



AMSTERDAM INSTITUTE FOR
ADVANCED METROPOLITAN SOLUTIONS

AMS Institute

Masterclass

Circularity

Amsterdam Institute for Advanced Metropolitan Solutions

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Virpi Heybroek

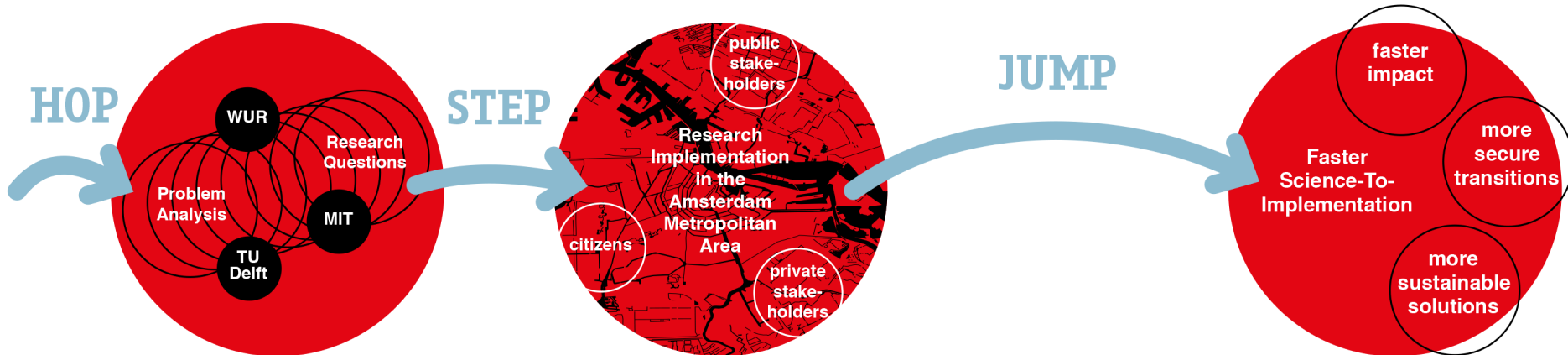
08 juni 2018



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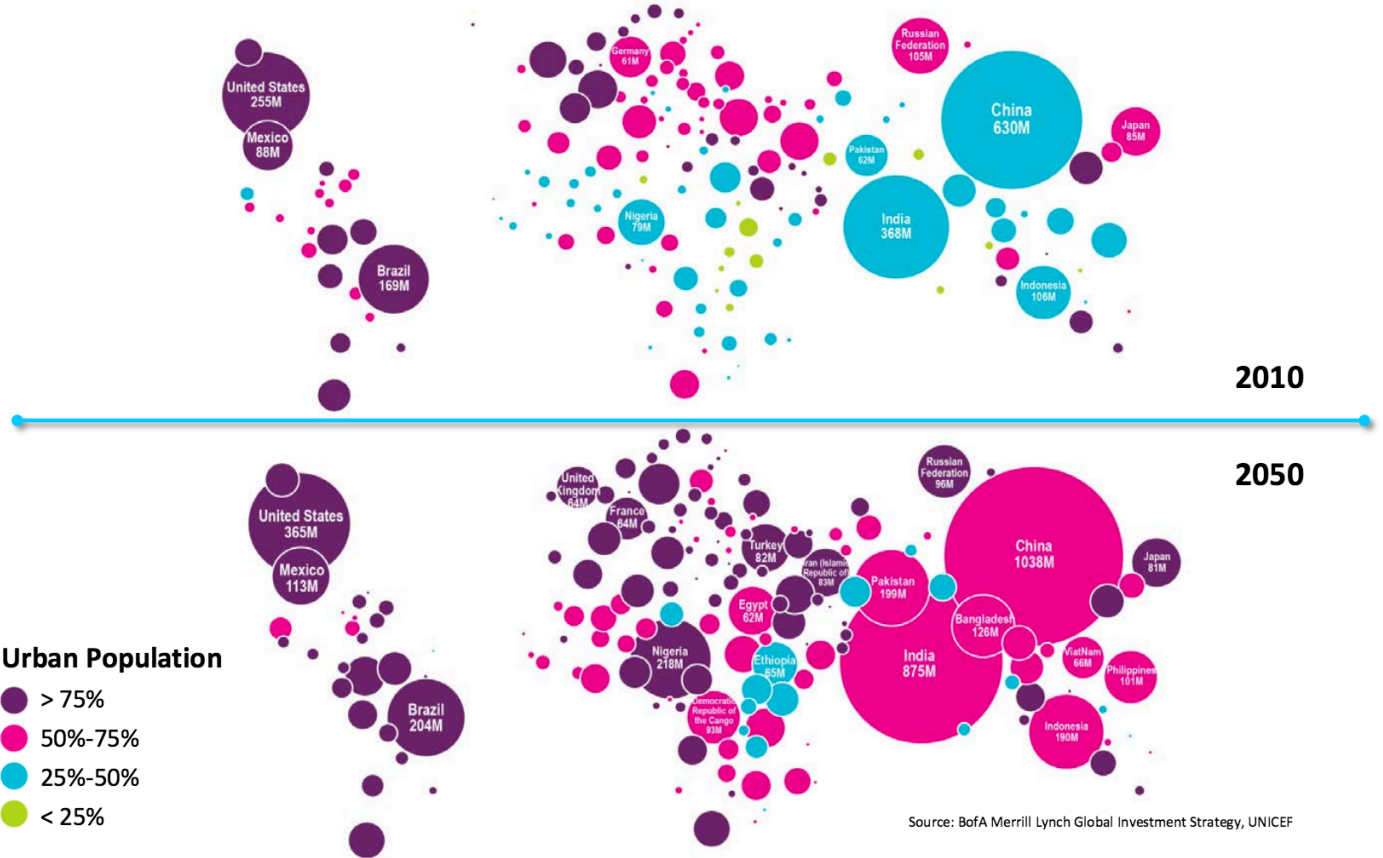
HOW WE WORK

