

# Le métabolisme urbain comme outil de formulation de politiques urbaines

Chaire Circular Metabolism - Aristide Athanassiadis – 07 Février 2020



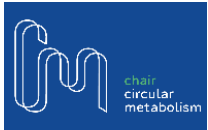
[arisatha@ulb.ac.be](mailto:arisatha@ulb.ac.be)



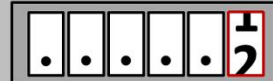
CityMetabolism



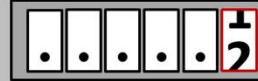
[www.circularmetabolism.com](http://www.circularmetabolism.com)  
[www.metabolismofcities.com](http://www.metabolismofcities.com)



ENERGY

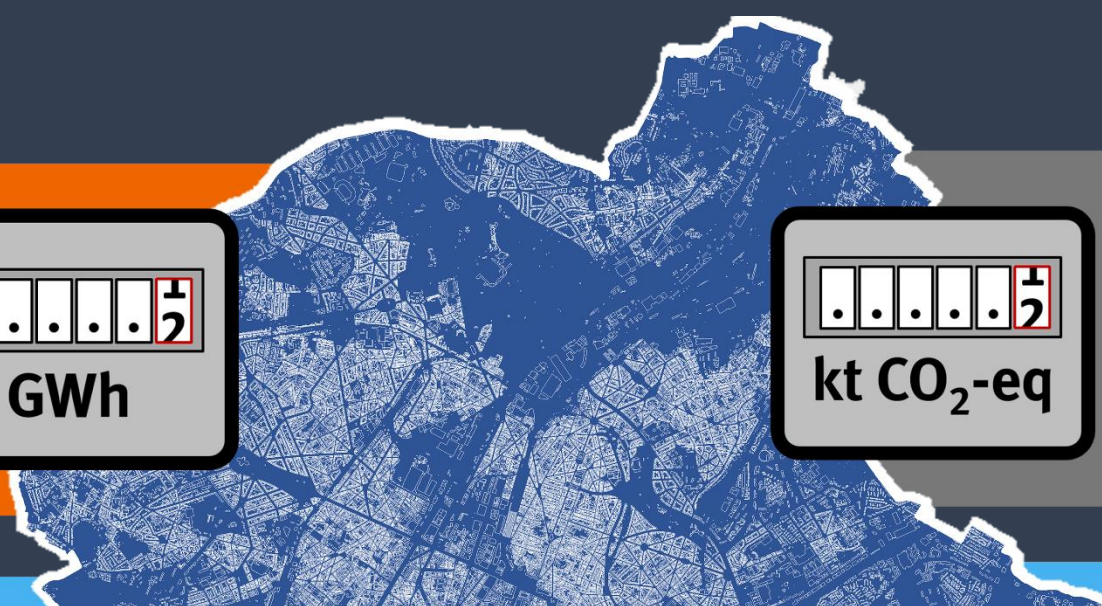


GWh

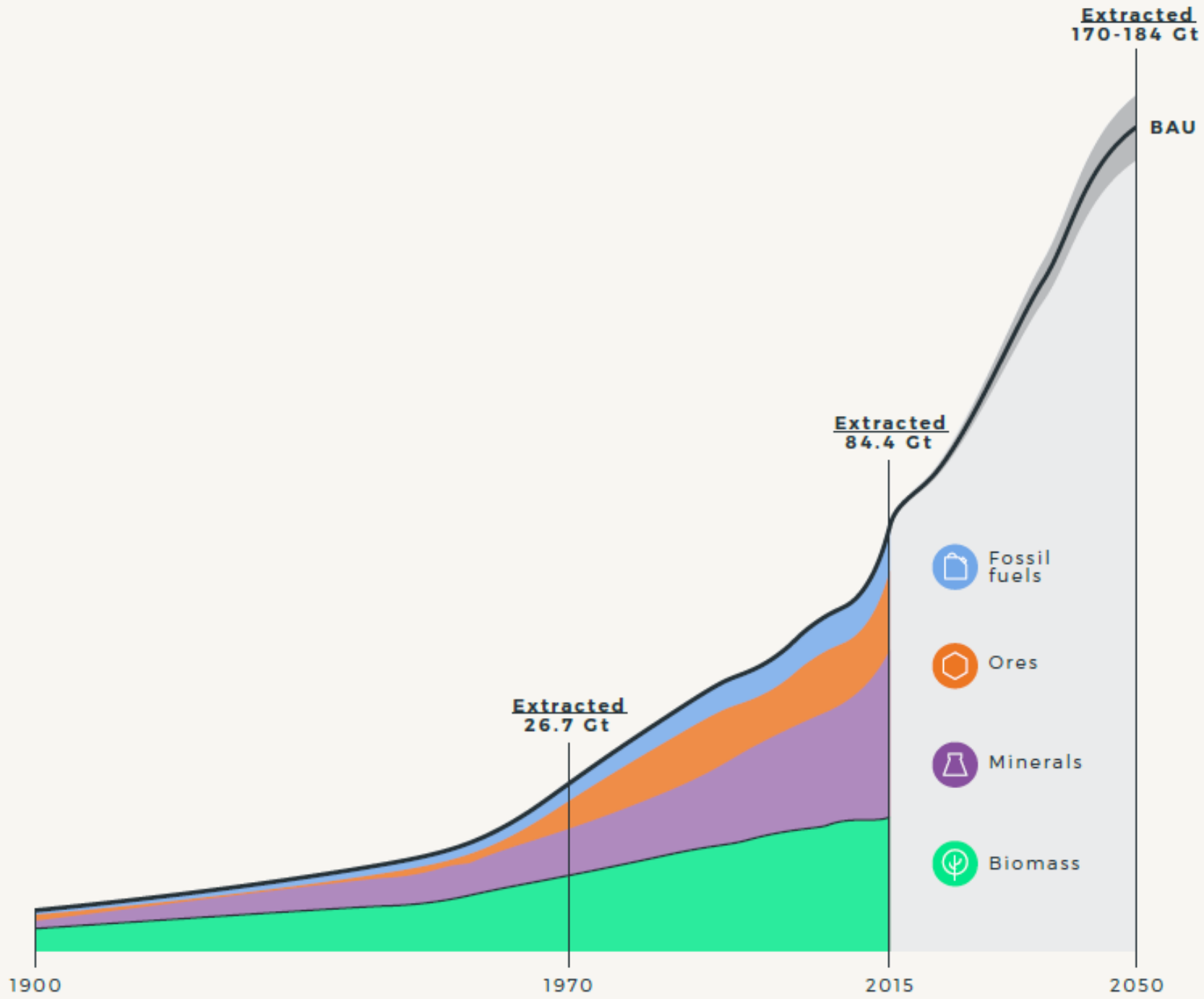


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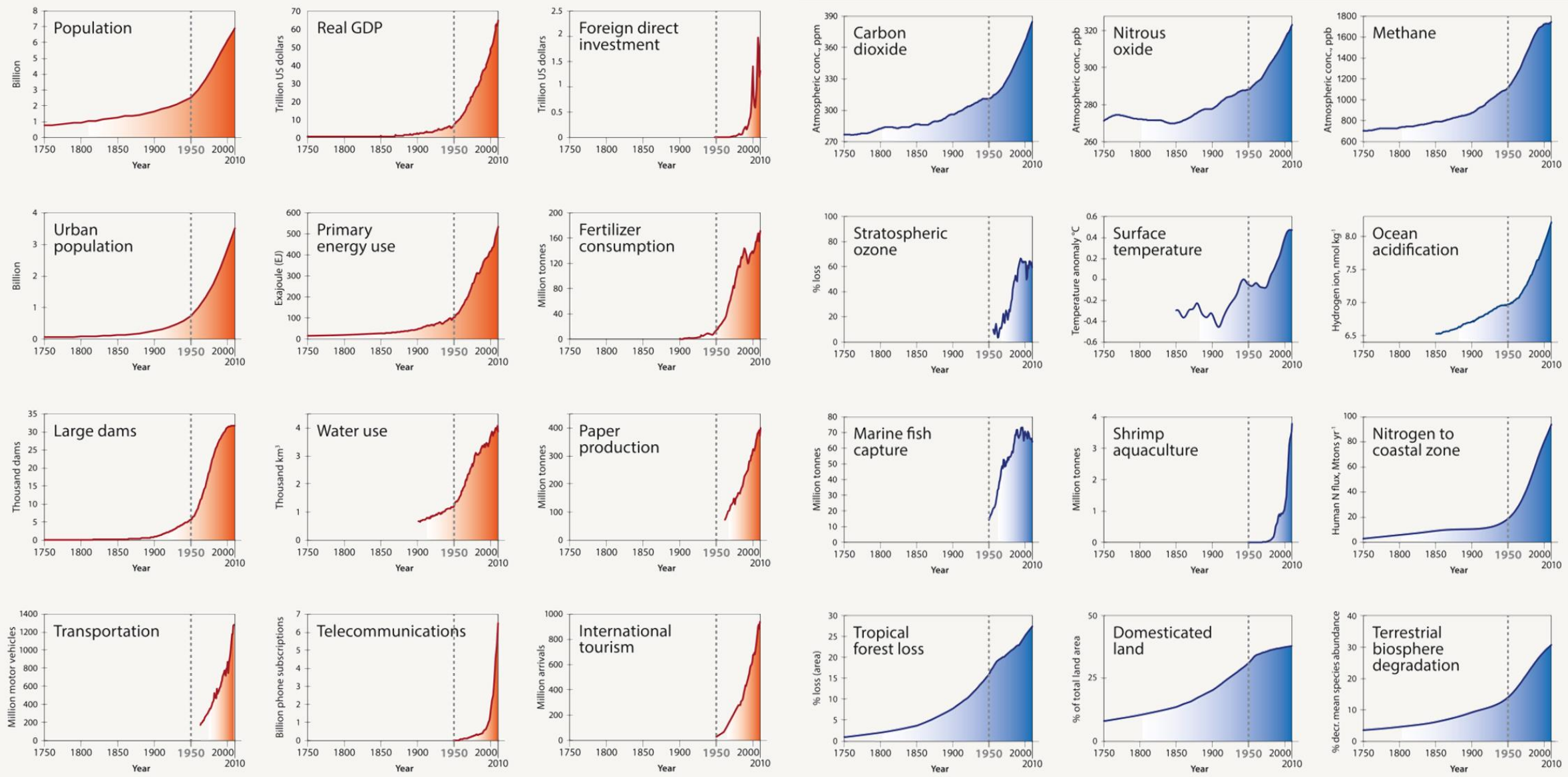
GHG EMISSIONS



**Un peu de contexte**



Circle Economy (2018). The Circularity Gap Report



**Steffen et al. (2015). The trajectory of the Anthropocene: The Great Acceleration**



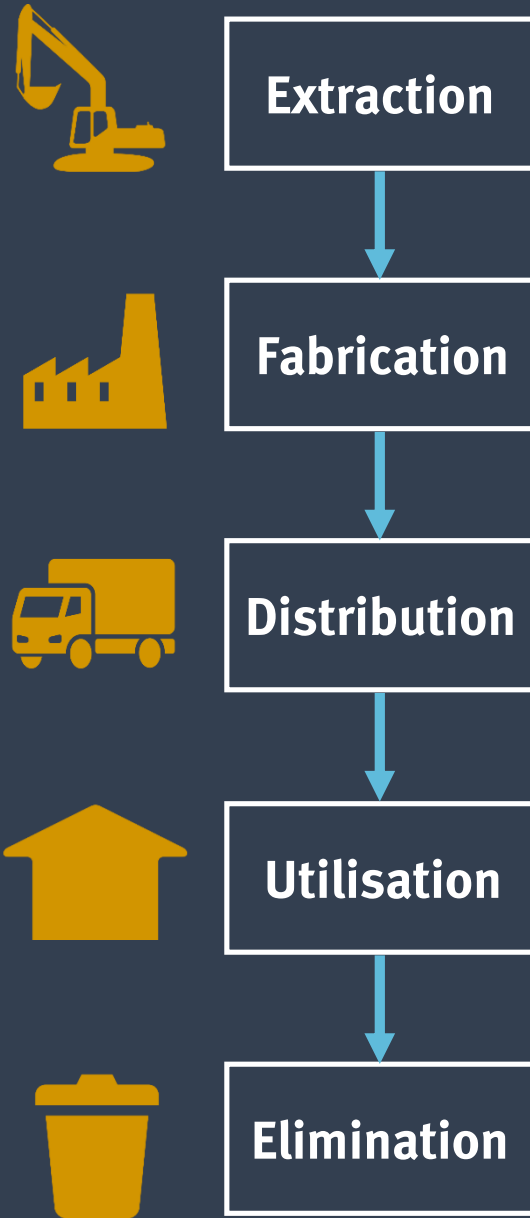


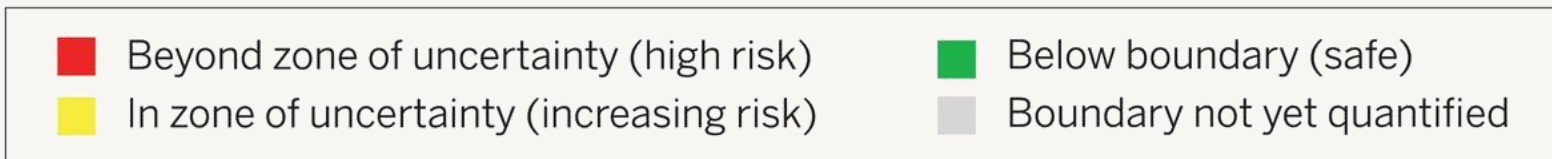
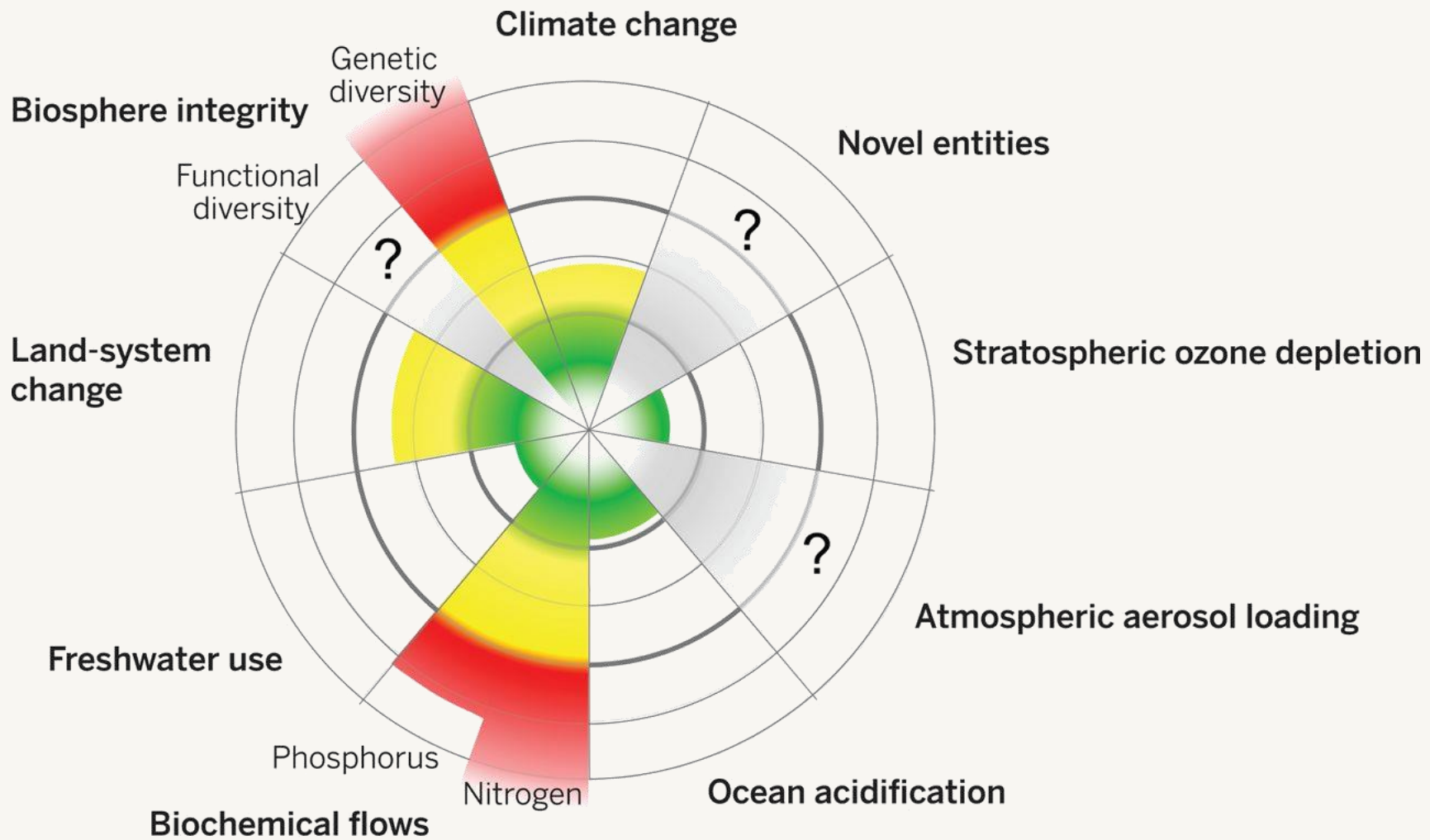








