HCU HafenCity Universität Hamburg
Universität für Baukunst und Metropolenentwicklung
Fachgebiet Stadtplanung und Regionalentwicklung

Circular City oder Regenerative City

Internationale Ansätze stadtregionaler Kreislaufwirtschaft in Stadtplanung und Abfallwirtschaft

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Stadtreinigung Hamburg & TU HH

Jörg Knieling, HafenCity Universität Hamburg

Gliederung

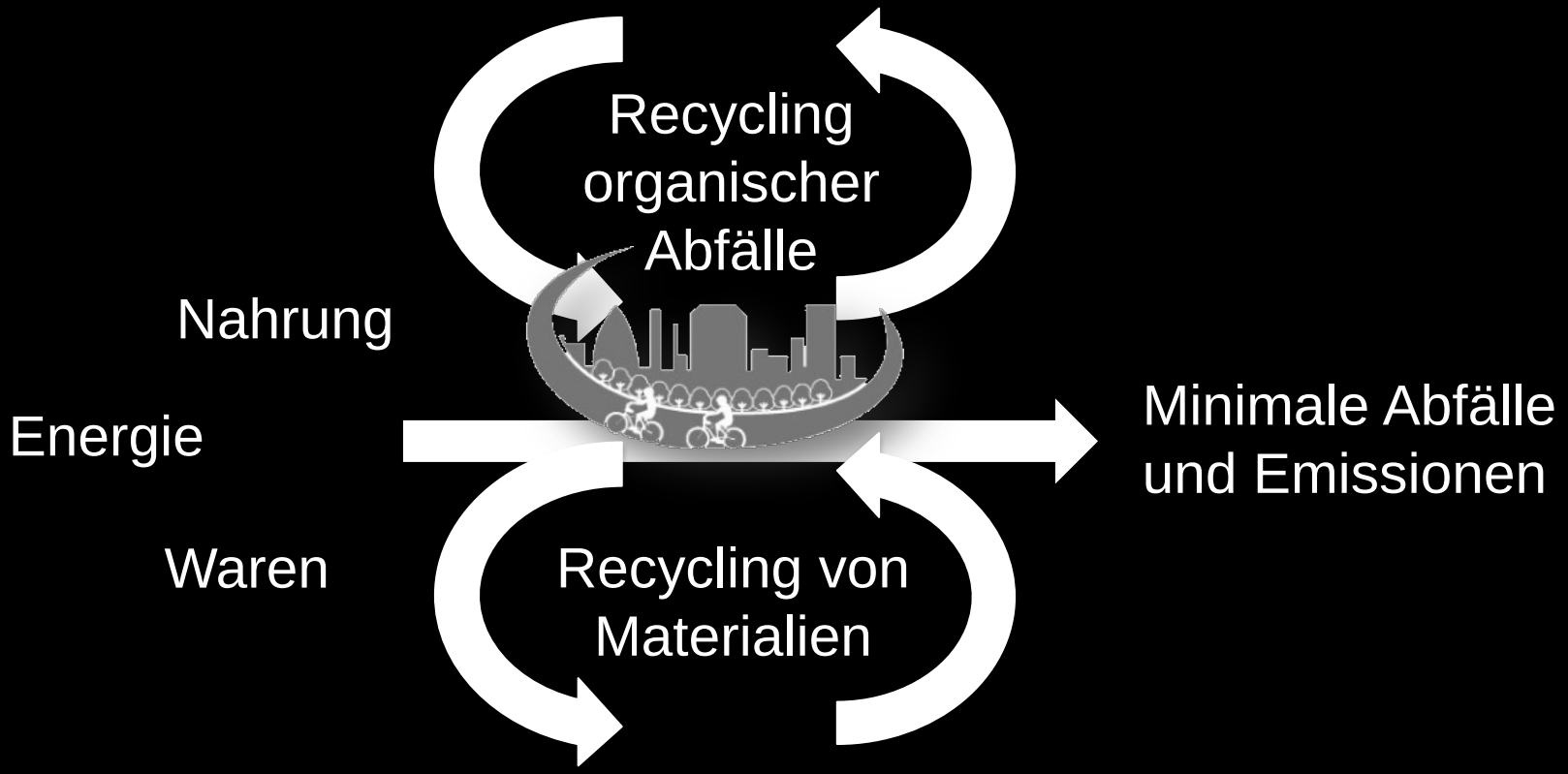
1. Stoffkreisläufe in Stadtregionen schließen
   - | Konzepte: Regenerative City and Circular City
   - | Strategien
   - | Maßnahmen und Handlungsansätze
2. Internationale Ansätze der Umsetzung
   - | Amsterdam
   - | Ontario
   - | Hamburg, Kopenhagen, Lissabon, Genua: Value Chain Partnerships
3. Ausblick und Thesen

