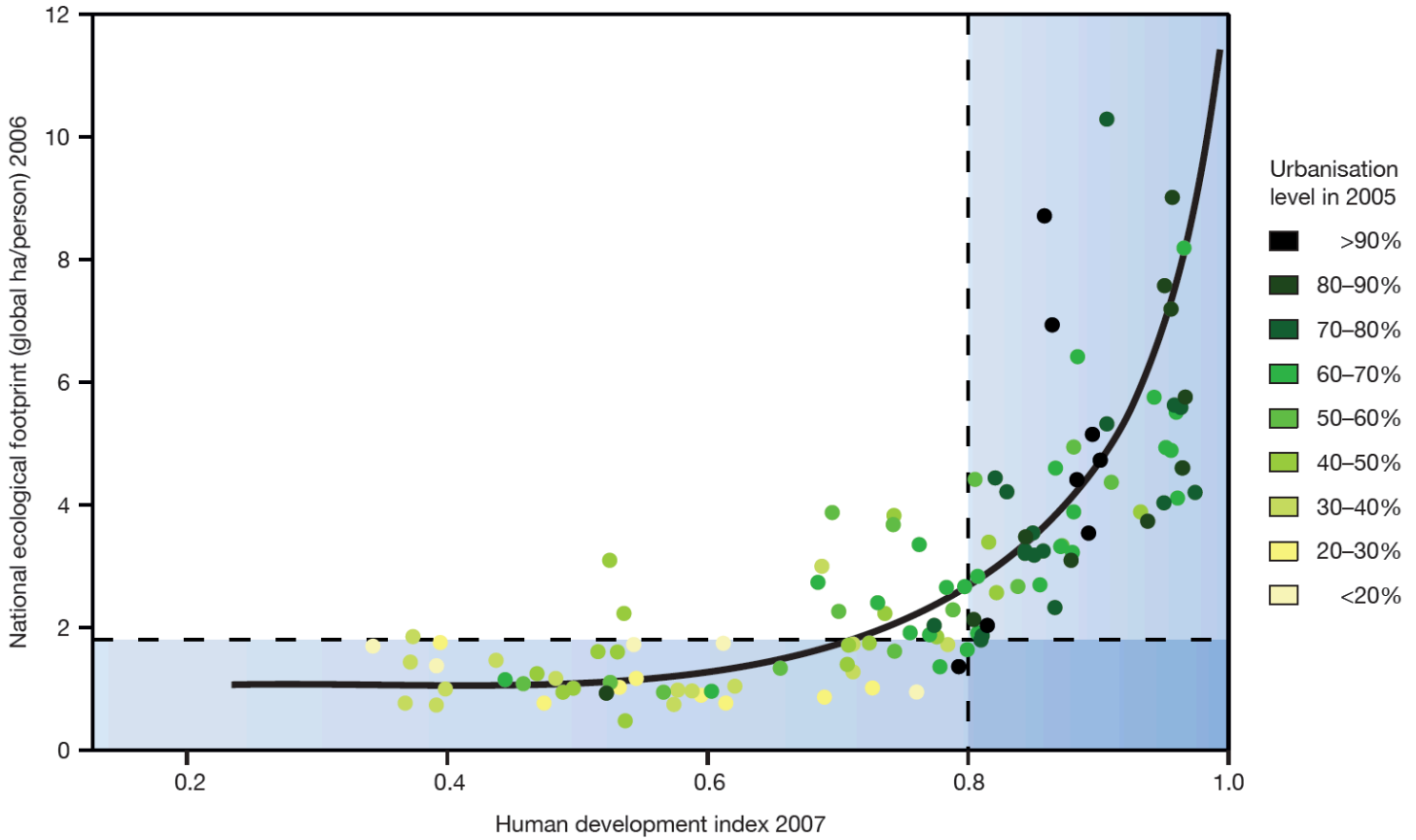
- 750 Mio. have no access to adequate sanitation
- 150 Mio. no access to save freshwater resources

Disparities

- Particularly high in cities: Increasing in Eastern Europe and Southeast Asia. High level in South America, Africa and Middle East.

It will be decided in cities if global sustainable development, goals of Paris Agreement and SDGs can be achieved !

Ecological footprint and urban development



→ also wealthy OECD societies must accelerate the transformation

Source: UNEP (2011)

Global studies on urbanization

- **Large consensus on urban challenges**

  e.g. housing conditions, poverty, disparities; infrastructure, transport/mobility; climate-energy-ressource-efficiency; planning, finance-urban governance.