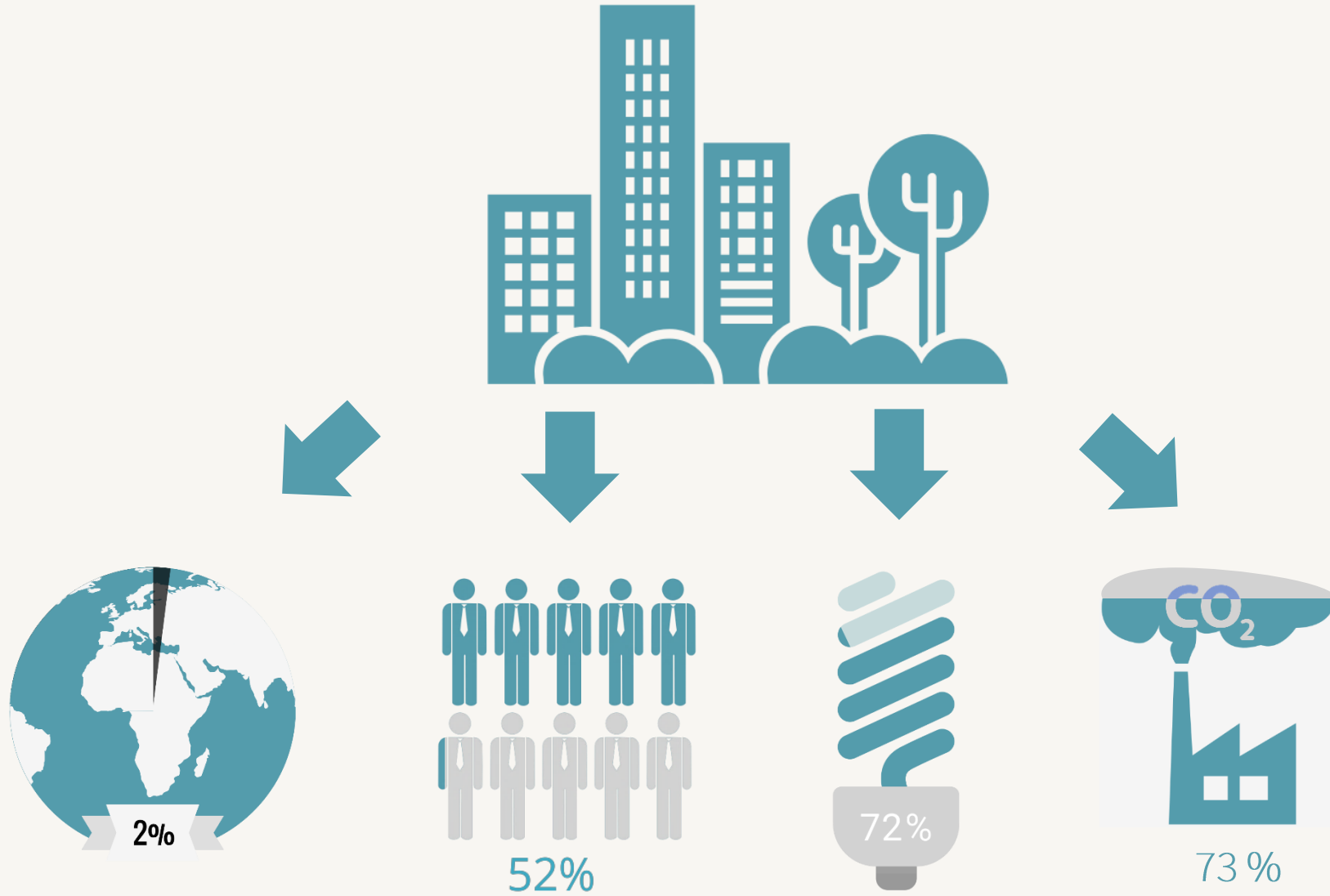




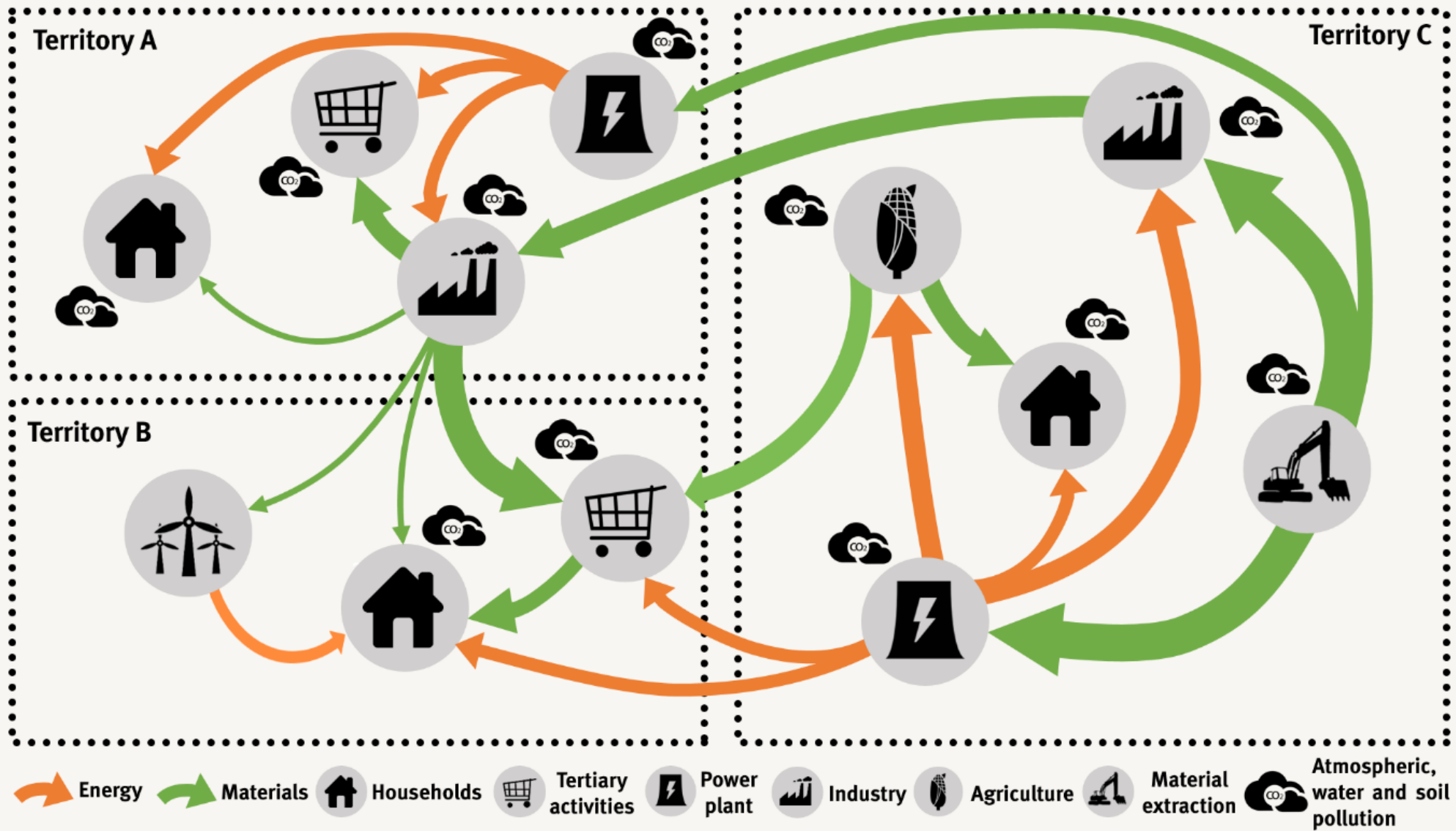
**Steffen et al. (2015). Planetary boundaries: Guiding human development on a changing planet**

# Nécessité de transitions

**Les villes comme  
un.e enjeu/solution  
central.e**



# Les villes comme un nœud d'enjeux



**Qui est responsable ? Par où commencer ?**

# **Le métabolisme urbain**

## **une intro**

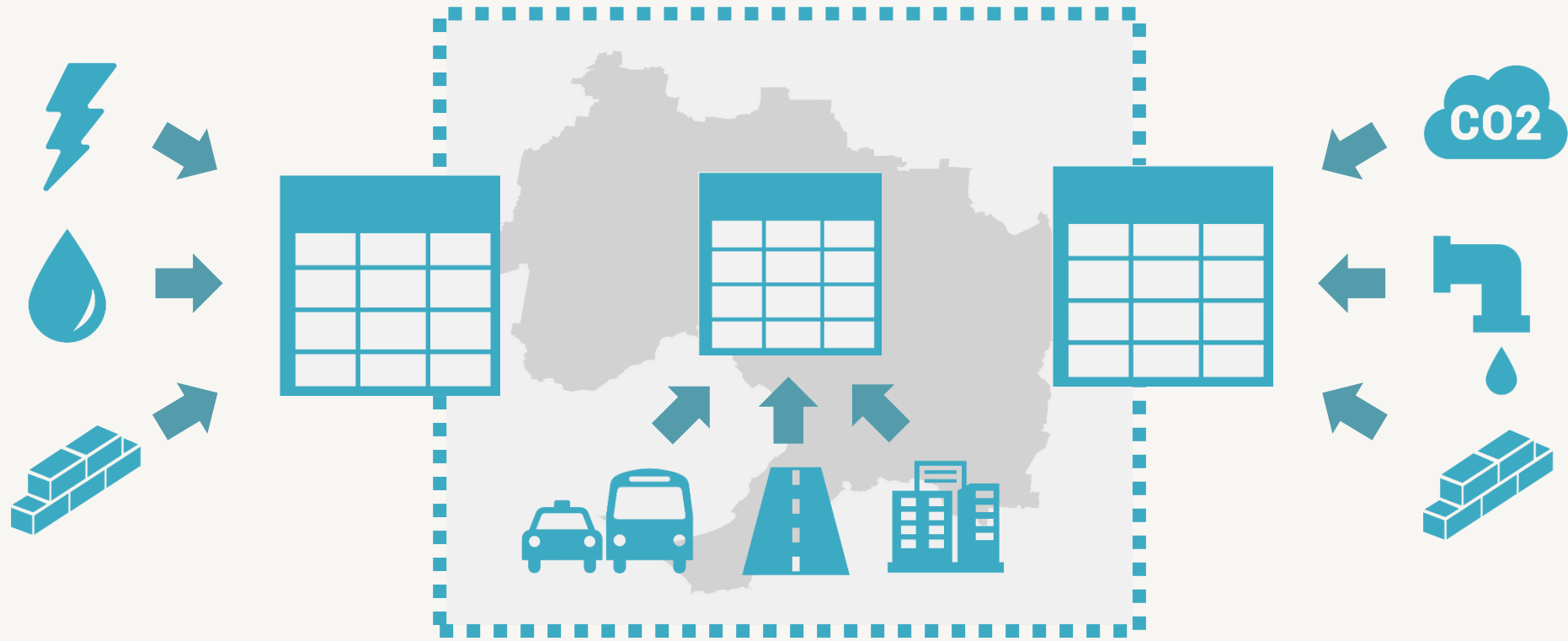




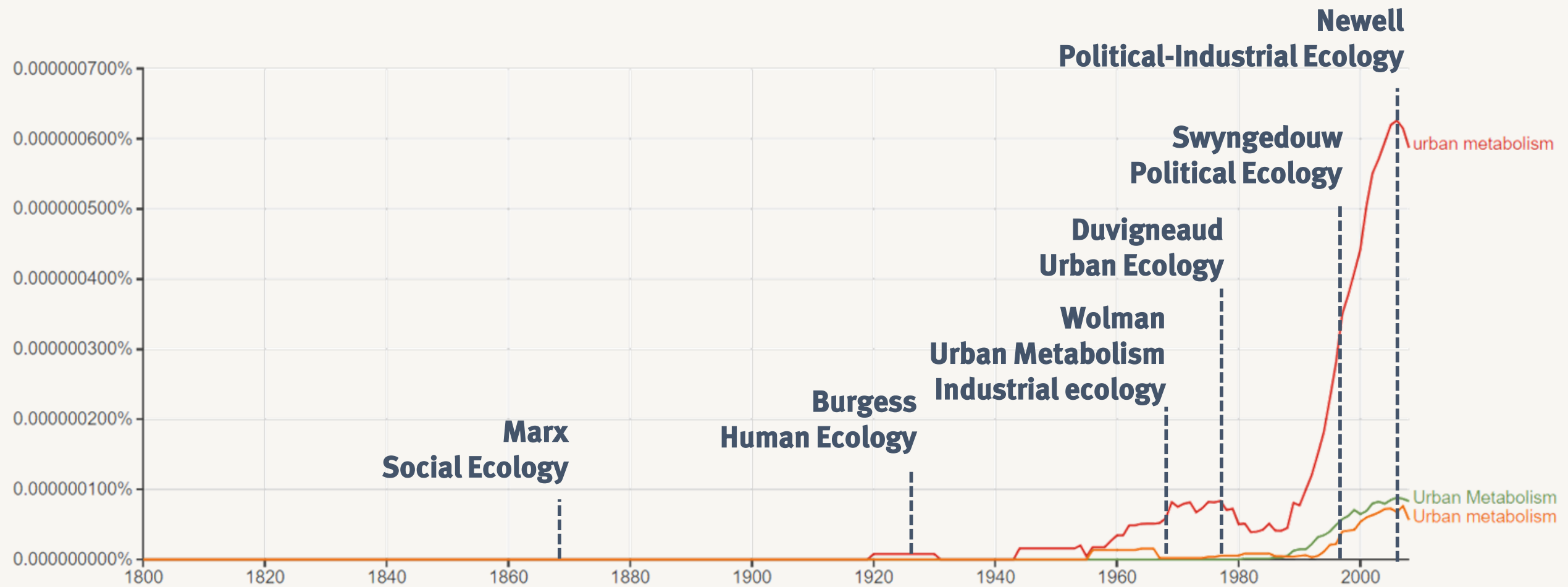
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**Le métabolisme urbain**



**Un domaine d'étude (inconsolidé) étudiant les flux/stocks et les acteurs de villes d'une manière systémique**



# Utilisation du « métabolisme urbain » historiquement

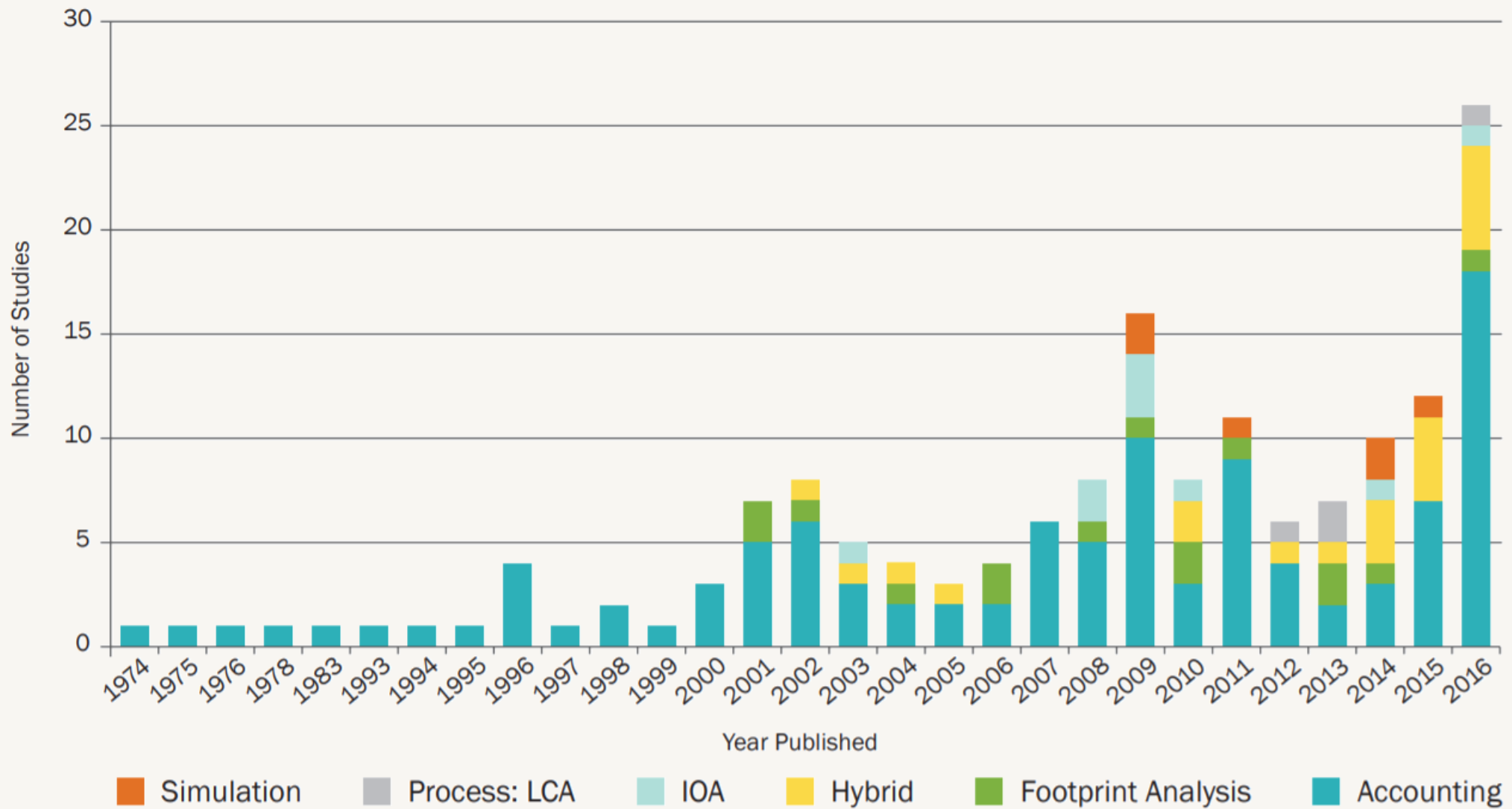


Figure 5: Number of urban metabolism assessment studies over time, showing the increasing diversity of approaches utilised.

Musango, J.K., Currie, P., & Robinson, B. (2017) Urban metabolism for resource efficient cities: from theory to implementation. Paris: UN Environment.

# Utilisation du « métabolisme urbain » historiquement

Introduction | [Browse](#) | [Map](#) | [Tagging tree](#)

## Introduction

Welcome to the Metabolism of Cities library, which holds **696 publications** related to urban metabolism and material flow analysis, with 264 of these specifically being urban. The publications are mostly reports, theses or journal articles, which come from 99 different [journals](#). The bulk of the publications are in English, but there are also many in Spanish, French, Dutch and German.

More and more publications are continuously added (Feel free to [add publications](#) yourself!) and then tagged by [team members](#). This classification is valuable to better understand what to expect from a publication.

### Explore the library!

There are many ways to explore the Metabolism of Cities library. Browse the library by sorting the columns, employ the search function, make use of the map or find publications classified in the tagging tree. It is also possible to look for publications from specific [authors](#). Finally, the full publications library including publication title, author(s), year, journal, tags, etc. is available for [download](#) as a CSV file.

[Introduction](#) | [Browse](#) | [Map](#) | [Tagging tree](#)

## Browse

You are currently viewing publications with system type: **Urban**. View publications for [all system types](#)

**394** publication(s) found.

Filter by type: **All** Academic publications Theses Reports Multimedia



Title	Author(s)	Type	Year	Tags
<a href="#">Integrating lifecycle assessment and urban metabolism at city level: Comparison ...</a>	González-García, Sara and Dias, Ana Claudia	Journal Article	2019	Case Study Hybrid MFA-LCA Urban
<a href="#">The living city - introduction to circular urban metabolism</a>	Paola Pluchino	Book	2019	Urban
<a href="#">Using spatially explicit commodity flow and truck activity data to ...</a>	Lih Wei Yeow, Lynette Cheah	Journal Article	2019	Case Study Geographic Information System (GIS) Material Flow Analysis (MFA) National

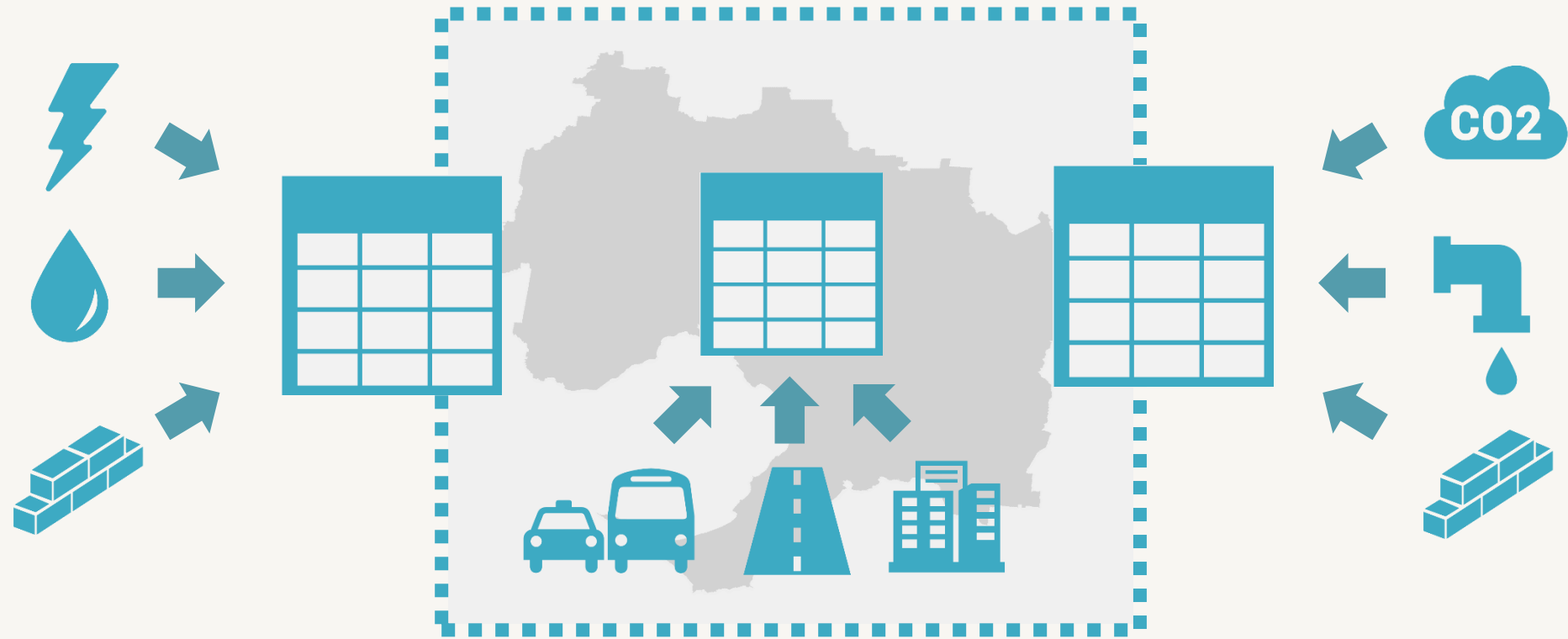
## View map

The map below indicates the cities linked to publications in our database.