1. Stoffkreisläufe in Stadtregionen schließen

Von linear…

Quelle: eigene Abbildung basierend auf Herbert Girardet/Rick Lawrence

…zu Kreisläufen



Quelle: eigene Abbildung basierend auf Herbert Girardet/Rick Lawrence

Regenerative City

Circular City

Built environment
modular and flexible | healthy materials | minimised virgin material use | shared, flexible and modular office space and housing | buildings generate power and food by facilitating closed loops of water, nutrients, materials, and energy

Energy systems
Resilient | renewable | localised | effective energy use

Urban bio-economy
Nutrients returned to soil | generating value | minimising food waste

Urban mobility system
Accessible | affordable | effective | based on renewable energy sources

Production systems
Encourage ‘local value loops’

Quelle: eigene Abbildung basierend auf Ellen Mac Arthur Foundation 2017

Quelle: UN 2016

2. Internationale Ansätze: Amsterdam

Quelle: Circle Economy, .Fabric ,TNO & Gemeente Amsterdam 2014

MAPPING OF MATERIAL FLOWS AND ADDED VALUE

To get a better picture of how circular Amsterdam currently is, the main material and energy flows as well as employment in the economic sectors in the region were analysed. The analysis employed data from (regional and national) statistics and sources, and was supplemented by interviews. It provides insights into material flows in and around the city. Simultaneously, activities and places in the region were assessed for their ecological impact. In addition, the analysis provides insights on where and how value can be created in the region and where there are opportunities for job growth and economic development.

EVALUATION AND SELECTION OF CHAINS

In phase 2, a comprehensive analysis was conducted of the value chains that connect multiple sectors within Amsterdam. The results of phase 1 were the starting point of this analysis. Based on macro-economic statistics, we established in which chains the greatest circular impact can be achieved. The result is a list of chains that have been prioritised on the basis of the following indicators: ecological impact, economic importance, value preservation and transition potential. These indicators were also used in the Dutch national government program, 'Nederland Circulair!'.