- **Differences in problem-solving approaches**

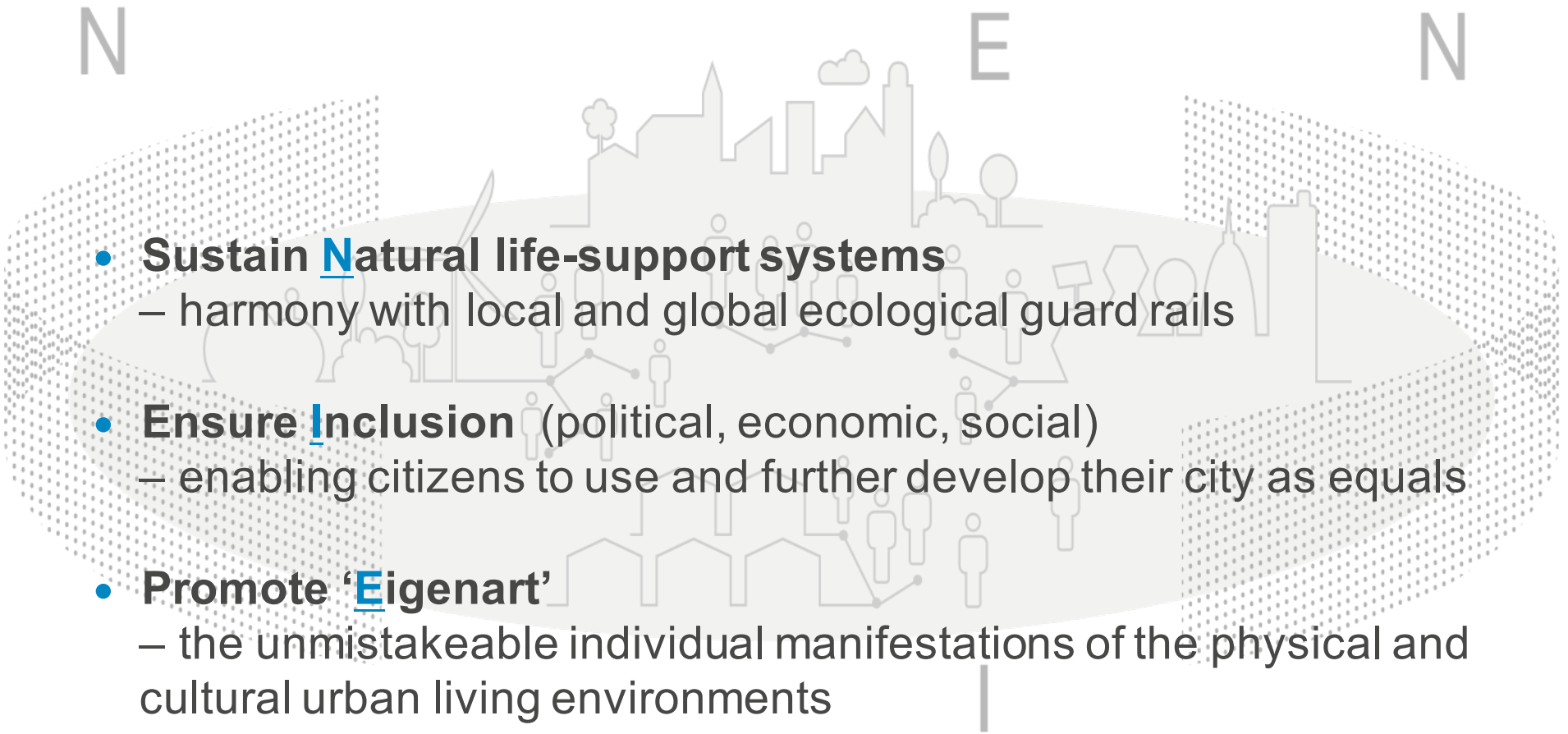
  e.g. technical-infrastructural; empowerment, inclusion, basic services; investment needs, economic perspective; urban governance.

→ Most solutions are there, **need for focused approaches**

→ But mostly **no long-term transformative perspective**

→ Need to **identify transformative action fields**

Normative compass:
A social contract for the urban transformation



- **Sustain Natural life-support systems**
  – harmony with local and global ecological guard rails
- **Ensure Inclusion** (political, economic, social)
  – enabling citizens to use and further develop their city as equals
- **Promote 'Eigenart'**
  – the unmistakeable individual manifestations of the physical and cultural urban living environments

Source: WBGU

Eigenart: Diversity of cities, well-being, social cohesion, creativity and innovation

Oval Maidan Park: Mumbai, India

Library: Copenhagen, Denmark

CSD: Copenhagen, Denmark

Space & well-being
Public space, green space, aesthetics

Urban form & social cohesion
Identity, social networks, neighborhood, security, trust

Creativity & people
density of communication, connectivity, unique networks, innovation

Source: Flickr / WBGU

Transformative action fields

= areas of urban development with biggest potential leverage effects for the urban transformation towards sustainability.