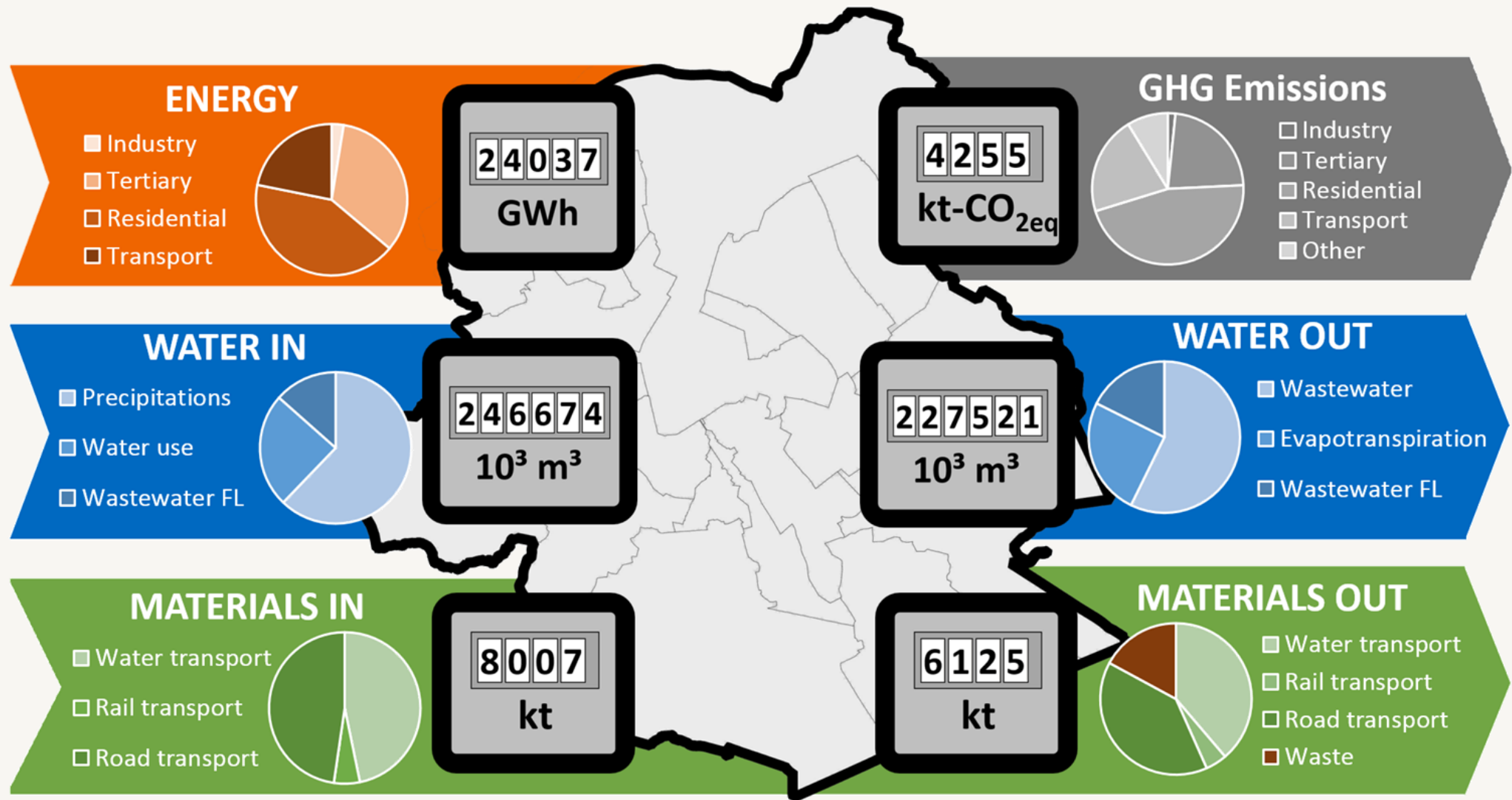
# Utilisation du « métabolisme urbain » historiquement

**Que peut nous  
apprendre l'étude du  
métabolisme urbain ?**

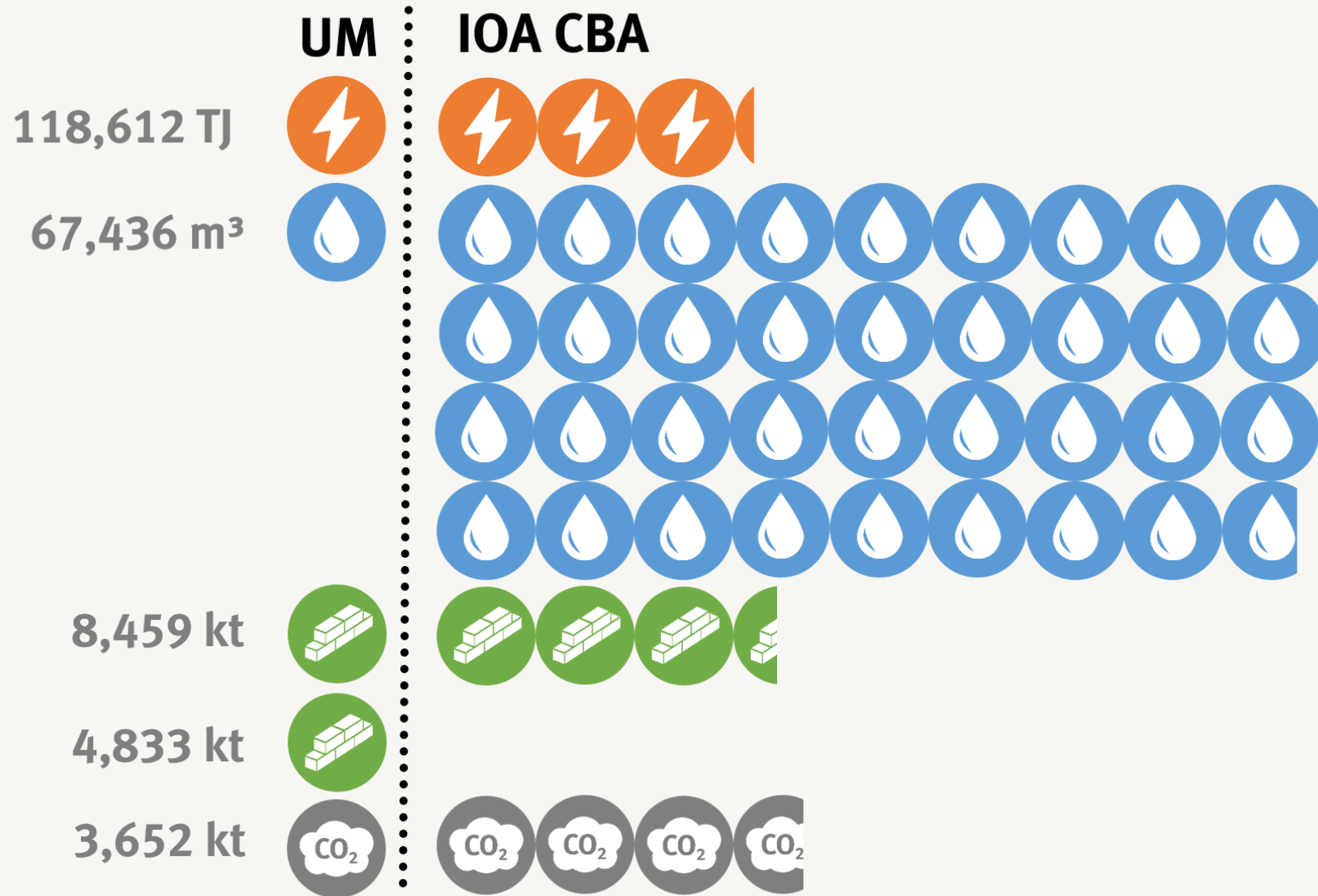


**Monitoring des flux entrants et sortants et des stocks urbains**

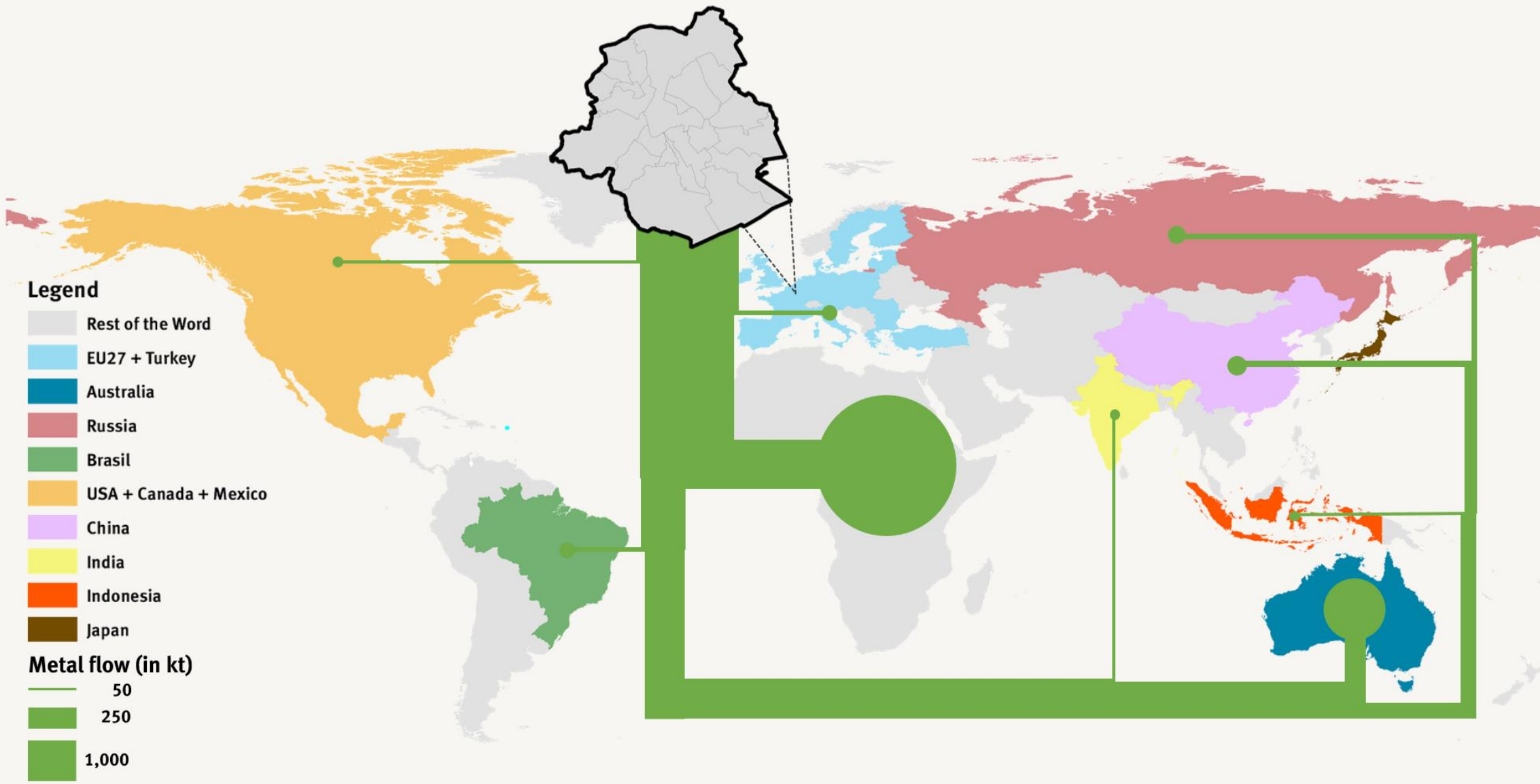




# Métabolisme urbain de Bruxelles – linéaire (3%)



# Effets/impacts indirects des villes



# Impossible d'être circulaire?

Athanassiadis, A., M. Christis, P. Bouillard, A. Vercalsteren, R. H. Crawford, and A. Z. Khan. 2018. Comparing a territorial-based and a consumption-based approach to assess the local and global environmental performance of cities. *Journal of Cleaner Production* 173: 112-123.

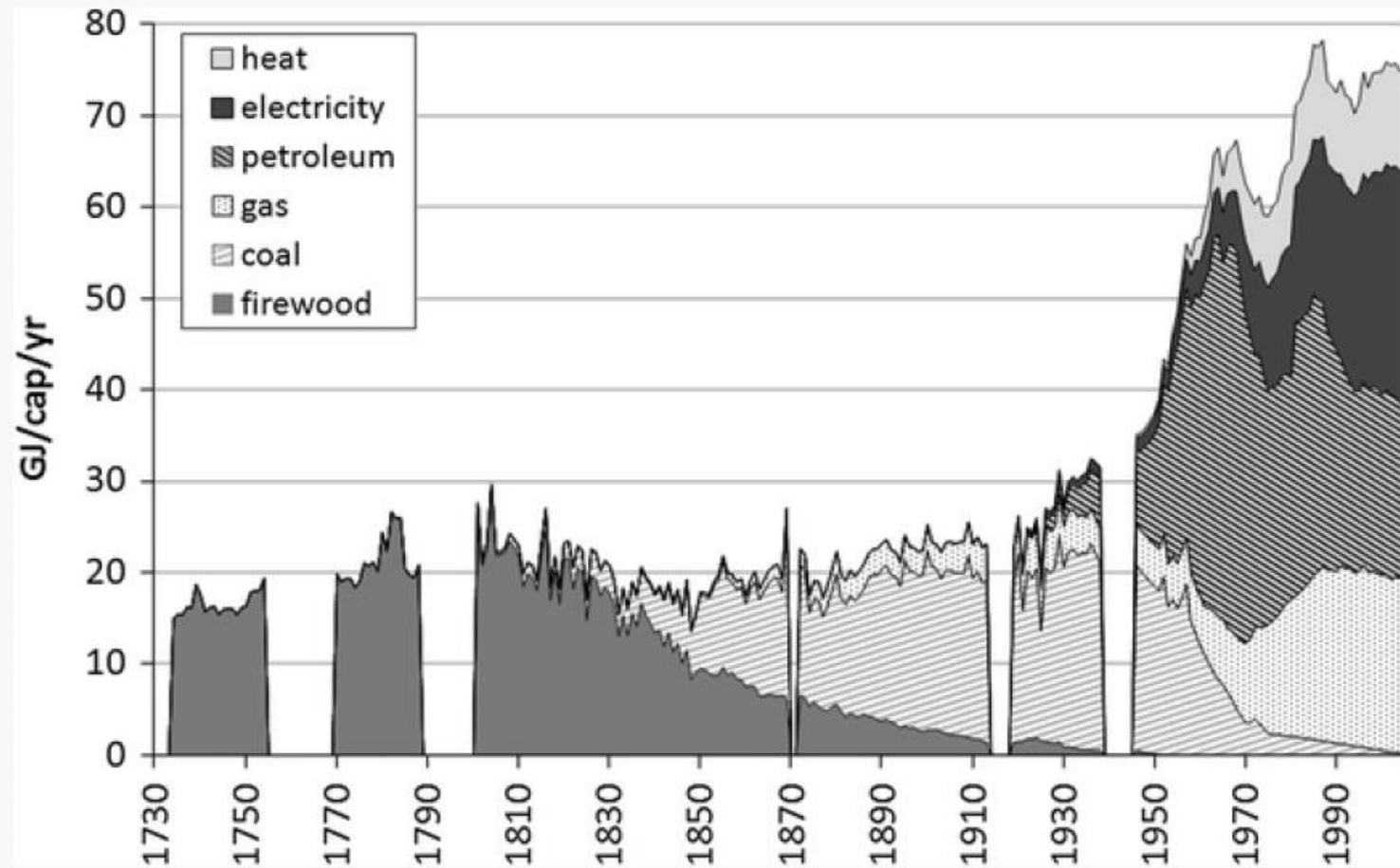
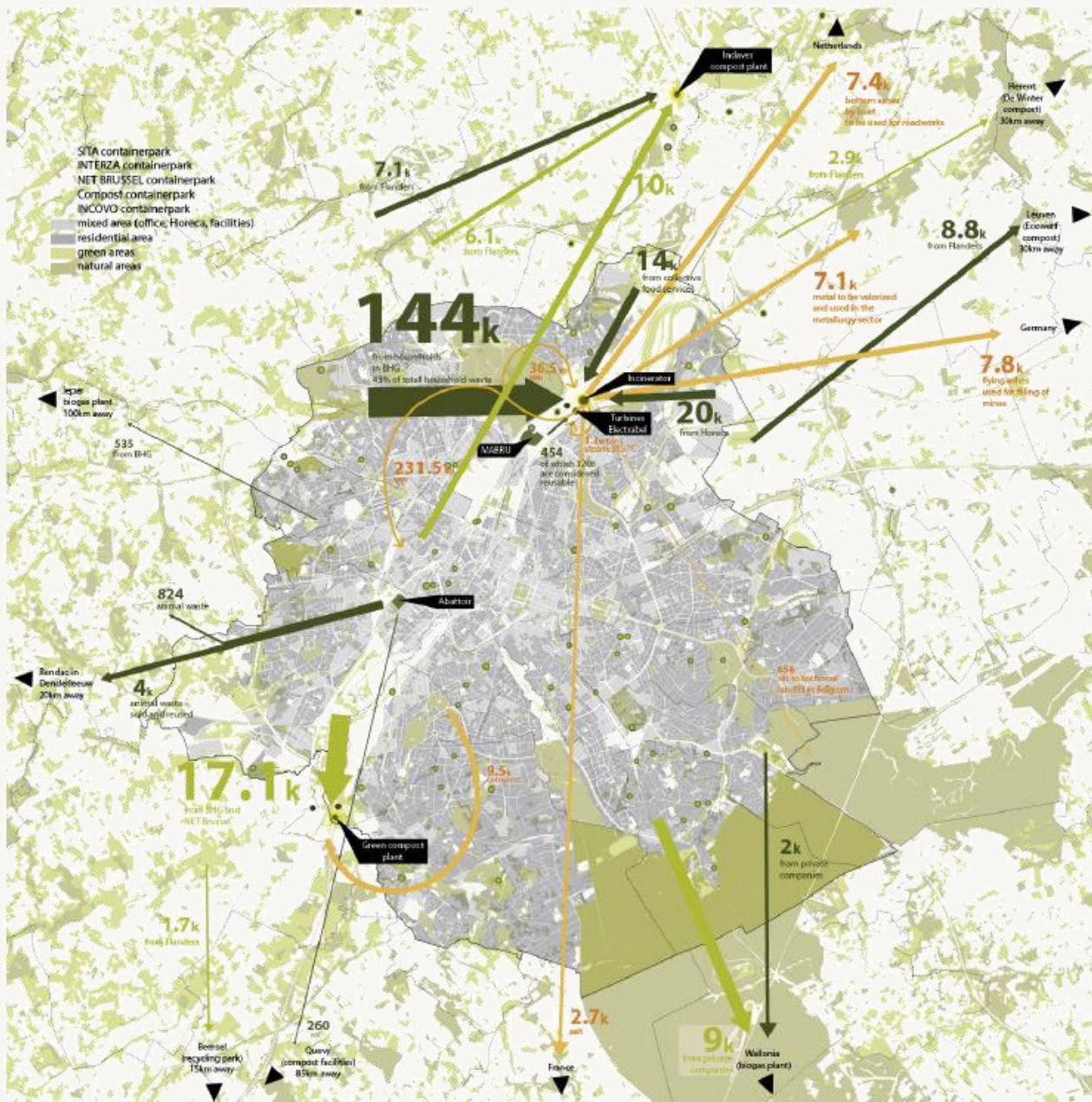