AMS Institute is positioned at a unique crossroad between fundamental sciences and the society-wide application of truly innovative solutions for metropolitan challenges. Bringing together the brightest minds in the field, our innovations have a state of the art research core and are tested and demonstrated in pilot projects and experiments throughout the city of Amsterdam. Moreover, all innovations are developed and tested together with local, national and international private and public partners, citizens and its future users.

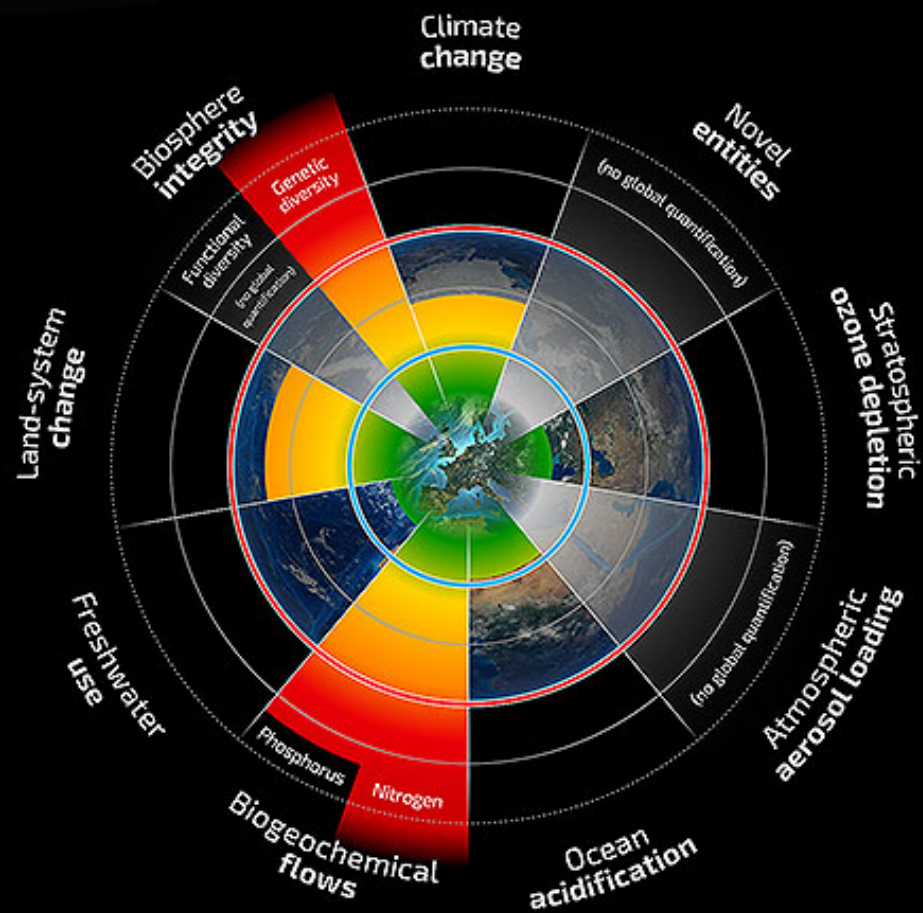


Urbanization

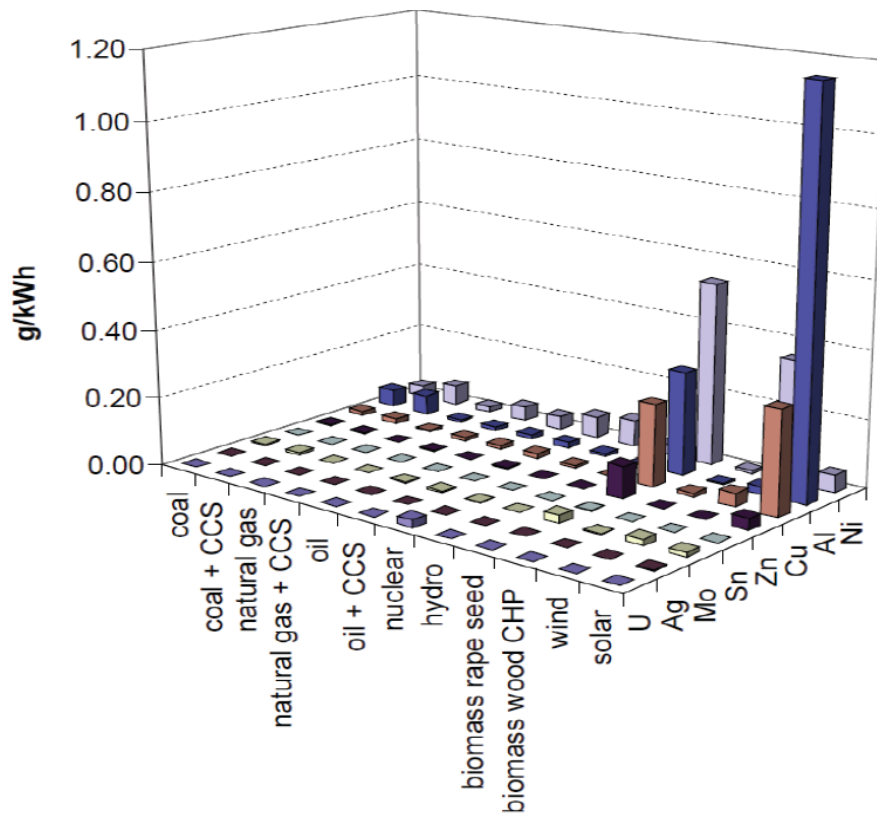
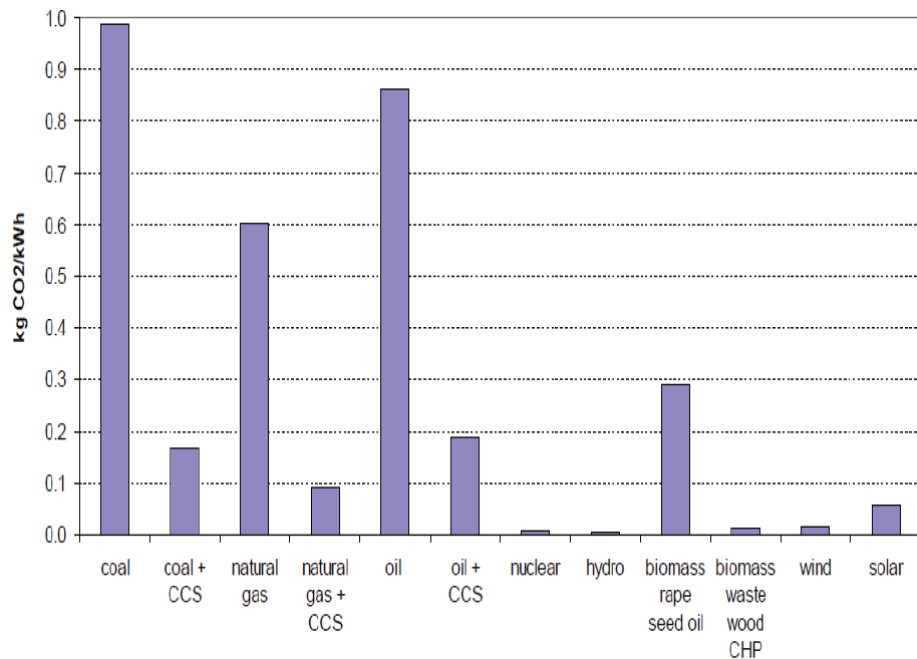
Urban population by country in 2010 and 2050