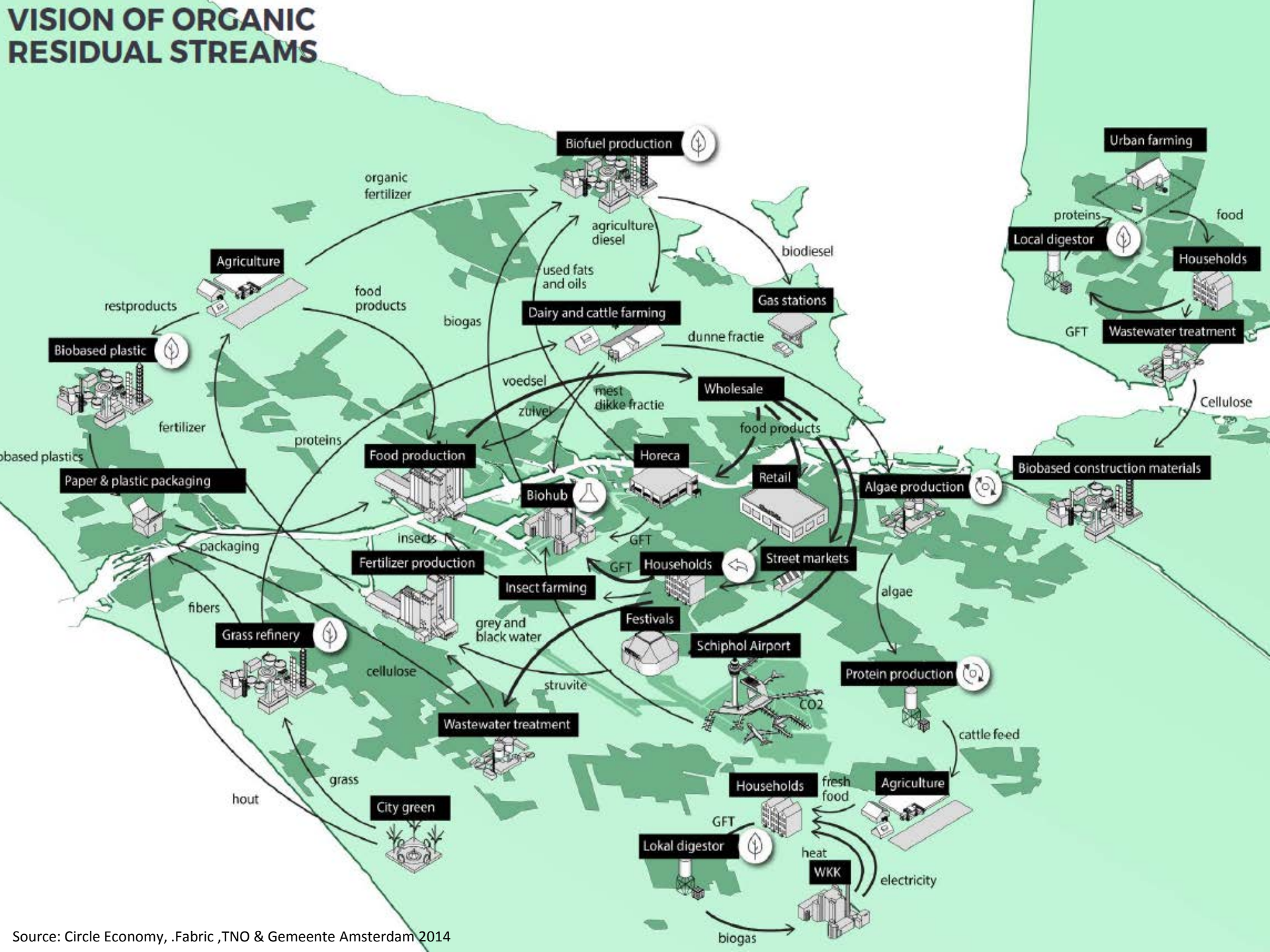
VISIONING

Then, in phase 3, we developed a future vision, exploring how the two chains can function in an ideal circular future. This future vision gives a view on how the chains (and their interactions with other chains) can be set up differently. For each of the two chains, we formulated four strategies for a circular economy. The future vision was tested in feedback sessions and in interviews with various experts and stakeholders in Amsterdam. The feedback was used to further refine the vision for the future.