Fig. 4

Total final energy consumption (TFEC), Paris, 1730–2000 GJ/cap/year. Firewood includes firewood and charcoal in final terms. Gas includes manufactured and natural gas in final terms

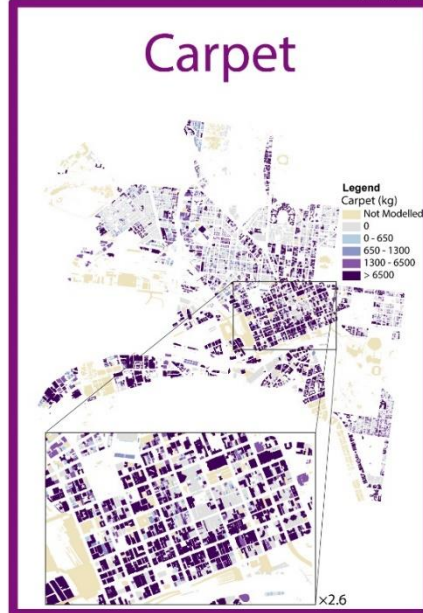
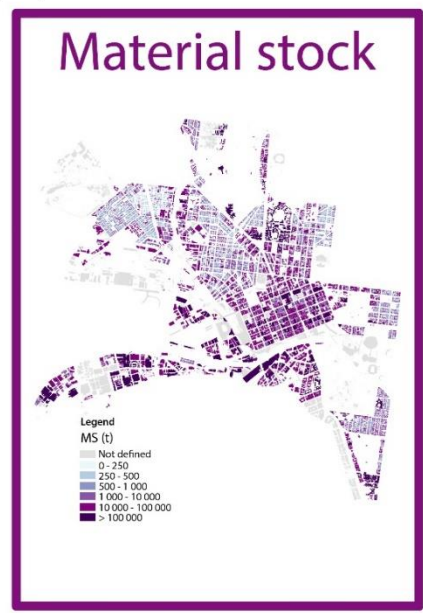
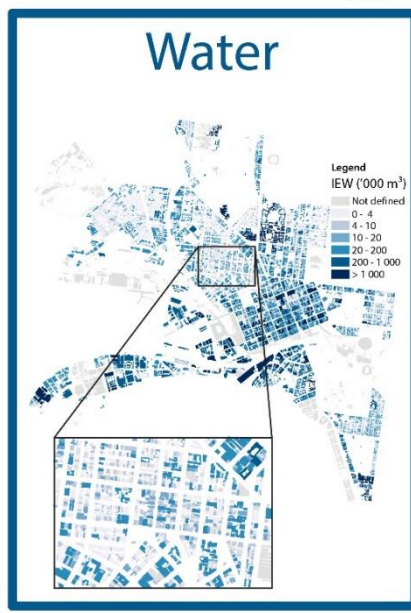
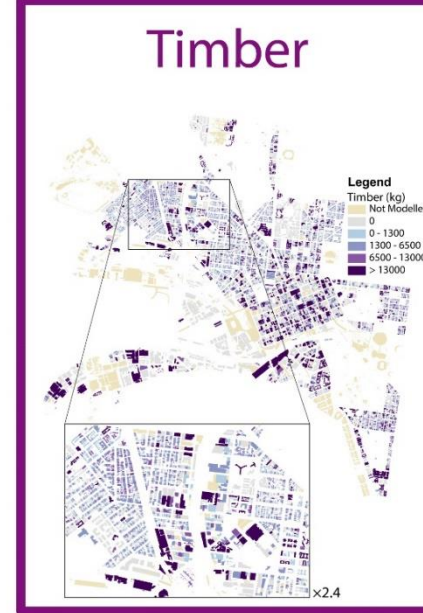
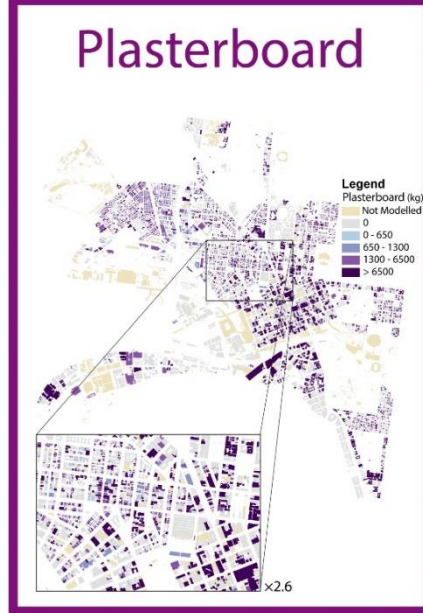
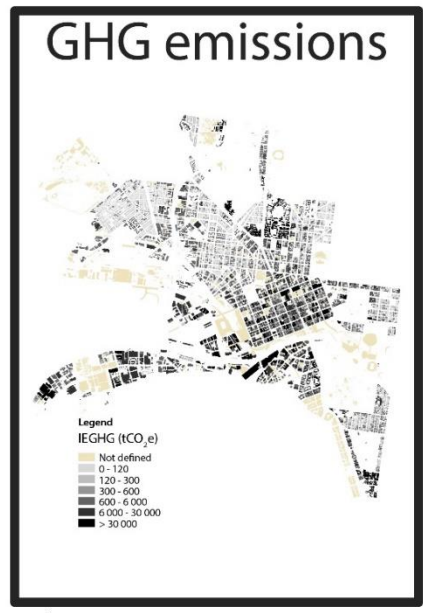
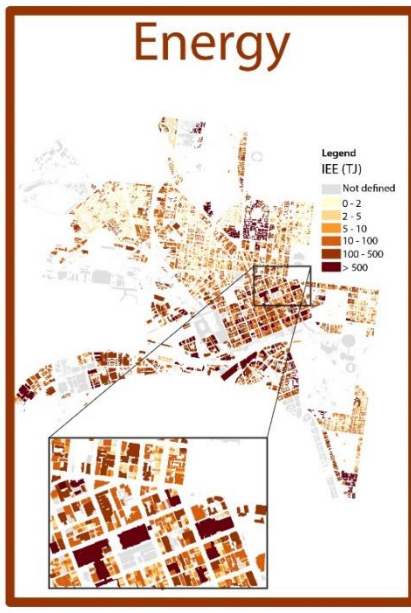
## Régime socio-écologique



- tons/year of food waste
- tons/year garden waste
- tons/year processed waste

- SITA containerpark
- INTERZA containerpark
- NET BRUSSEL containerpark
- Compost containerpark
- INCOVO containerpark
- mixed area (office, Horeca, facilities)
- residential area
- green areas
- natural areas

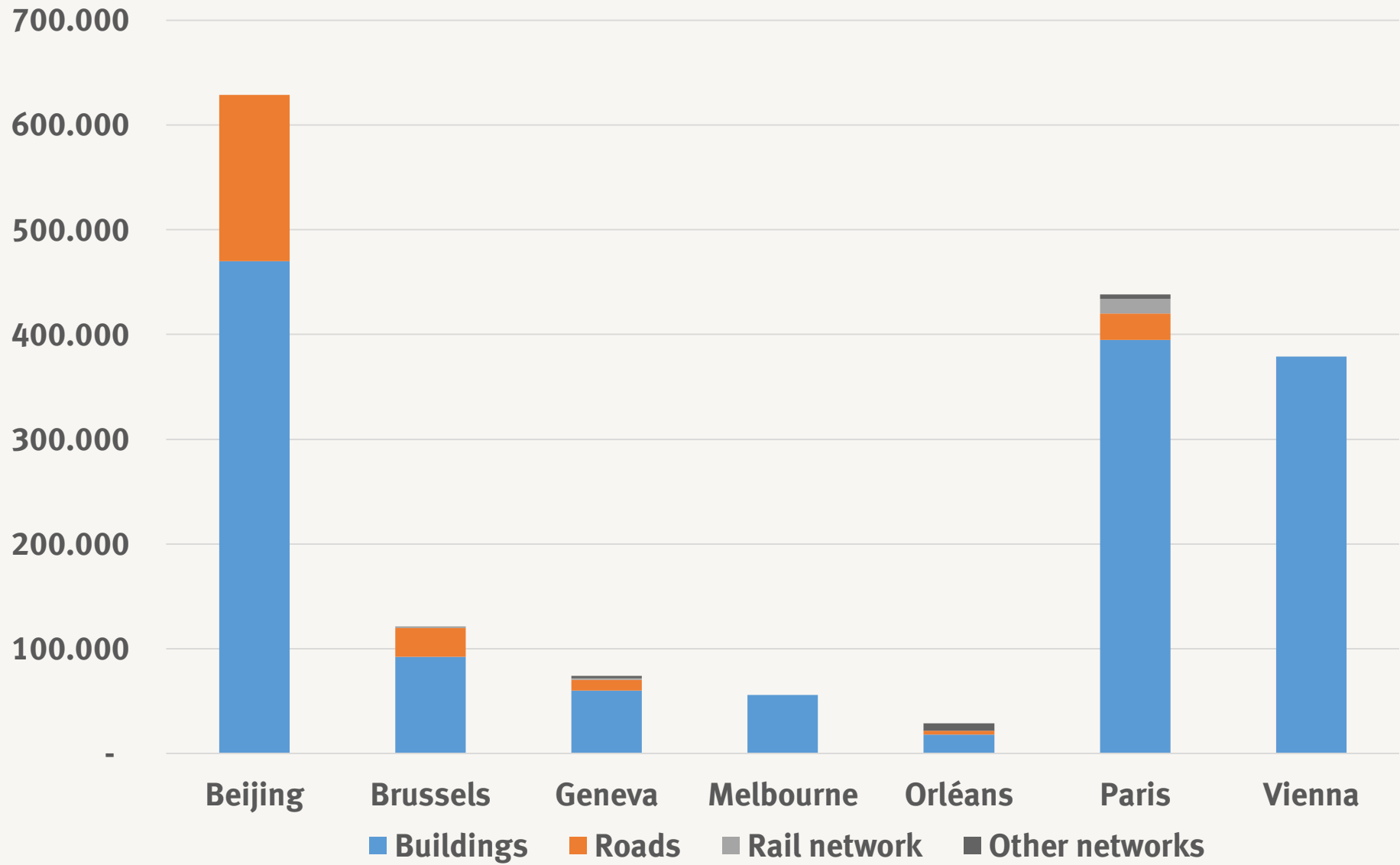
# Mapping flux & manifestation acteurs/infrastructure



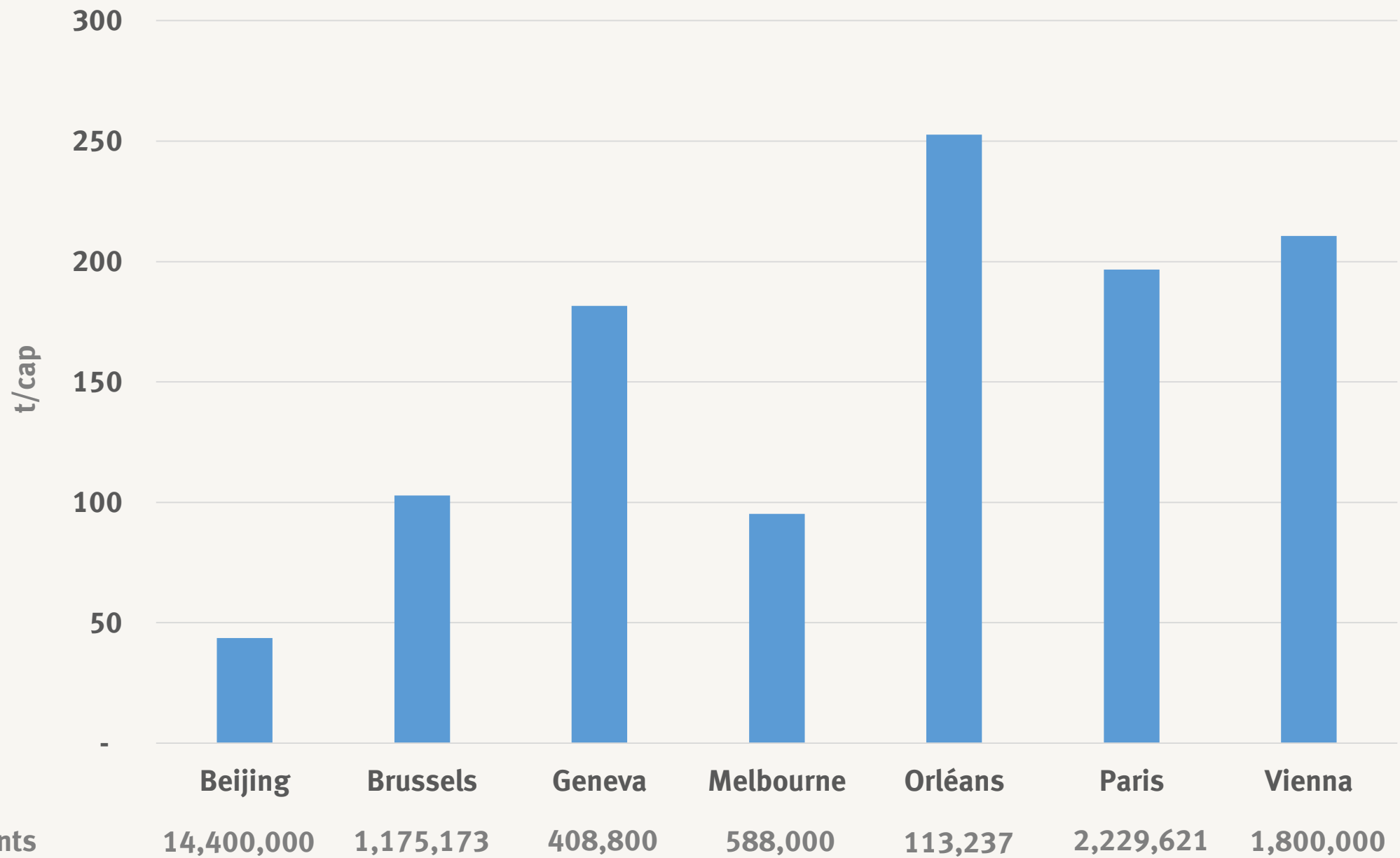
# Explorer la mine urbaine

Stephan, A. and A. Athanassiadis. 2017. Quantifying and mapping embodied environmental requirements of urban building stocks. *Building and Environment* 114: 187-202.

Stephan, A. and A. Athanassiadis. 2018. Towards a more circular construction sector: Estimating and spatialising current and future non-structural material replacement flows to maintain urban building stocks. *Resources, Conservation and Recycling* 129: 248-262.



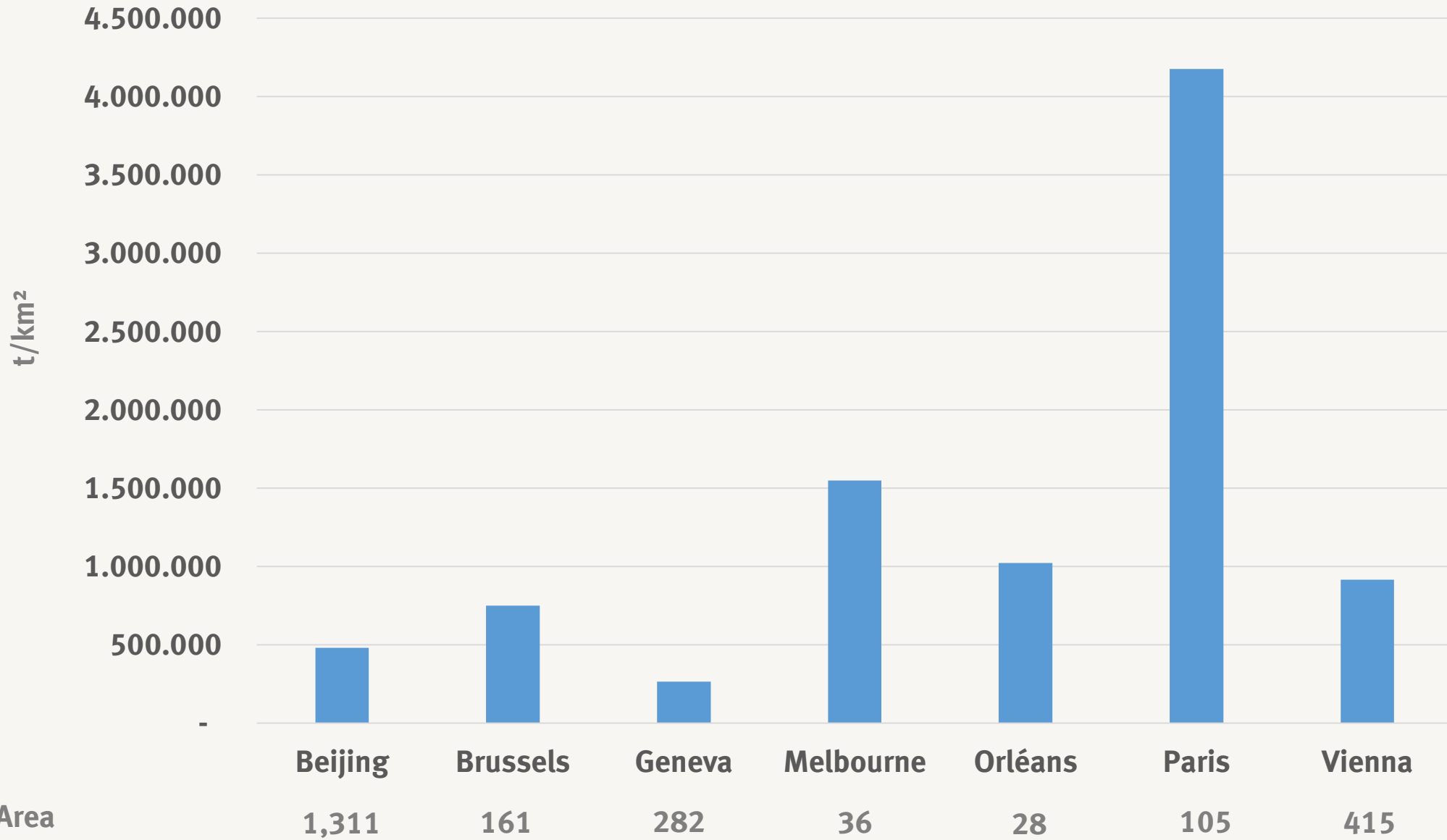
# Comparer la mine urbaine (kt)