1. Decarbonization, energy and climate change
2. Mobility and transport
3. Urban land use
4. Urban form
5. Climate change adaptation
6. Poverty reduction / socio-economic disparities
7. **Materials and material flows**
8. Urban health

Needed: knowledge, technology, governance, power, finance, capacity (building) **and integrated thinking / strategies / action**

Transformative action field

Materials and material flows

- Establish as complete a circular economy as possible in this century
- Substitute toxic or pollutant substances
- Ensure recovery of non-renewable resources

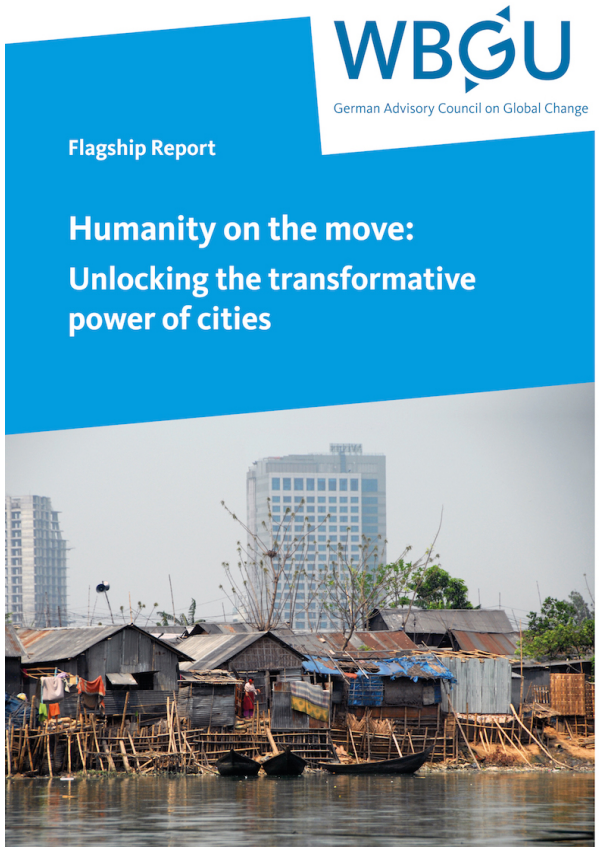
Examples:

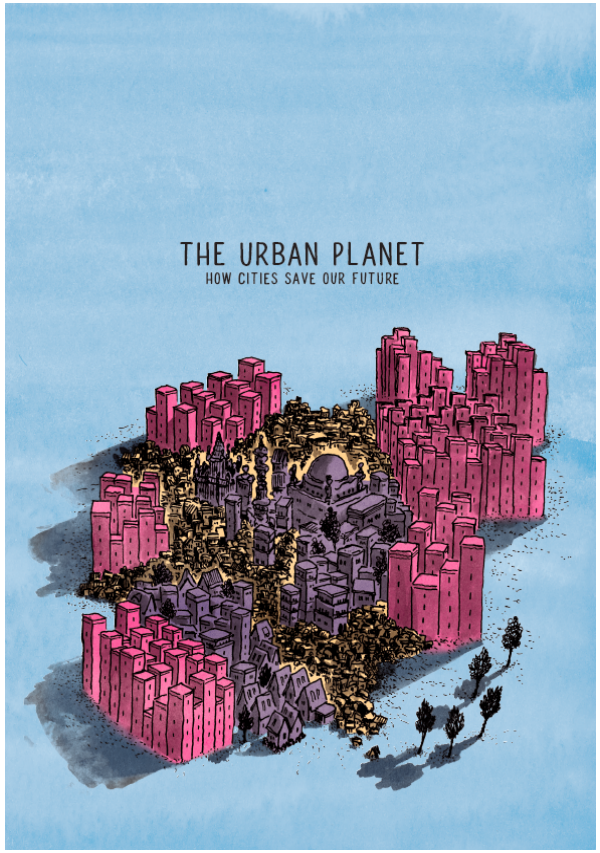
- Replace CO_2-emissions-intensive building materials (e.g. reinforced concrete) with low-carbon alternatives
- Stop the loss of phosphorus
- Organize sustainable recycling systems for electronic waste
- Promote product durability and reparability (e.g. resource taxation)
- Promote responsible management of waste and recycling and stem illegal waste trade (Basel Convention)
- Promote modular building and design methods, including making structures easy to dismantle or recycle, above all low-carbon building materials (building regulations)
- Manage materials and material flows sustainably in public procurement and works contracts

* Limits to the damage that our natural life-support systems can withstand

* Sustainable Development Goals: In 2015 the international community agreed on 17 global sustainability goals to be achieved by 2030.

* Transformation: processes of far-reaching societal and technological change, such as the energy transition ('Energiewende') as a prerequisite for sustainable development.





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Thank you !