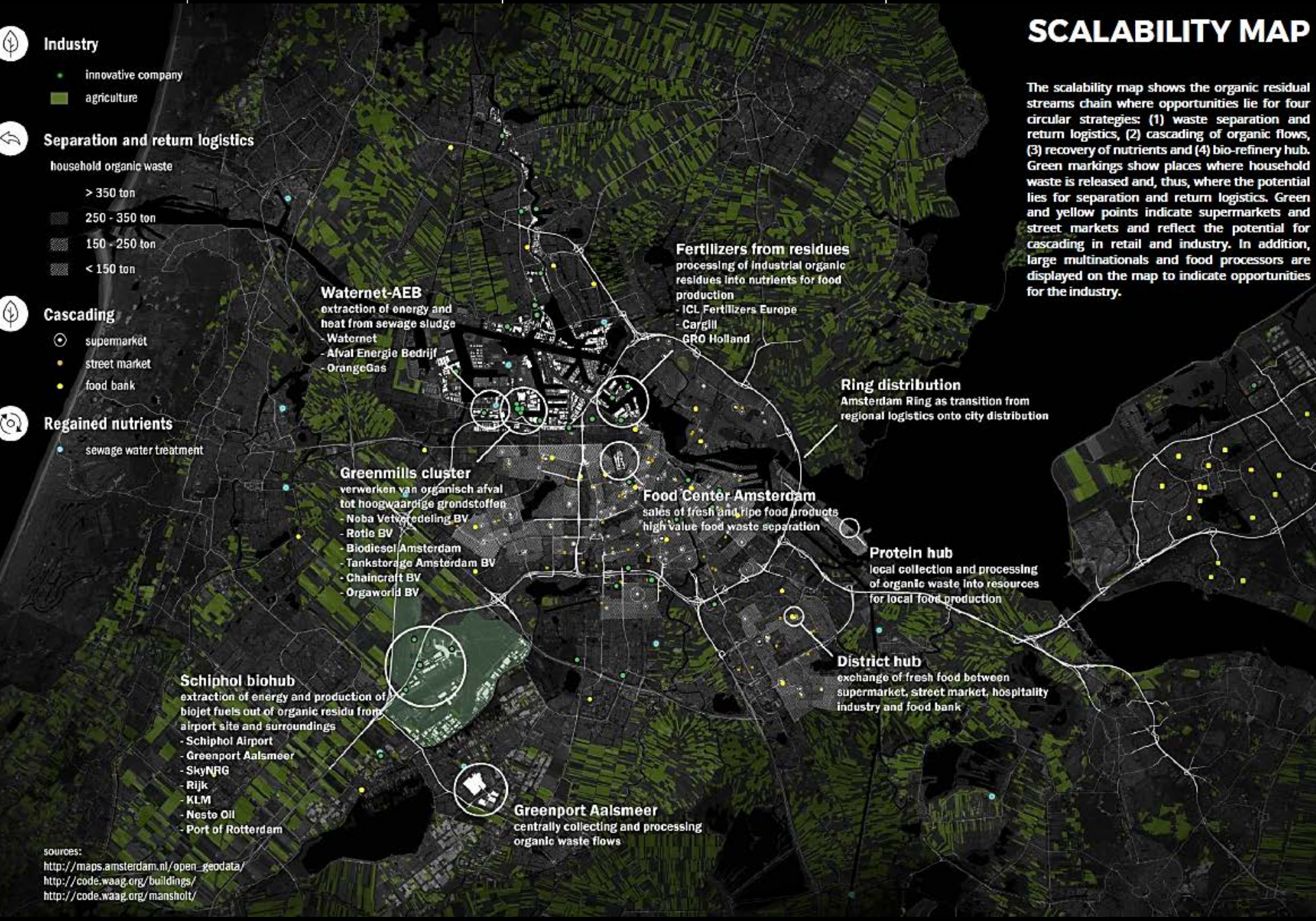
PROJECT SELECTION AND FORMULATION OF ACTION POINTS

In phase 4, an action agenda with a planning and implementation strategy for starting relevant circular projects was drawn up. All are projects in which governments, research institutes, companies, entrepreneurs and citizens work together to make the two chains circular. Time paths for the actions and policy interventions were formulated, indicating which stakeholders are essential for a successful transition. The actions have also been assessed on four main effects: (1) value creation, (2) CO_2-reduction, (3) material savings and (4) job growth.