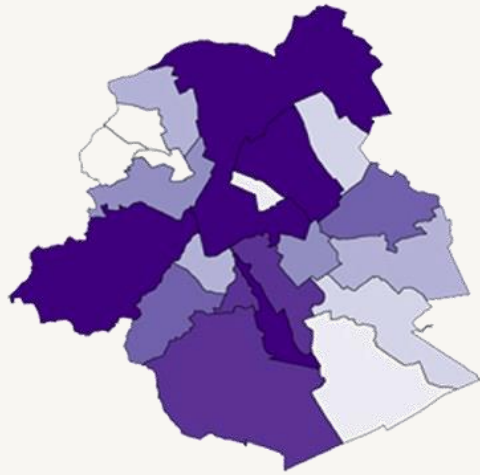
Inhabitants

# Comparer la mine urbaine (kt)

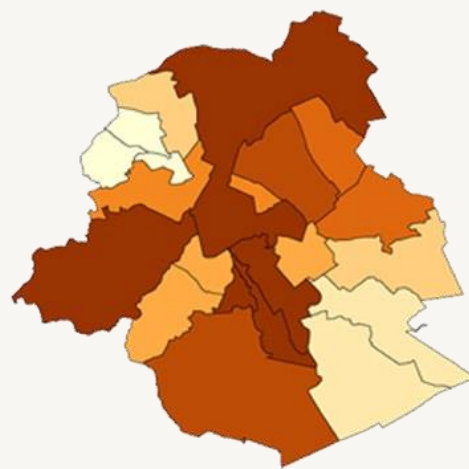




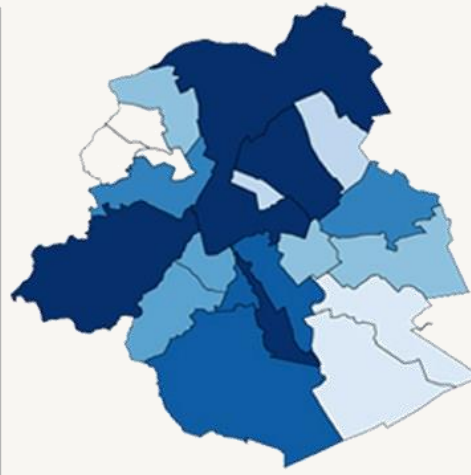
# Comparer la mine urbaine (kt)



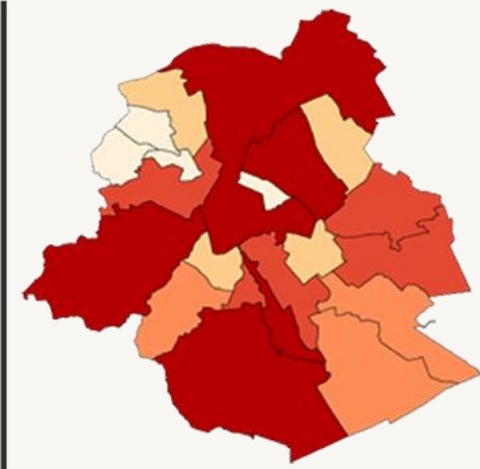
Gas consumption



Electricity consumption



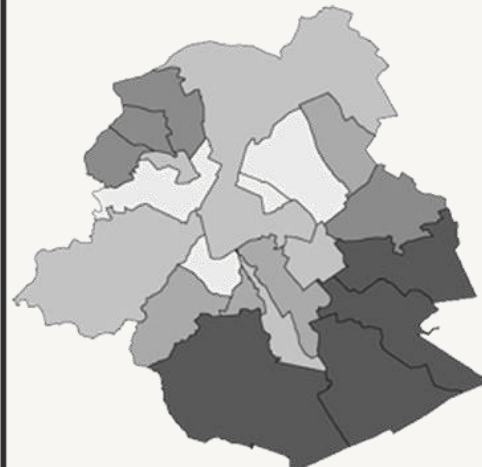
Water consumption



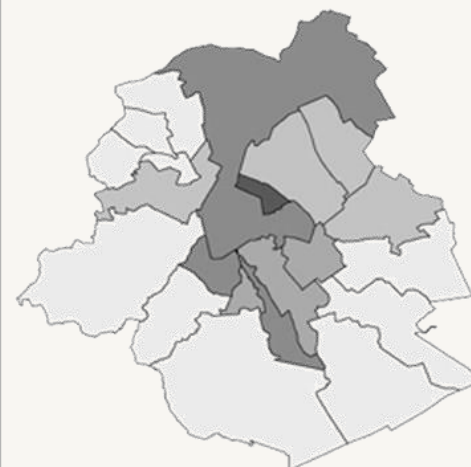
Material stock



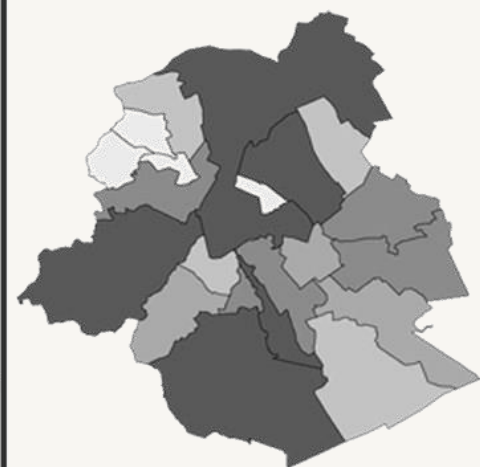
Density



Average income

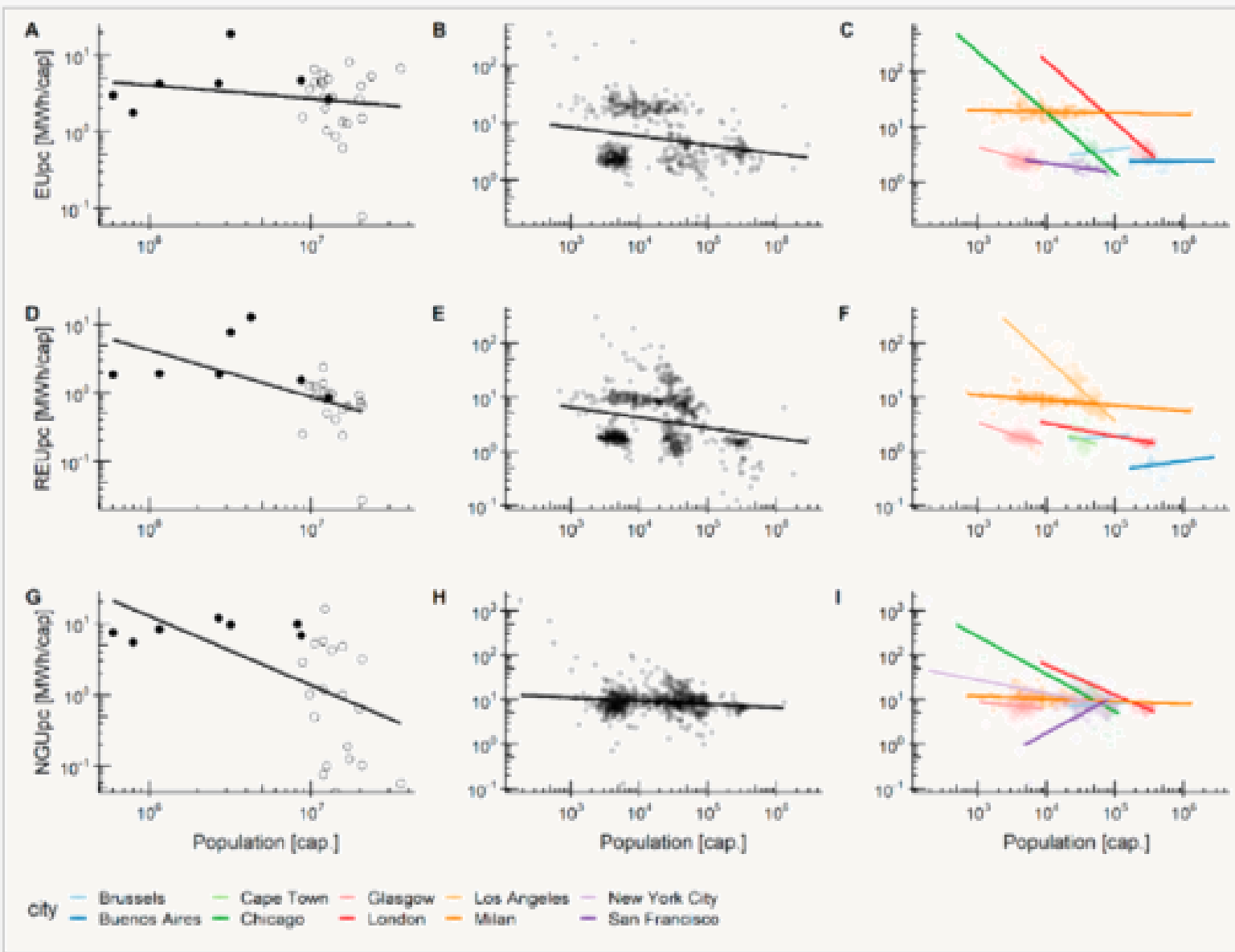


Density of office space

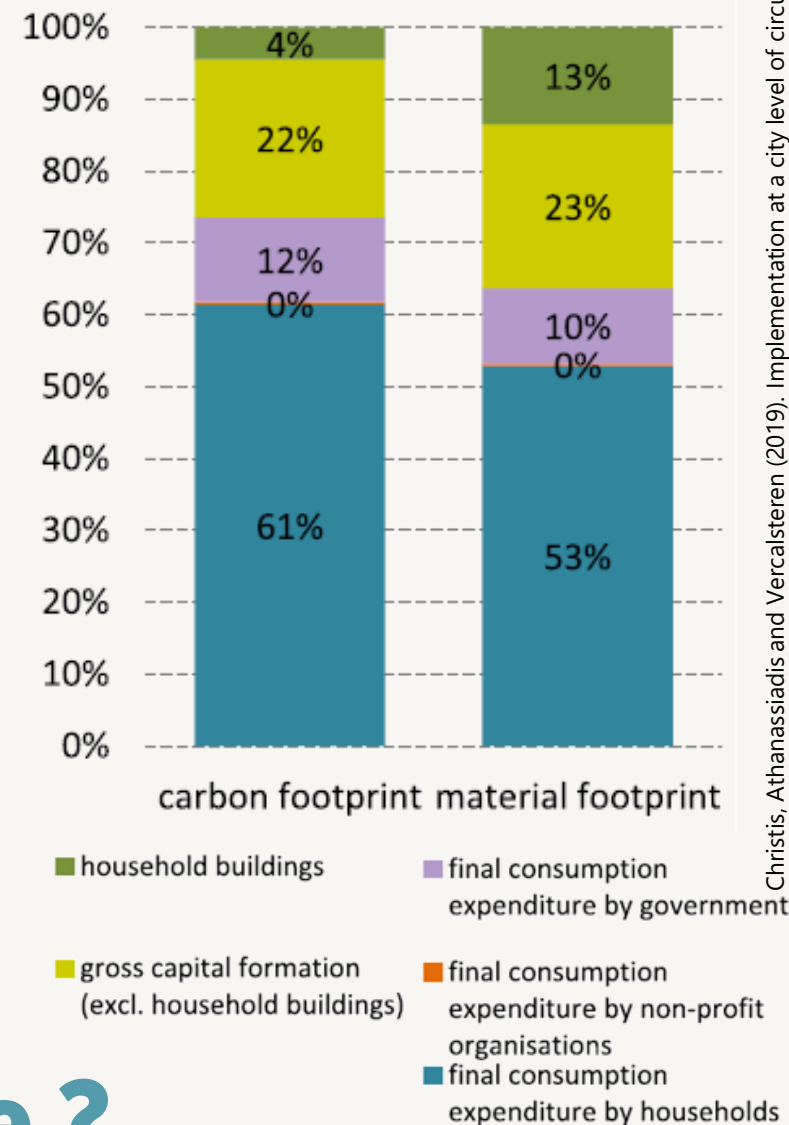
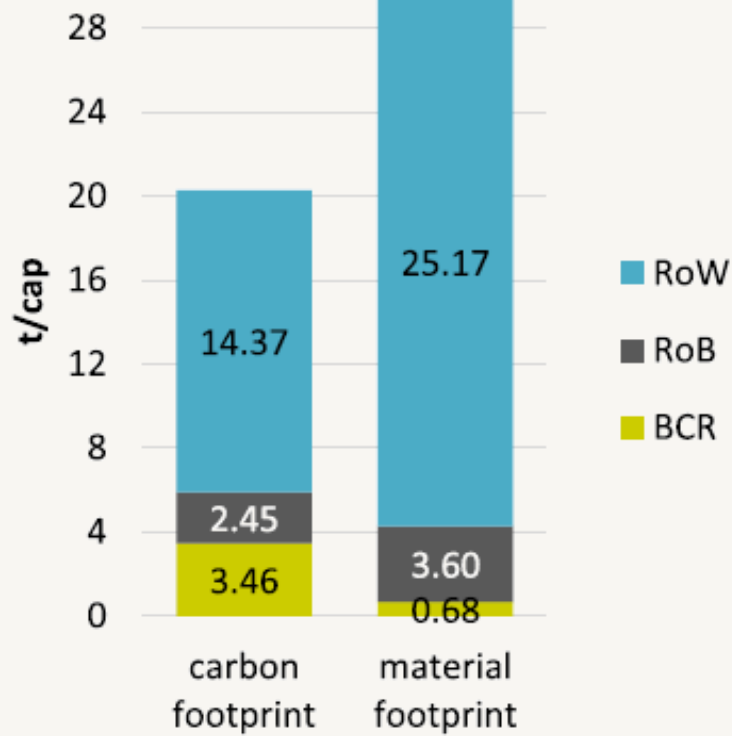
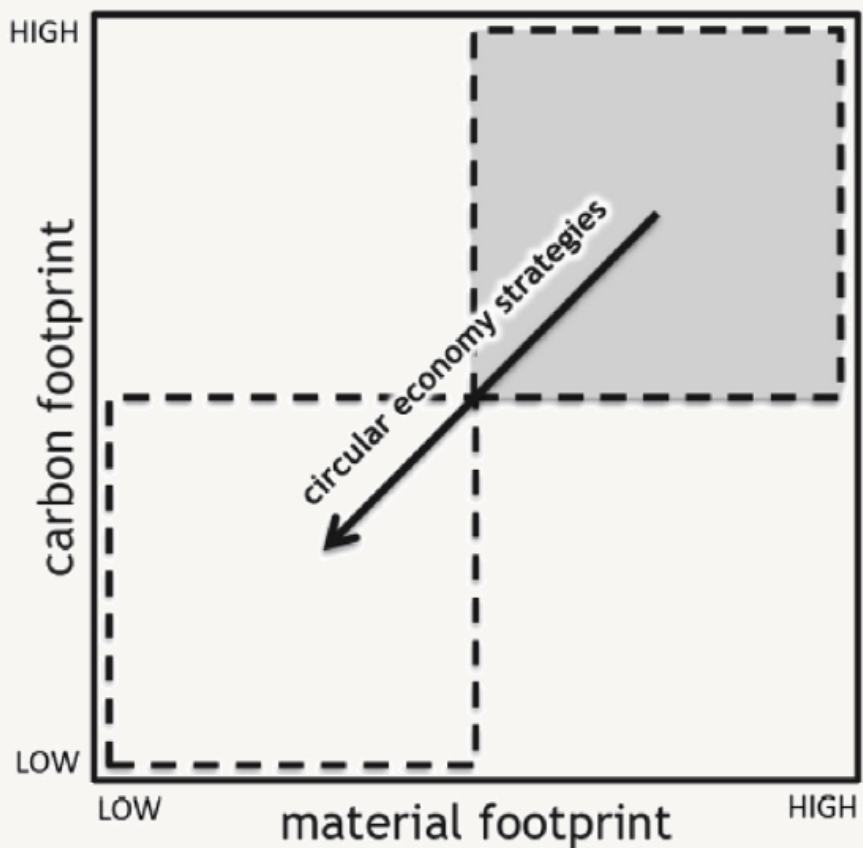


Number of buildings

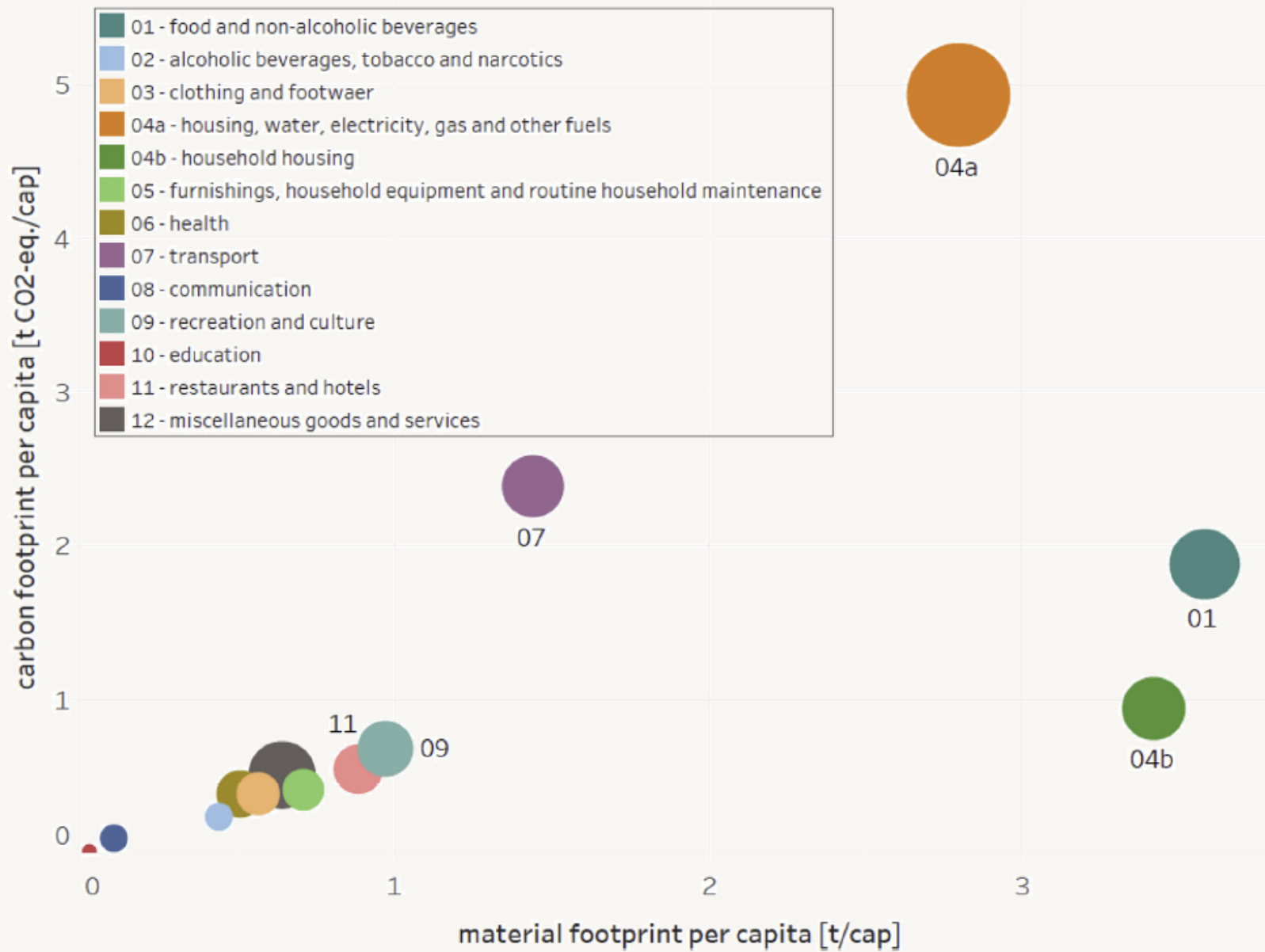
# Identifier les drivers



# Identifier les drivers



# Circulaire et durable ?



# Circulaire et durable ?

**Quelles politiques  
grâce à l'étude du  
métabolisme urbain ?**

# Quelques études

**BATir** **EcoRes** INSTITUT BRUXELLOIS DE GESTION DE L'ENVIRONNEMENT DURABLE



**Métabolisme de la Région de Bruxelles-Capitale : identification des flux, acteurs et activités économiques sur le territoire et pistes de réflexion pour l'optimisation des ressources**