- In the next 10 years, the world's largest 600 cities will comprise nearly 65% of global growth.
- The countries with the greatest urban populations in 2050 will be China (1bn), India (875mn), US (365mn) and Nigeria (218mn).
- Urbanization has huge investment implications for infrastructure in the next [3-4 decades](#).



CIRCULAR CITIES & SYSTEMS THINKING



LINEAR ECONOMY

TAKE > MAKE > DISPOSE



WASTE

TECHNICAL & BIOLOGICAL
NUTRIENTS ALL MIXED UP



SOMETHING USEFUL

CIRCULAR ECONOMY

TECHNICAL
NUTRIENTS

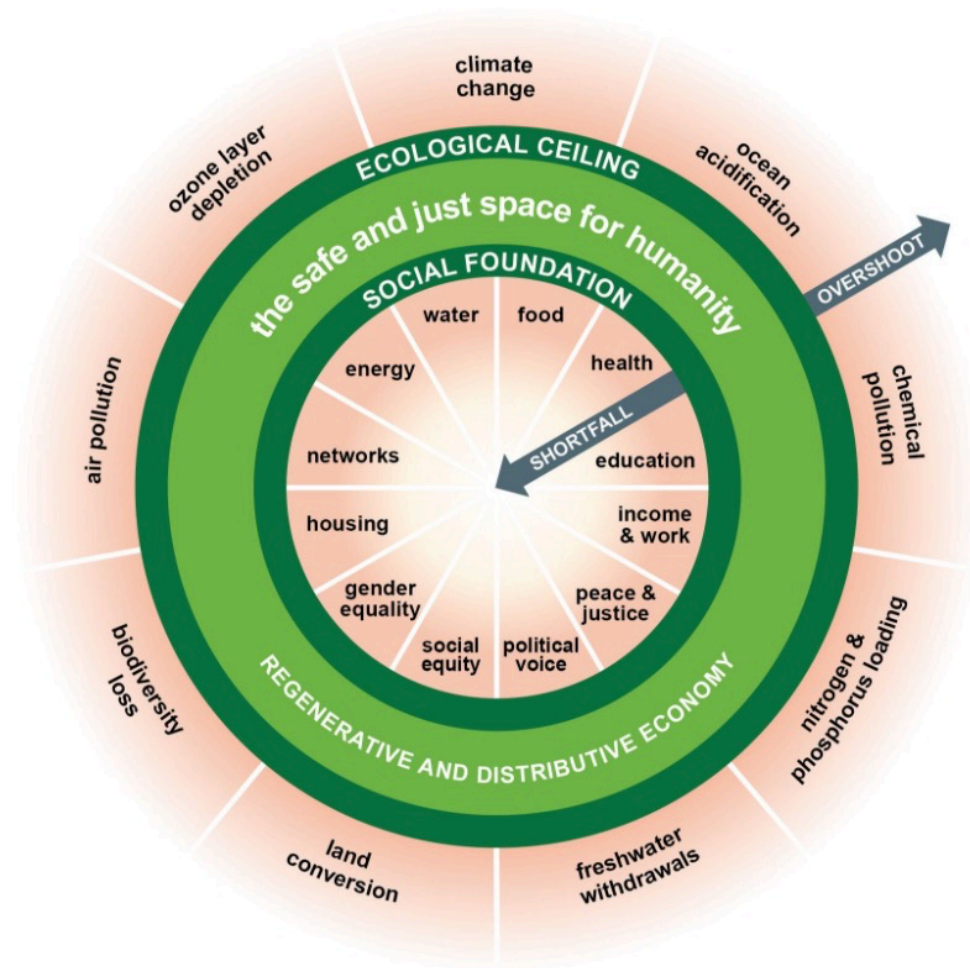
BIOLOGICAL
NUTRIENTS



LIVING SYSTEMS

AFTER W McDONOUGH AND M BRAUNGART

The Doughnut of social and planetary boundaries (2017)



Kate Raworth

Circular City

Circularity in Urban Regions

Circularity means **rethinking the resource flows** (materials, water, nutrients, energy, clean air) that **drive urban activities**, whilst establishing **integral sustainable urban ecosystems**, supported by a new, **resilient economic model**.