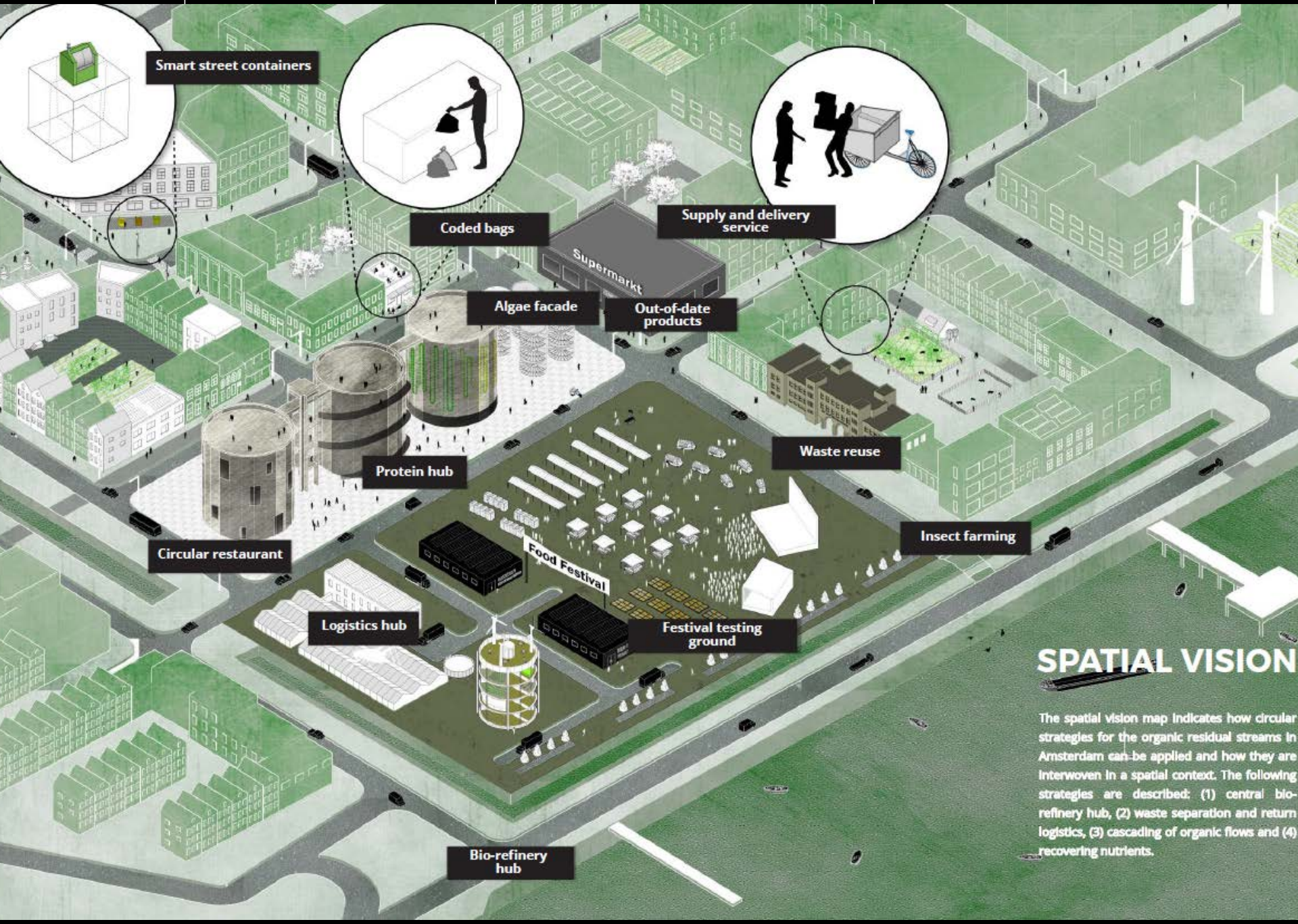
VISION OF ORGANIC RESIDUAL STREAMS



Source: Circle Economy, .Fabric ,TNO & Gemeente Amsterdam 2014

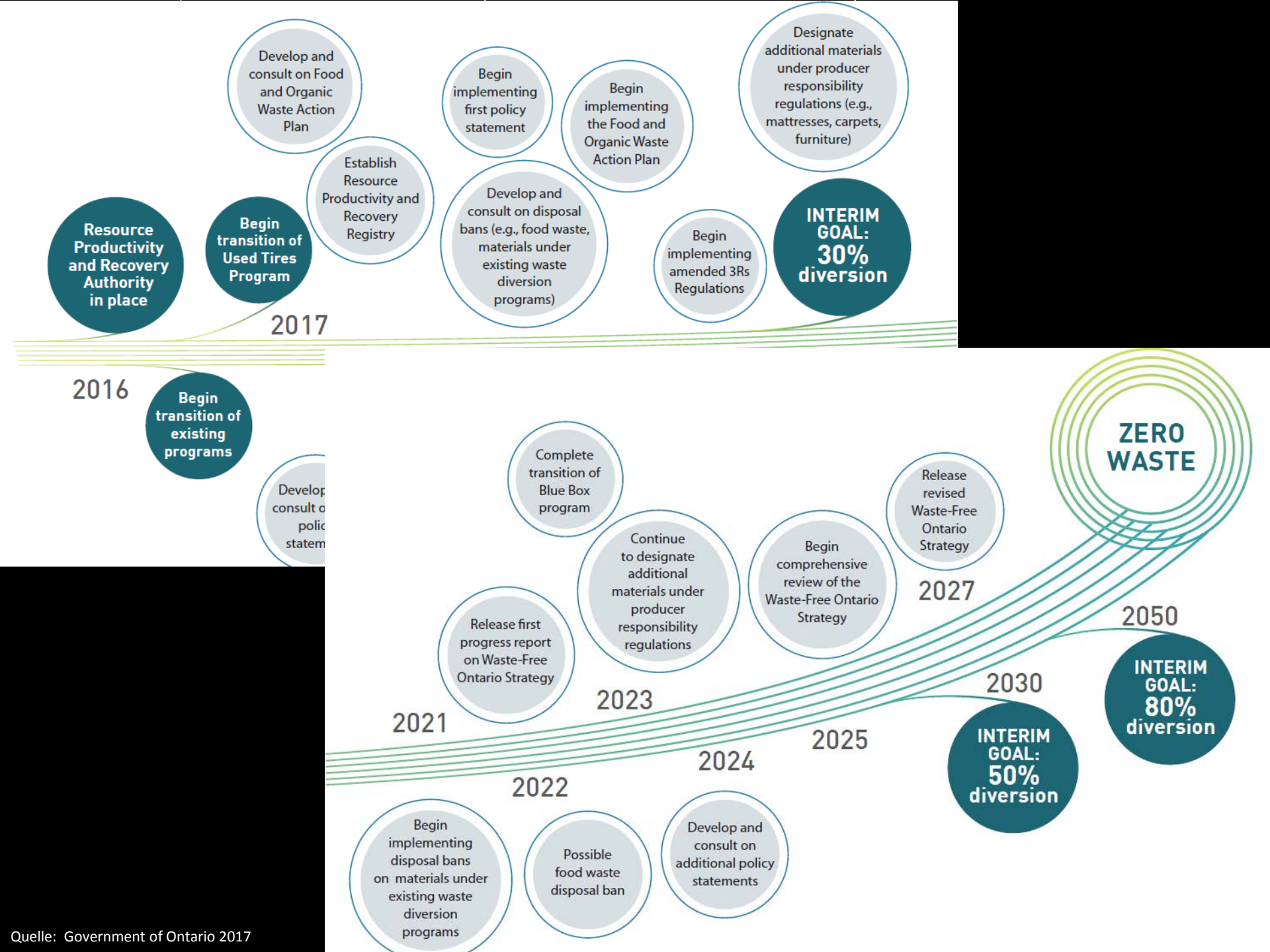


Quelle: Circle Economy, .Fabric, TNO & Gemeente Amsterdam 2014



Quelle: Circle Economy, .Fabric ,TNO & Gemeente Amsterdam 2014

2. Internationale Ansätze: ONTARIO



Quelle: Government of Ontario 2017

Objectives and Actions to Achieve Ontario's Vision

Enhance Provincial Direction and Oversight

1. Empower the Resource Productivity and Recovery Authority
2. Issue policy statements to provide clear direction on the provincial interest
3. Establish a registry and build data capacity to provide for evidence based decisions

Stadtregionale Governance

Enable Efficient and Effective Recovery Systems

4. Transition existing waste diversion programs to new producer responsibility framework without disruption of services
5. Amend the 3Rs Regulations to increase resource recovery across all sectors
6. Establish service provider requirements to protect the environment while promoting resource recovery
7. Ensure landfills are well planned and managed to minimize their need and reduce greenhouse gas emissions
8. Establish promotion and education requirements to support public participation in resource recovery

Ressourceneffizienz

Zero GHGs
CIRCULAR ECONOMY
Zero Waste

Create Conditions to Support Sustainable End-Markets

13. Improve and establish environmental standards to provide a level playing field and a strong foundation for markets
14. Use green procurement practices to build market demand for recovered materials
15. Implement disposal bans to direct materials to end-markets