Rapport final juillet 2015

EcoRes  
Rue d'Alimbourg, 28  
1050 Bruxelles  
Belgique  
Tél : 02 763 19 81  
Courriel : [bertrand.mercx@ecores.eu](mailto:bertrand.mercx@ecores.eu)

**Urban metabolism as a tool to activate circular economy in the Buda area**  
Developing a circular economy vision for the Buda area

**ULB** **ECOLE POLYTECHNIQUE DE BRUXELLES** **BATir** **OVAM** SAMEN MAKEN WE MORGEN MOOIER



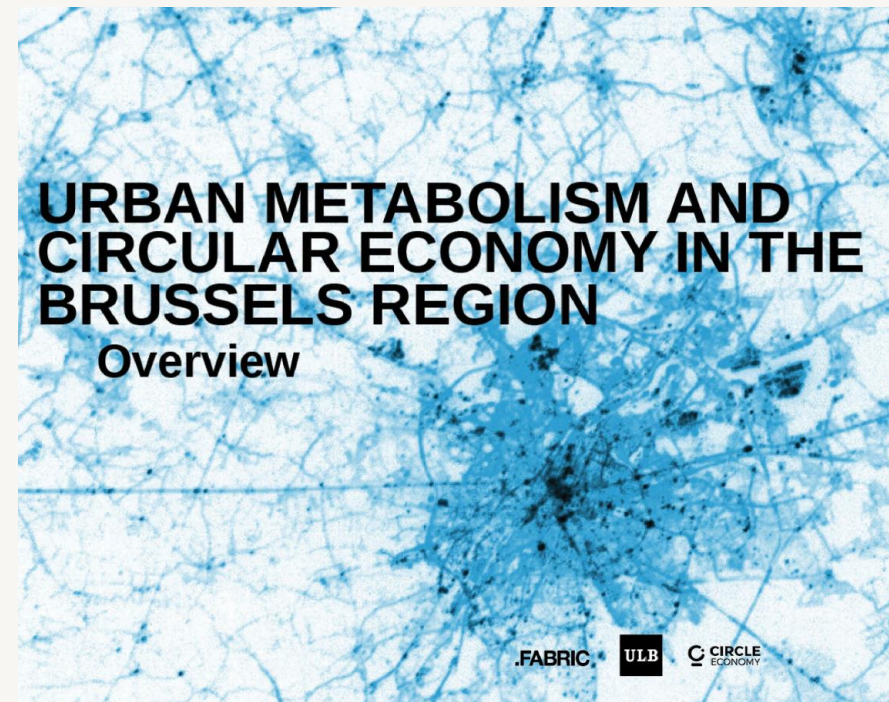
**Economie circulaire dans le secteur de la construction - 2016F0457**  
Offre révisée (23/09/2016) pour l'Institut Bruxellois pour la Gestion de l'Environnement

**ULB** **ECOLE POLYTECHNIQUE DE BRUXELLES** **BATir**



**URBAN METABOLISM AND CIRCULAR ECONOMY IN THE BRUSSELS REGION**  
Overview

**.FABRIC** **ULB** **CIRCLE ECONOMY**



**INFORMATIONS APVAL**

**POTENTIEL DES BIODECHETS COLLECTABLES EN REGION DE BRUXELLES-CAPITALE**  
Rapport final



2018

**What Works for Brussels?**

Towards a common understanding of the intersection between spatial and economic planning

September 2018

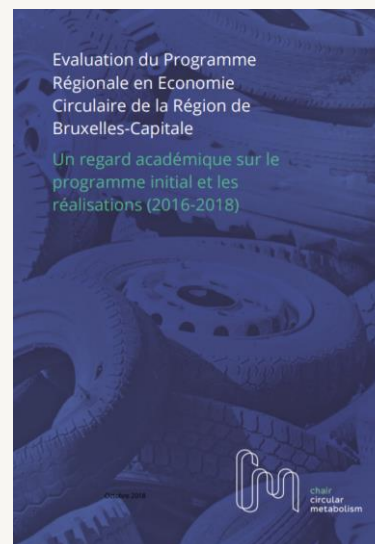
**chir** **chir circular metabolism**



Evaluation du Programme Régionale en Economie Circulaire de la Région de Bruxelles-Capitale

Un regard académique sur le programme initial et les réalisations (2016-2018)

**chir** **chir circular metabolism**



PROGRAMME RÉGIONAL EN ÉCONOMIE CIRCULAIRE  
2016 – 2020

*Mobiliser les ressources et minimiser les richesses perdues :  
Pour une économie régionale innovante*



Mars 2016

MAIRIE DE PARIS



LWARB  
London Waste and Recycling Board

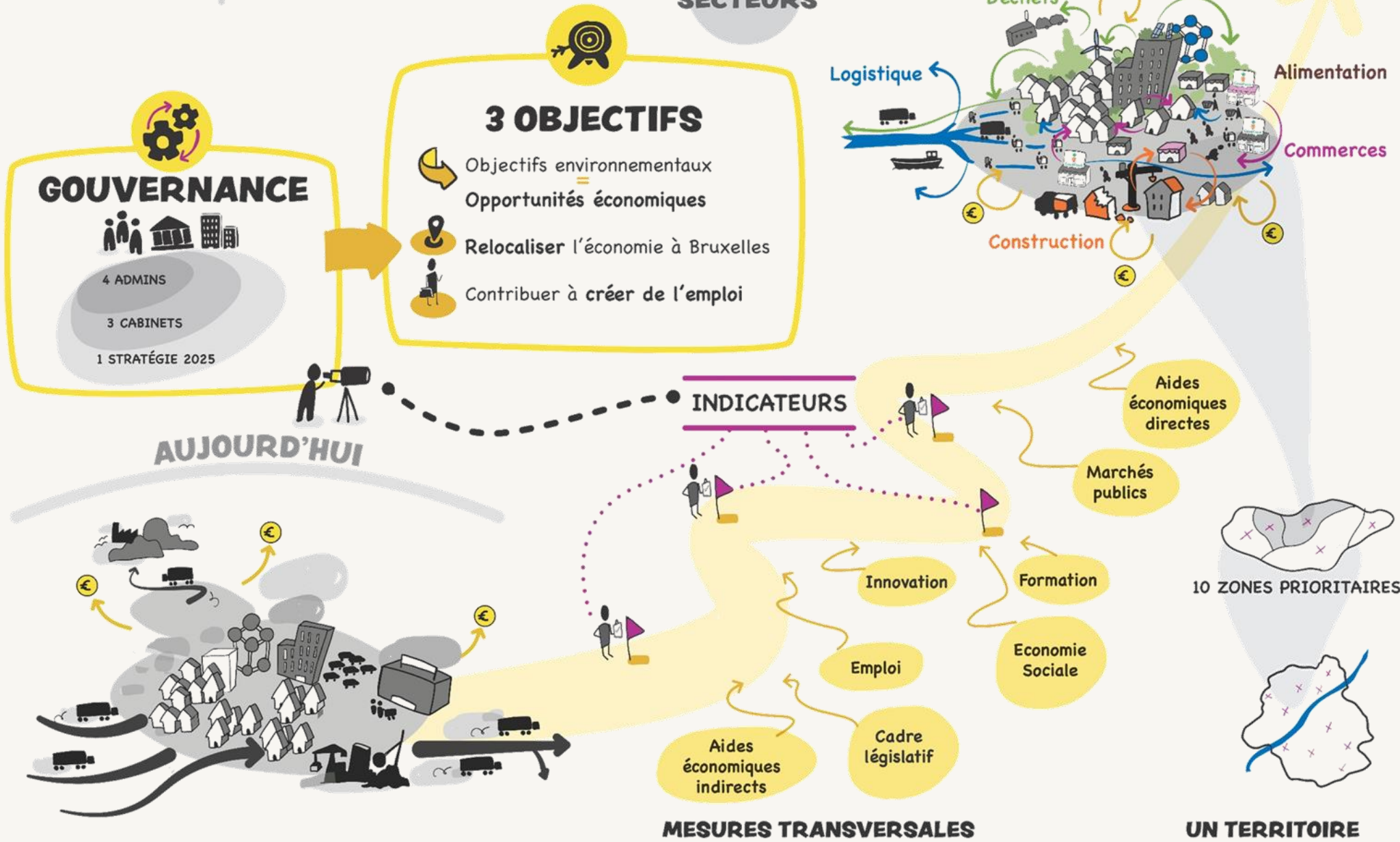


LONDON'S CIRCULAR ECONOMY ROUTE MAP

© Circular London

# Outil d'analyse pour l'économie circulaire





- **Etude MU en 2014-2015**
- **3 ministères, 4 administrations**
- **4 thèmes stratégiques:**
  - *Transversal (43 measures) define a favorable normative and legal framework*
  - *Sectoral (48): construction (13 measures), resources and wastes (24 measures), logistics (7 measures), retail (4 measures)*
  - Territorial (8 measures)
  - Gouvernance (12 measures)

**Economie circulaire à Bruxelles**



GRAND PARIS  
CIRCULAIRE  
.org

CONNEXION / INSCRIPTION

Actualités Comprendre Initiatives Membres Communautés Documents A propos Rechercher

grandpariscirculaire.org, la plateforme dédiée à l'économie circulaire du territoire du Grand Paris

Enregistrez-vous ! Connectez-vous !

Les Actualités

La Petite Charonne, une bière ultra-locale, pédagogique et circulaire - Paris 11ème

la pêche monnaie locale

La monnaie locale La Pêche a le vent en poupe en région parisienne

15 fev 2019 Le OUAÏ - la Journée de l'événement responsable

# Circular Economy Plan of Paris

- **Etude MU en 2007**
- **Etats Généraux de l'Economie Circulaire en 2015 (120 organisations proposées 65 initiatives)**
- **1ère feuille de route (15 actions pour 3 échelles) en 2017**
  - planning and construction (3 actions),
  - reduction, reuse and repair (4 actions),
  - support for actors (5 actions),
  - public procurement (2 actions),
  - responsible consumption (1 action).
- **2ème feuille de route 2018 à 2019**

**Economie circulaire à Paris (Grand Paris-**



LONDON'S CIRCULAR ECONOMY ROUTE MAP



# Circular Economy Plan of London

- **Etude MU en 2002**
- **Feuille de Route Economie Circulaire de LWARB**
  - Built environment (13 actions): CE design (5), managing building materials (4), operation of buildings (4).
  - Food (9 actions): preventing avoidable food waste (3), valuing food waste and food surplus (3), maximising use of urban space for food growing (3).
  - Textiles (10 actions): design (1), embedding CE into the textile supply chain (6), re-use and recycling.
  - Electricals (11): design (2), extending the life of products (6), and effective collection and recycling (3) aspects.
  - Plastics (7 actions).

## **Economie circulaire à Londres**

	Brussels	Paris	London
<b>General information</b>			
<b>Who is behind it?</b>	3 ministries (economy, environment, waste)	City of Paris	LWARB
<b>Period</b>	2016-2020	2017-2020	2016-2036
<b>Investment</b>	13 million euros were dedicated in 2016.	-	£50m of investment to 2020
<b>Targeted audience</b>	Public administrations, businesses, citizens, local associations and federations	Public administration, businesses, citizens	Public administrations and businesses
<b>Number of actions</b>	111 actions	15 actions for 2017, another 15 foreseen until 2020	50 actions
<b>Main branches of CE</b>			
<b>Circularity as economic opportunity</b>	35	2	15
<b>Circularity as principle for waste and resource regulation</b>	37	11	20
<b>Circularity as constraint in a world of entropy</b>	0	0	0
<b>Unclassified (including monitoring, stakeholder platforms, governance, teaching/training, territorial development etc.)</b>	39	2	15

# A comparison of circular economy policies in Brussels, Paris, London

ÉCONOMIE CIRCULAIRE DANS LE SECTEUR DE LA  
CONSTRUCTION À BRUXELLES :  
ÉTAT DES LIEUX, ENJEUX ET MODÈLE À VENIR



OCTOBRE 2017



LE SECTEUR DE  
LA CONSTRUCTION  
À BRUXELLES

CONSTAT ET  
PERSPECTIVES :  
VERS  
UNE ÉCONOMIE  
CIRCULAIRE



# Stock matériel de Bruxelles



Source: [http://bsenvironnement.fr/dyn/dechets/dechets\\_inertes.jpg](http://bsenvironnement.fr/dyn/dechets/dechets_inertes.jpg)

	<b>Bruxelles milliers t</b>
<b>Inertes</b>	<b>74,899</b>
<b>Métaux</b>	7,526
<b>Bois</b>	3,942
<b>Plâtre</b>	2,755
<b>Plastique</b>	1,257
<b>Isolation</b>	1,882
<b>Autres</b>	62
<b>TOTAL</b>	<b>92,324</b>

**Plus de 80% du stock matériel  
sont des inertes (plus grande  
partie des déchets actuels)**

# Stock matériel de Bruxelles



Source: <https://www.slatergordon.co.uk/media/5749570/construction-and-engineering.jpg?width=&height=&mode=crop&quality=70>

	<b>Bruxelles milliers t</b>
<b>Fondation</b>	<b>12,789</b>
<b>Colonne/poutre - Mur porteurs</b>	<b>18,106</b>
<b>Plancher/Dalle</b>	<b>25,753</b>
<b>Murs extérieurs</b>	<b>10,626</b>
<b>Murs intérieurs</b>	6,974
<b>Toit</b>	1,841
<b>Fenêtres</b>	2,506
<b>Portes</b>	1,385
<b>Revêtement de sol</b>	5,101
<b>Câblage / tuyauterie</b>	270
<b>HVAC</b>	4,832
<b>Sanitaires</b>	78
<b>Isolation</b>	1,882
<b>TOTAL</b>	<b>92,142</b>

**Environ 75% du stock est accumulé dans la structure des bâtiments  
Pour réduire les déchets/ressources du secteur il faut préserver le bâti**

# Conception / Innovation

Matériaux non toxiques, bio-sourcés, renouvelables



Extraction

Utilisation d'énergie renouvelable, 3D, Préfabrication, matériaux modulaires, Service vs. produit



Fabrication

Zone de stockage, Flux tendus, Transport fluvial, logistique inversée



Distribution

BIM, Séparation de strates, Adaptabilité, Passeport matériaux, Prévion de la déconstruction, Réemploi