CIRCULAR CITY

Topic 1: Materials & Buildings

- 1.a **Building Design**
- 1.b **Local material management**
- 1.c Urban mining & material reprocessing

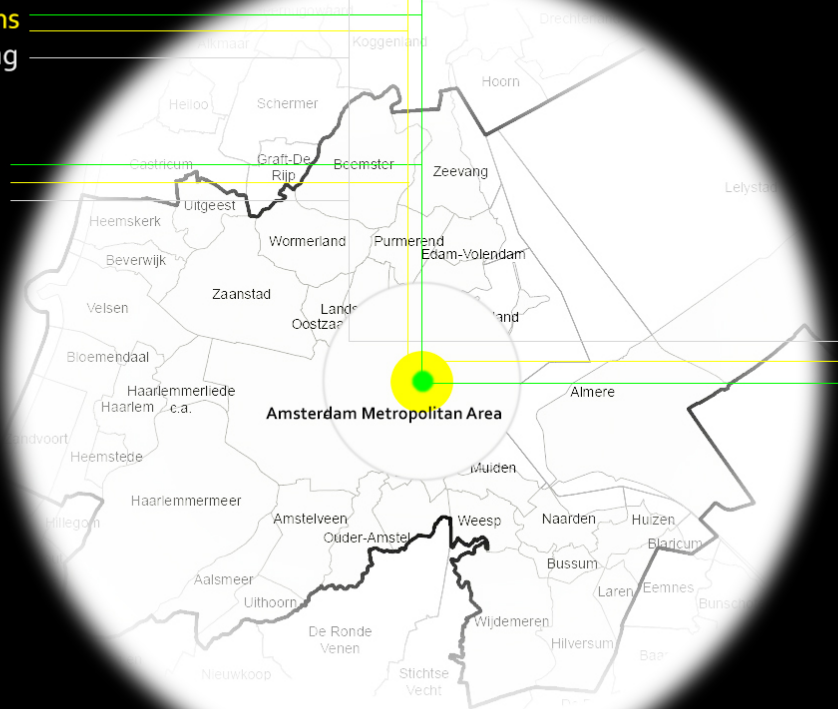
Topic 2: Nutrient recovery

- 2.a **Small scale wastewater systems**
- 2.b Large scale end-of-pipe refining

Topic 3: Urban Energy Systems

- 3.a Decentralized grids for energy production, exchange & storage

AMS Institute Circular City Research Program SYSTEMS THINKING & CIRCULAR CITIES Themes & Scales



VITAL CITY

Related topics: Urban Food,
Healthy urban living

CONNECTED CITY

Related topics: Urban Sensing,
Data & Intelligence



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Circular City

Circularity in Urban Regions

How?

SPREKERS:

1. Ontwerpen aan de circulaire stad

Marleen Buizer, docent landschap architectuur en planning

2. Opstarten en in stand houden van het proces

Ellen van Bueren, Hoogleraar Urban Development Management TU Delft

3. Rekenen aan een circulaire stad

Tamara Streefland, sustainability consultant bij Metabolic

WASTE 2 RESOURCE & SPATIAL QUALITY

Resource management in Peri urba Areas (REPAiR) – TU Delft & ca. 20 partners







Closing the loop for plastic waste flows

3D Printing in the Circular City

Partners: TU Delft, AEB, Aectual, Gemeente Amsterdam,
The New Raw

Extra keukenmodule
Te kiezen door huurder

PLUG+PLAY!

Dockingstation

Basis keukenmodule

TECHNICAL, INDUSTRIAL &
BUSINESS MODELS

Circular Kitchen

Partners: Bribus, AkzoNobel, Dickzwager groep,
Feenstra, Eigen Haard
Research lead: TU Delft

**TERUG
FABRIEK**