Grünes Wirtschaftswachstum

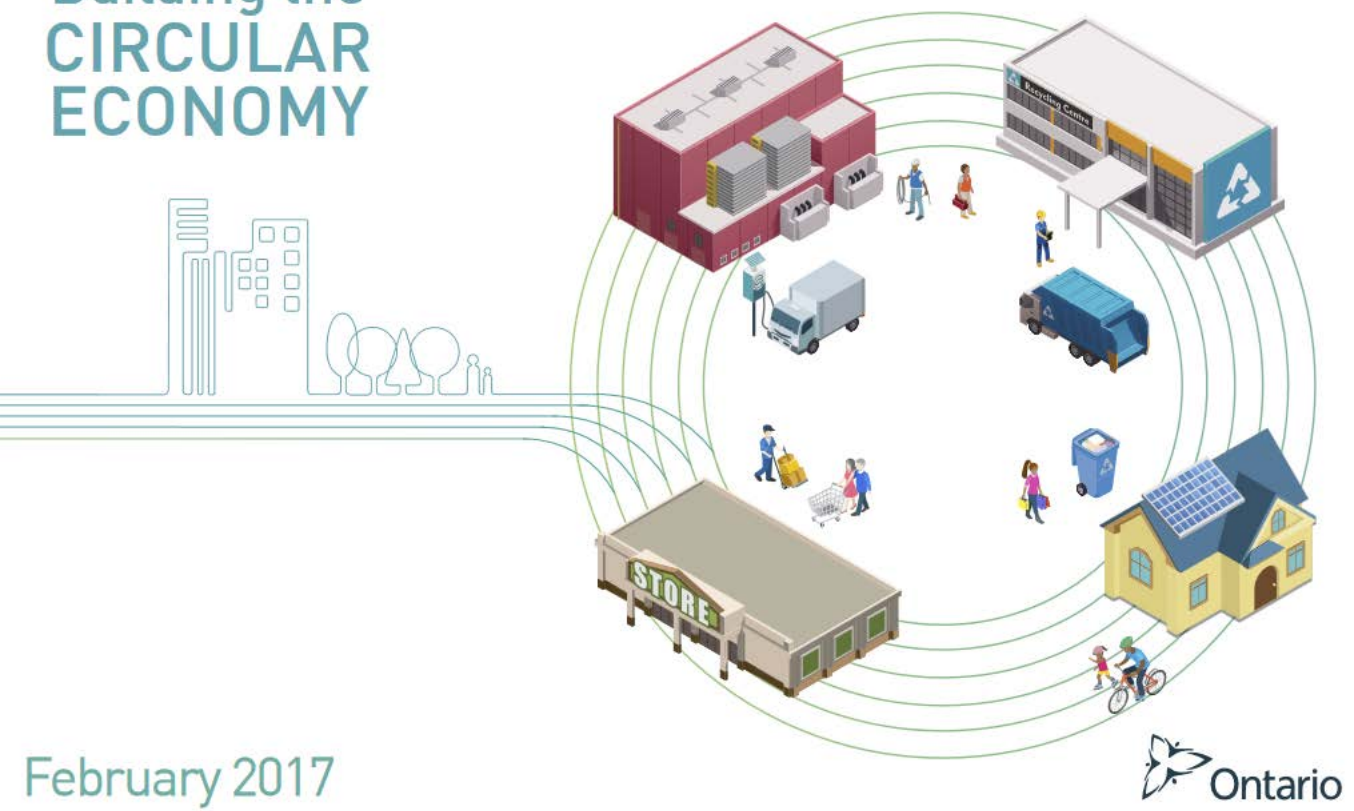
Increase Waste Reduction and Resource Productivity

9. Designate new materials to ensure producers are fully responsible for recovering more materials from products and packaging
10. Implement an action plan to reduce the volume of food and organic wastes going to landfill
11. Implement an Excess Soil Management Policy Framework to increase the reuse of excess soil, while protecting human health and the environment
12. Adopt and implement modern regulatory approaches to build on and promote innovative best practices

Abfallverminderung

Quelle: eigene Abbildung basierend auf Government of Ontario 2017

Strategy for a
WASTE-FREE ONTARIO
Building the CIRCULAR ECONOMY



February 2017

Quelle: Government of Ontario 2017

Action 1: Empower the Resource Productivity and Recovery Authority

Action 3: Establish a registry and build data capacity to provide for evidence-based decisions

Action 4: Transition existing waste diversion programs to new producer responsibility framework without disruption of services

Action 5: Amend the 3Rs Regulations to increase resource recovery across all sectors

Action 8: Establish promotion and education requirements to support public participation in resource recovery

Lissabon **Genua**

Hamburg **Kopenhagen**

Circularity Governance

Akteursnetzwerke & Kooperation

Value chain partnerships

Quelle: eigene Abbildung basierend auf City of Copenhagen

Ausblick und Thesen

1. „Circular City“ ist Herausforderung wie Inspiration: Stadtentwicklung neu denken !
   | Fachübergreifend – Konsummuster – Produktionsweisen
2. „Raum“ als kreativer Kontext für Ressourcenflüsse
   | Quartier – Stadt – Stadtregion
   | Sharing – Prosuming – Green/Post Growth
3. „Value Chain Partnership“ als Instrument von Stadtentwicklung und Abfallwirtschaft
   | In unbekanntes Terrain wagen …

… in Richtung **Circular City** !

Prof. Dr.-Ing. Jörg Knieling / Katharina Klindworth M.Sc.
joerg.knieling@hcu-hamburg.de
www.hcu-hamburg.de

Vielen Dank für Ihre Aufmerksamkeit !

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