Construction

Adaptabilité, Extension de la durée de vie, Partage, Déconstruction



Utilisation



Elimination

Maintenance  
Réparation  
Entretien

Réutilisation  
Réemploi

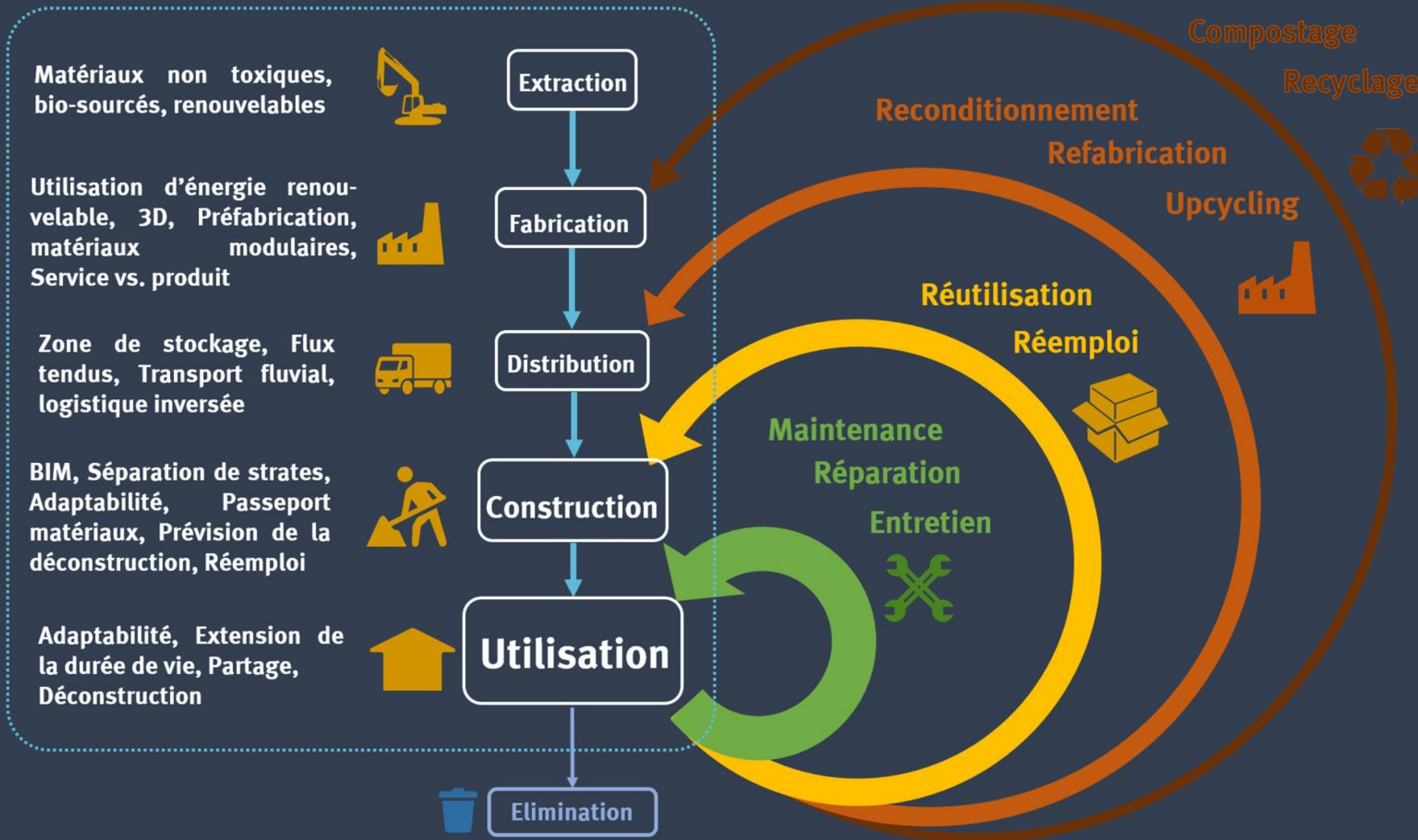


Reconditionnement  
Refabrication

Upcycling

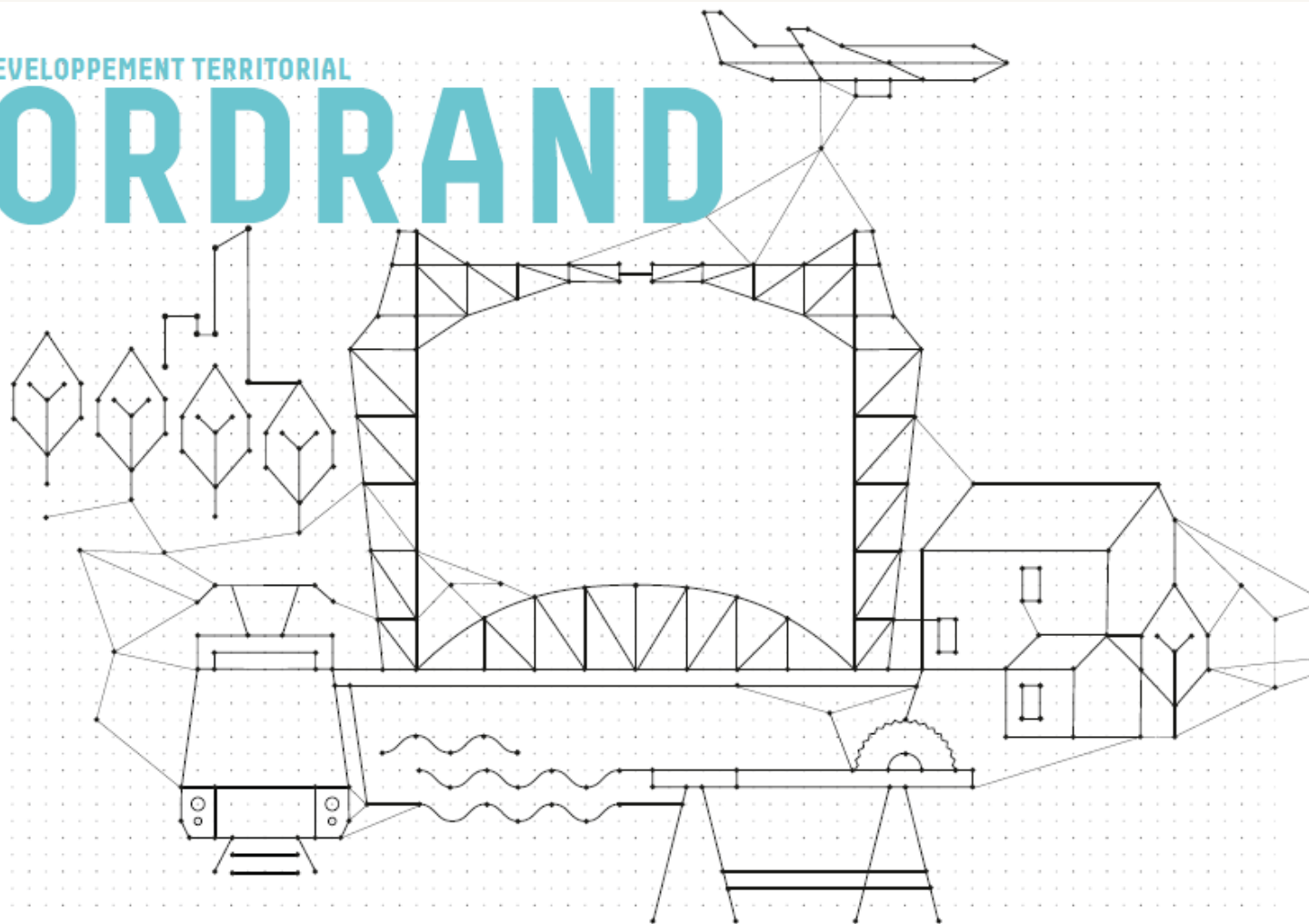


Compostage  
Recyclage



PROGRAMME DE DEVELOPPEMENT TERRITORIAL

# NOORDRAND

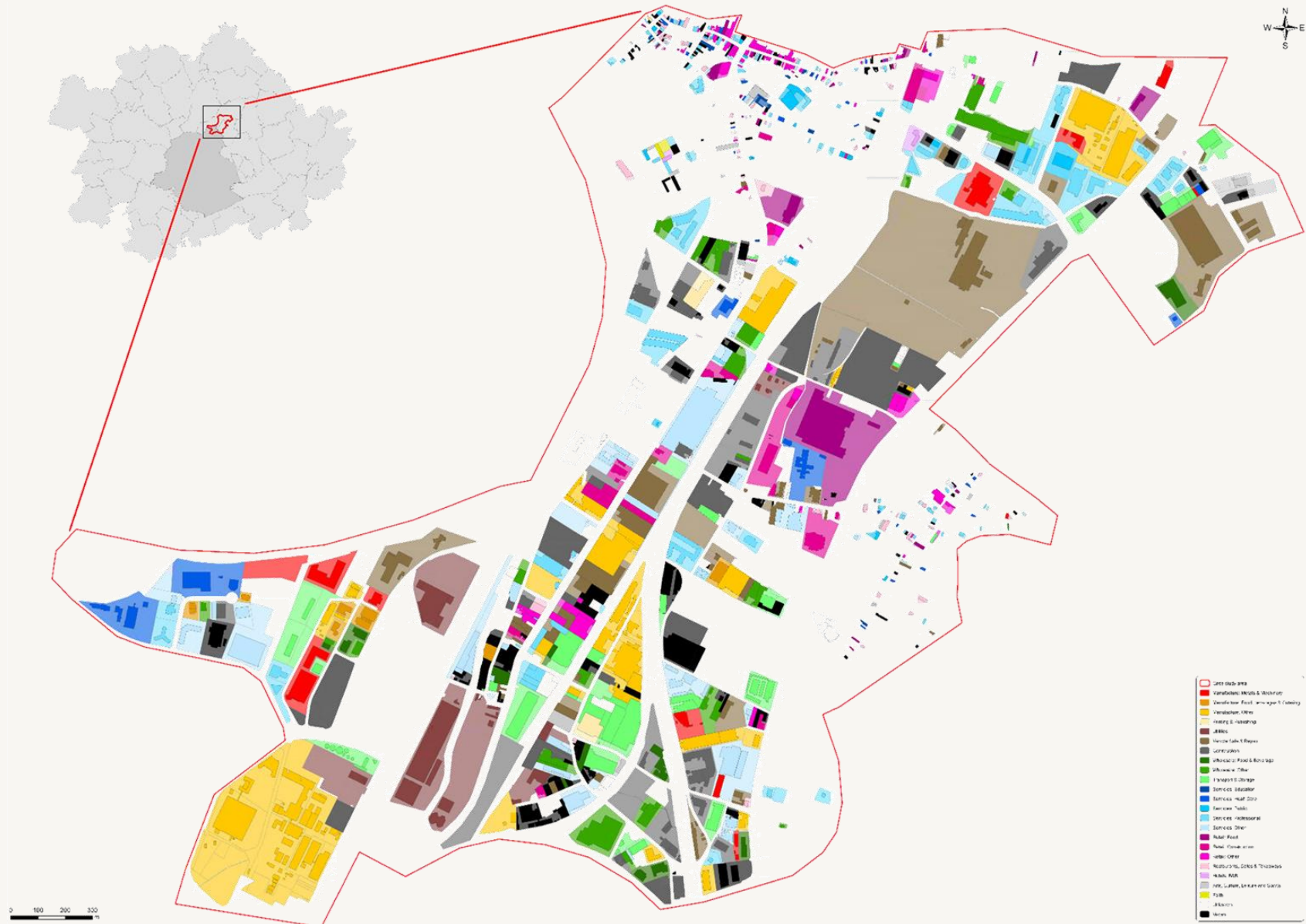


programme d'action

version décembre 2016

# Développement territorial et nouvelles industries

# Métabolisme d'une zone industrielle (Buda)

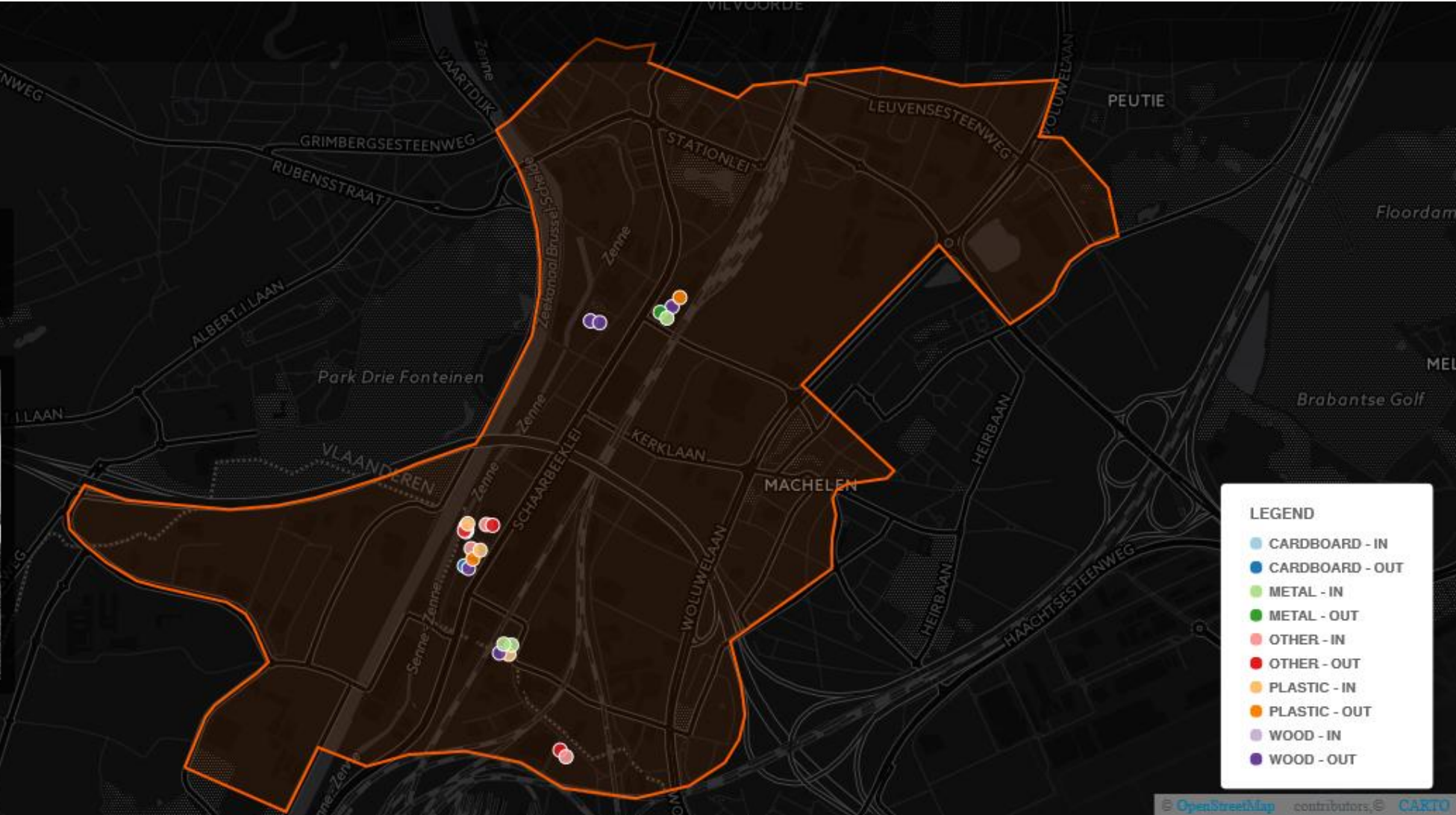


# Matchmaking à Buda

Buda+

## Buda+

This map shows some of the resource and waste flows with which we could co-create a circular economy vision



**Quels outils pour le  
métabolisme urbain ?**



Introduction

Overview

Module 0: Welcome to the course

Module 1: Introduction

Module 2: Accounting methodologies and indicators

Module 3: Case studies

Module 4: Urban metabolism policies

Module 5: Final quiz

Syllabus

Feedback

# Urban Metabolism for Policy Makers

Welcome to the first online course on Urban Metabolism for Policy Makers!

The world is urbanising rapidly. In 2009, the number of people living in cities (around 3,5 billion) surpassed the number living in rural areas. While the urban population is hosted only on 3% of global land area, it is also responsible for over 70% of natural resources and energy use and for 60% pollution emissions and waste generation. While cities are responsible for the greatest share of man-made environmental impact, they are also the places 80% of global GDP is produced and are the nodes of innovation. Therefore, the fight against climate change will be won or lost in cities.

Yet, cities are extremely complex systems where social, economic, political, territorial, ecological, resource, waste, etc. challenges coexist. Urban metabolism is way to look at cities from a systemic point of view linking all the above mentioned challenges. This metaphor conceptualises the city as living organism where resource flows enter, are transformed or stocked and waste flows exit the territory.

This course is targeting policy makers who are interested in learning how urban metabolism can help them develop more comprehensive and system urban policies in order to meet the Paris Agreement targets.

To know what Urban Metabolism is, have a look at the following video!



This is the first MOOC provided by the GI-REC (Global Initiative for Resource Efficient Cities). The GI-REC is a cooperation platform offered by UN Environment to connect different institutions that are using systems approach (and specifically urban metabolism) towards building low-carbon, resilient and resource efficient cities. This MOOC is produced and run for you by Metabolism of Cities, in partnership with the League of Cities of the Philippines and UN Environment.



<https://metabolismofcities.org/mooc>



# Comprendre



# Développer des outils communs

The screenshot shows the website's navigation menu with options: About, Community, Resources, and Cities. The main content area for Cape Town includes an aerial photo, a map, and a sidebar with 'Resources' (Datasets, Maps) and 'Browse by sector...' (Agriculture, Construction, Energy, Fishing).

**Overview**

- City: Cape Town, South Africa
- Source(s): Freight Demand Model
- Data points: 205
- Time frames: Jan. 1, 2013 - Dec. 31, 2013
- Materials:
  - Animal feed
  - Barley
  - Beverages
  - Bricks
  - Cement
  - +69 other materials
- Uploaded by: Paul Hoekman
- Upload date: Oct. 10, 2018, 9:46 a.m.
- File: Download file

**Data quality**

- Reliability: 2
- Completeness: 1
- Access: 3
- Geographical correlation: 2

Charts | Table | Replication

Freight data: Imports and exports  
Cape Town

Quantity (t)

Material	Quantity (t)
Cereals	~1.0M
Chemical and fertilizer minerals	~1.5M
Coal and other solid energy materials	~0.5M
Crossed oil, condensate and natural gas	~0.2M
Copper	~0.1M
Dairy products, fresh eggs, and honey	~4.0M
Fibres	~0.1M
Fruits	~1.5M
Gold, silver, platinum and other products	~0.1M
Iron	~0.1M
Limestone and gypsum	~0.1M
Marble, granite, sandstone, porphyry, and other natural stone	~0.1M
Meat and meat preparations	~1.0M
Natural gas	~0.1M
Oil-bearing crops	~0.1M
Other non-ferrous metals	~0.1M
Other non-ferrous metals n.e.c.	~0.1M
Other products	~0.1M
Products mainly from fossil energy products	~12.0M
Products mainly from metals	~3.5M
Products mainly from non-metallic minerals	~1.0M
Pulses	~0.1M
Rubber, latex, and other products	~0.1M
Salt	~0.1M
Timber (industrial roundwood)	~0.1M
Titanium	~0.1M
Vegetables	~0.1M
Wool for catch	~0.1M
Wood fuel and other extraction	~0.1M

Made by Metabolism of Cities

# Développer des outils communs



Data collection hackathon for the city of The Hague; session set up in collaboration with Leiden University

The screenshot shows the website interface for 'Metabolism of Cities' for the city of Cape Town. The top navigation bar includes 'About', 'Community', 'Resources', and 'Cities'. Below this, a secondary navigation bar shows 'Cities', 'Cape Town', and 'Upload'. The main content area is divided into several sections: 'Data' with three large colored buttons for 'Infrastructure', 'Material flow', and 'Material stock', each with an 'Upload now' button; 'Resources' with six smaller blue buttons for 'Journal article', 'Thesis', 'Report', 'Video', 'Photo', and 'Presentation'; 'Information' with six smaller light blue buttons for 'Sector info', 'Organization', 'Population', 'Profile', 'Legislation', and 'Summary'; and 'Geo-spatial' with three orange buttons for 'System Boundaries', 'Micro-territorial units', and 'Maps'. A left sidebar menu lists 'Overview', 'Sectors', 'City profile', 'Resources', and 'Upload'.

<https://metabolismofcities.org/cities/cape-town/>



## Most islands heavily rely on imports of food, energy, and construction materials. Much of it ends up as waste on the island.

On an average, Antigua and Barbuda import 92% and Grenada 89% of their construction materials and each year

# Développer des outils communs

<https://platformu.metabolismofcities.org>



[ABOUT](#)

[FEATURES](#)

[SIGN UP](#)

[LOGIN](#)

Manage what you can measure

## PlatformU

[LEARN MORE](#)

# Créer une communauté


<https://sites.google.com/site/circularmetabolismcommunity/>

## Circular Metabolism Community



# Créer une communauté

<https://sites.google.com/site/circularmetabolismcommunity/>

**NEW TOPIC**     Help

In May of 2019, we'll be merging and deprecating some of our settings to make group management easier. [Learn more](#)

Circular Metabolism Community Shared privately  Tags · Members · About

7 of 7 topics (2 unread)

Welcome to the Discussion Forum of the Circular Metabolism Community.




This community is impelled by the Chair of Circular Economy and Urban Metabolism of the Université Libre de Bruxelles (<http://circularmetabolism.com>) which role is to foster and strengthen the exchanges between policy, practice and academic actors in order to implement actions that will hopefully make Brussels' economy and metabolism more circular.

We hope that through this community will be able to take stock on all the exciting efforts carried out around circular economy and urban metabolism in Belgium and create a consolidated knowledge base which will serve as a foundation for a science-policy-practice interface.


The discussion forum serves as an online communication tool to keep the discussion and debate going. Please feel free to create new topics, advise the community for new events, propose new ideas/projects, be critical on existing ones, etc.

Cheers,  
Aristide and Stephan

[Edit welcome message](#) [Clear welcome message](#)

-  Resources  
By me - 14 posts - 56 views Apr 26
-  FYI workshop June 6 on the monitoring challenges in CE and sustainability (1)  
By lalaerts@ovam.be - 1 post - 4 views Apr 26
-  Funding (2)  
By me - 2 posts - 15 views Mar 2

Circular Metabolism Community

Today  **May 2019** Week **Month** Agenda

Mon	Tue	Wed	Thu	Fri	Sat	Sun
29	30	May 1	2	3	4	5
6	7	8	9	10	11	12
Science Technology Society Conference - Session 18: Is 1						
13	14	15	16	17	18	19
13th Conference of the International Society for Industrial Ecology (ISIE) - Socio-Econ Deadline Call for projects 18						
20	21	22	23	24	25	26
27	28	29	30	31	Jun 1	2

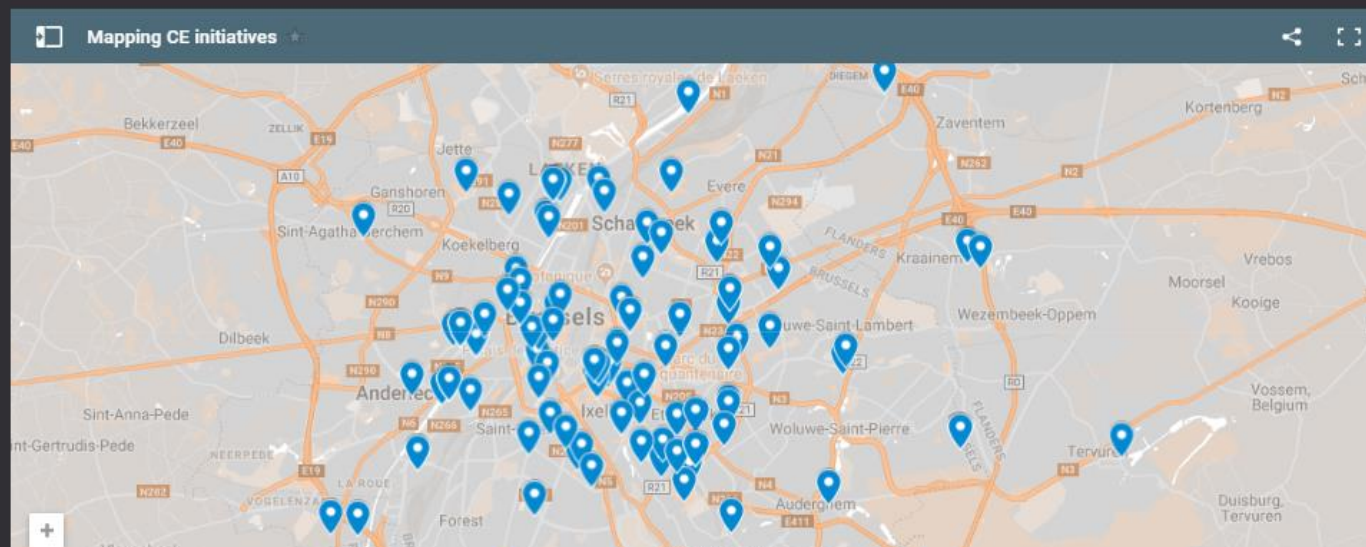


# Créer une communauté

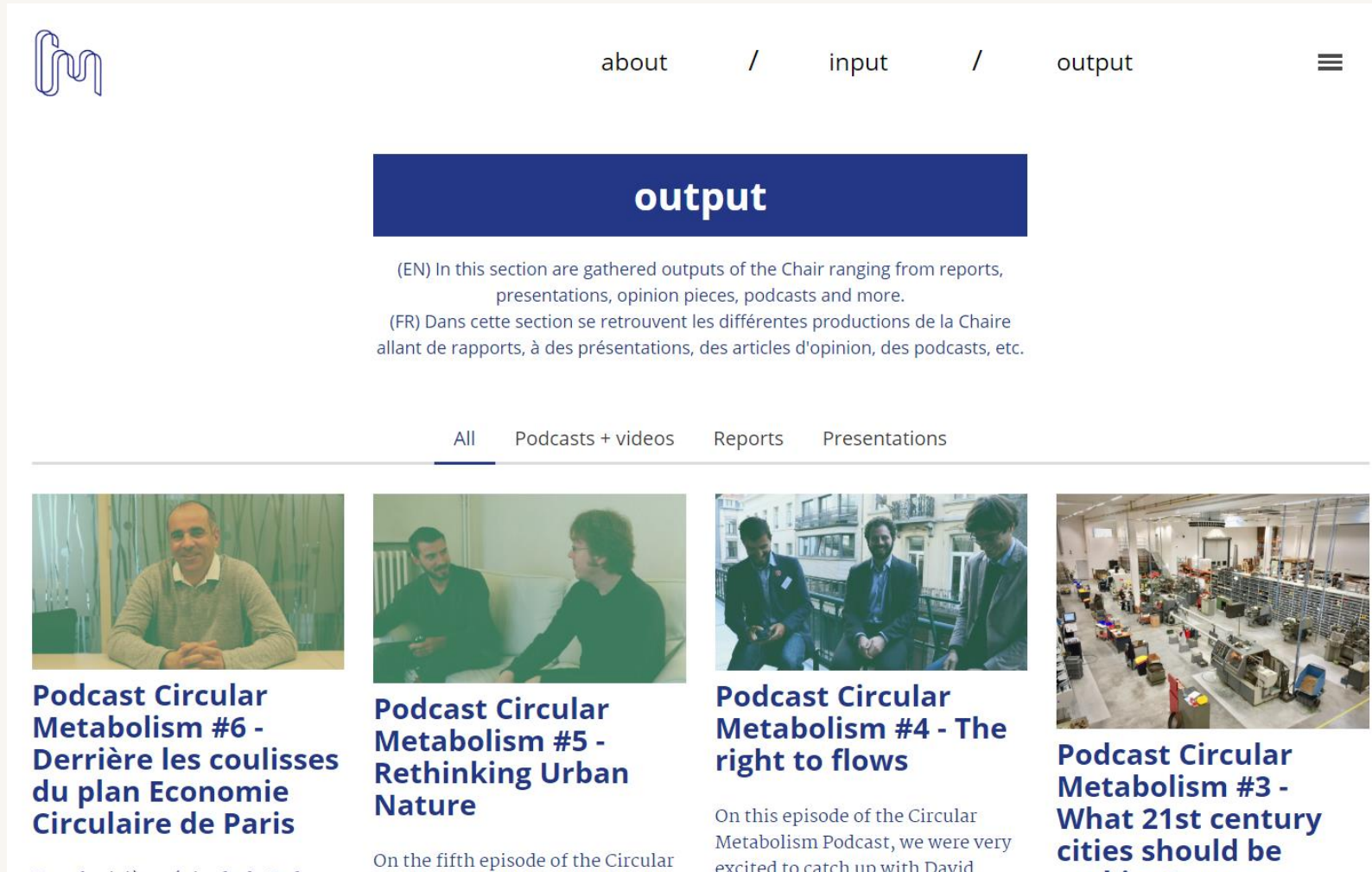
<https://sites.google.com/site/circularmetabolismcommunity/>


Circular Economy Initiatives							
General description							
ID	Name of the projet	Project's holder	Contact	Address	Foundin	Ongoing	Sector (NA
1	Factory Shopping	asbl terre	04/240.58.58 info	Rue de Birmingham, 112, 1070 Anderlecht	2016	yes	C - Manuf:
2	Brussels Tourism goes circular	Bed & Brussels asbl		Rue Goffart, 78, 1050, Ixelles	2016	yes	I - Accom
3	Belgomarkt - Phase II	Belgomarkt coop scr		Rue de Dublin 19, 1050 Bruxelles	2016	yes	G - Wholes
4	Tivoli	CFE		125 Rue Claessens, Brussels	2016	yes	F - Constr
5	connecteur de l'économie circulaire	CityDepot SA		Avenue de Vilvoorde,178, 1130 Bruxelles	2016	yes	H - Transp
6	Dépôt Leemans	DRTB			2016	yes	F - Constr
7	Extension en brique de réemploi	Eco construct groupe sprl			2016	yes	F - Constr
8	EcoTop	Ecotop SA		Rue du Rabiseau, 6, 6220 Fleurus	2016	yes	M - Profes
9	Platerforme bio - Farm	Farm Coop		Avenue des Lauriers 17, 1150 Bruxelles	2016	yes	I - Accom
10	circular.Autoglas	Febelauto		Boulevard de la Woluwe 46, bte 13, 1200 Bruxe	2016	yes	G - Wholes
11	Développement d'une filière de valorisation d	Ferme nos pilifs asbl		Trassersweg 347, 1120 Bruxelles	2016	yes	C - Manuf:
12	Centre culturel Deswaef	Gillion Construct SA			2016	yes	F - Constr
13	Debatty	Gillion Construct SA			2016	yes	F - Constr
14	Warland 238	Global Avt Concept sprl			2016	yes	F - Constr
15	Fermons la boucle de la bière bruxelloise	Le champignon de Bruxelles scr		Rue Ropsy Chaudron, 24 26, 1070 Bruxelles	2016	yes	I - Accom
16	Aménagement et extension du 5ème Etage	Marc Stockemans			2016	yes	F - Constr
17	CoMoDu by MCB	MCB Atelier sprl		Rue Henri-Joseph Genesse 34, 1070 Bruxelles	2016	yes	F - Constr


Initiatives [NACE code](#) [Business Models](#) [Materials code](#)



# Créer une communauté (podcast)






about / input / output 

## output


(EN) In this section are gathered outputs of the Chair ranging from reports, presentations, opinion pieces, podcasts and more.

(FR) Dans cette section se retrouvent les différentes productions de la Chaire allant de rapports, à des présentations, des articles d'opinion, des podcasts, etc.

All Podcasts + videos Reports Presentations




**Podcast Circular Metabolism #6 - Derrière les coulisses du plan Economie Circulaire de Paris**




**Podcast Circular Metabolism #5 - Rethinking Urban Nature**

On the fifth episode of the Circular



**Podcast Circular Metabolism #4 - The right to flows**

On this episode of the Circular Metabolism Podcast, we were very excited to catch up with David



**Podcast Circular Metabolism #3 - What 21st century cities should be**

<https://circularmetabolism.com/output>



Urban metabolism is an academic field with significant potential to influence urban development and policy. Urban metabolism methodologies have long been used to better understand resource requirements and impacts in a city, for instance through material flow or ecological footprint analyses. With the surging interest in circular economy, urban metabolism (and other industrial ecology principles) may be able to play a pivotal role in providing a scientific foundation to sustainability transformations. However, a fundamental yet unanswered question is how urban metabolism principles can be translated to on-the-ground interventions, policy recommendations, and tools that directly influence and improve urban sustainability.

In collaboration between Metabolism of Cities and local partners, three different one-day seminar events will be organised in 2019. During this event conversations, presentations, and discussions will take place with a focus on the local city and how urban metabolism practices could be better applied in this city. During this day we will look at the challenges, the ambitions, and the opportunities that exist in each city, and we aim to bring together a diverse group of people from government, academia, and practice. We will be focusing on getting a more systematic understanding of the local city's resources and the relationship between different resources and how they flow through the city, with a specific focus on locally specific environmental challenges.

The seminars will take place in Cape Town (May 2019), Beijing (July 2019) and Brussels (October 2019). This seminar series is funded by the Urban Studies Foundation.



## Cape Town

South Africa

May 9, 2019

[Read more](#)



## Beijing

China

July 6, 2019

[Read more](#)



## Brussels

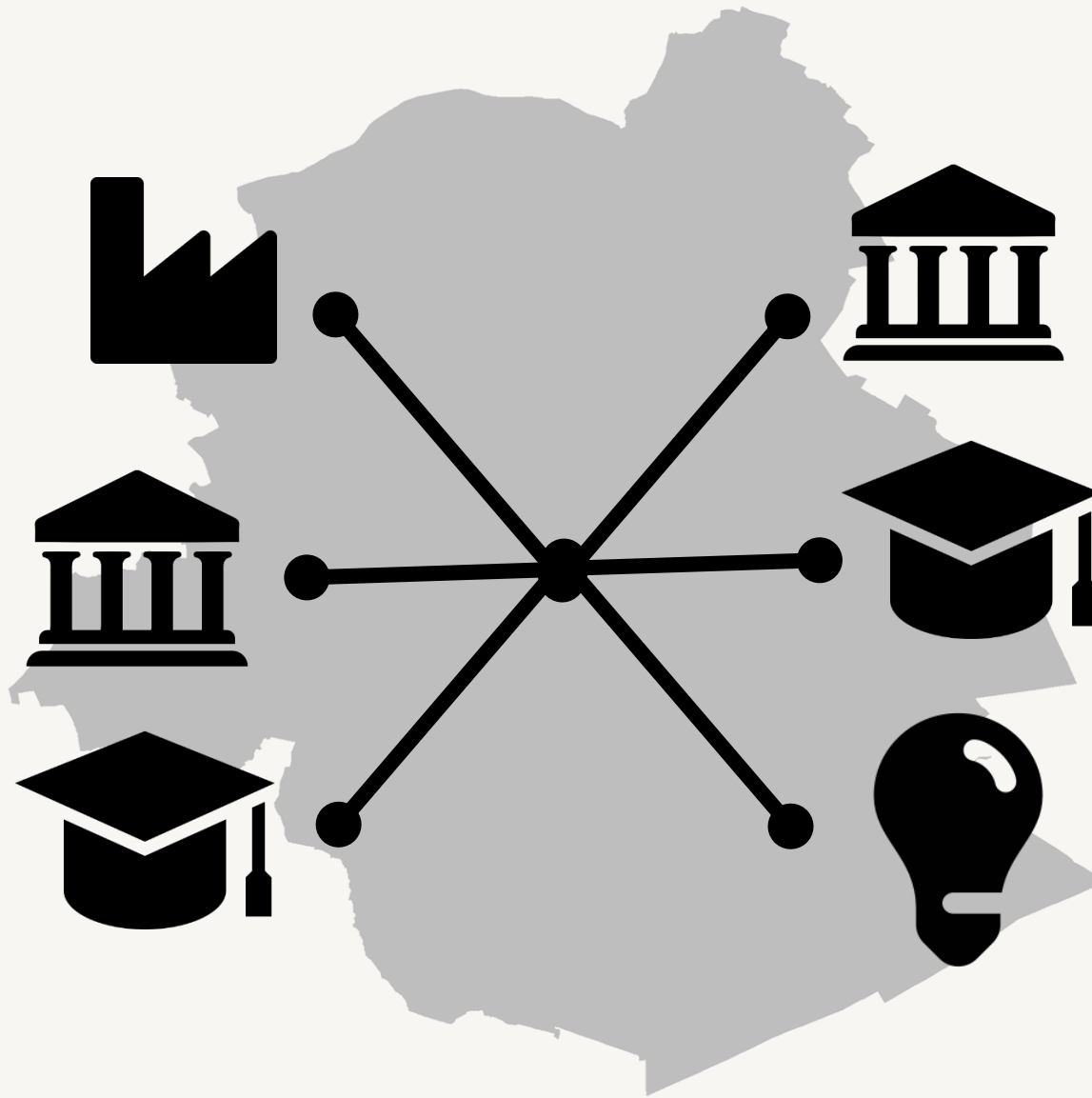
Belgium

October 2019

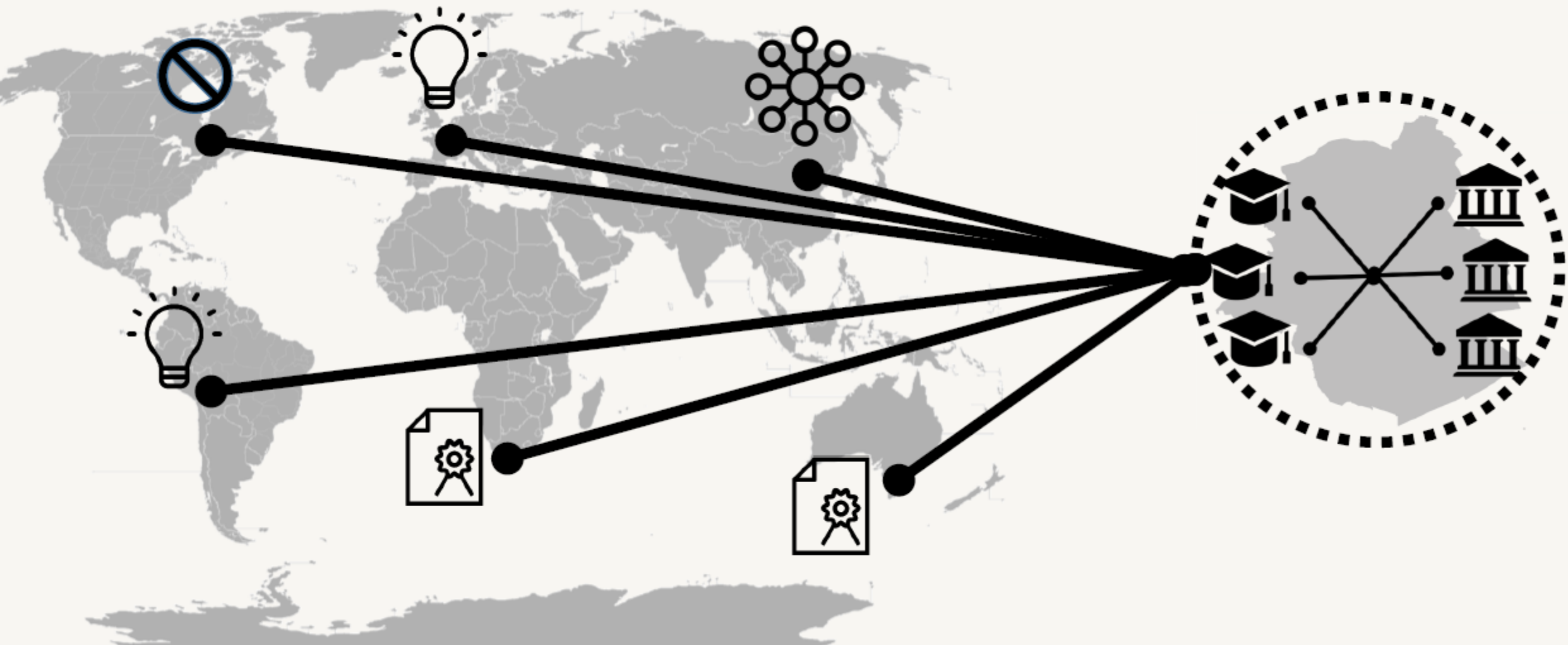
[Read more](#)

<https://seminars.metabolismofcities.org/>

This seminar series is supported by a Seminar Series Award from the [Urban Studies Foundation](#).



**Une interface recherche-politiques-pratique**



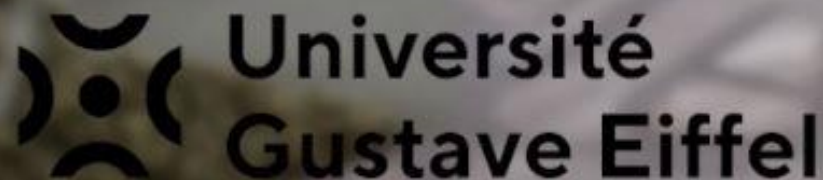
**Connector**

# ECOLE D'ÉTÉ INTERNATIONALE

"VILLE, TERRITOIRE, ÉCONOMIE CIRCULAIRE"

14 - 28 JUIN 2020

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[INFO@CIRCULARMETABOLISM.COM](mailto:INFO@CIRCULARMETABOLISM.COM)



**Connecter**

# Le métabolisme urbain comme outil de formulation de politiques urbaines

Chaire Circular Metabolism - Aristide Athanassiadis – 07 Février 2020



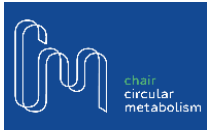
[arisatha@ulb.ac.be](mailto:arisatha@ulb.ac.be)



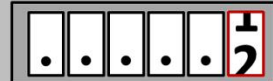
CityMetabolism



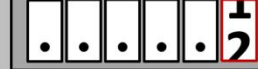
[www.circularmetabolism.com](http://www.circularmetabolism.com)  
[www.metabolismofcities.com](http://www.metabolismofcities.com)



ENERGY



GWh



kt CO<sub>2</sub>-eq

GHG EMISSIONS

