

**SEMIAC**

**Fortaleza 20 de fevereiro de 2024**

# **Inovação em Gestão para Mudanças Climáticas**

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&

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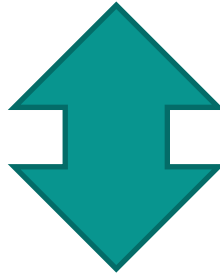
Steering Committee Member, The Belmont Forum

# The Problem

# Linking Global and Local

## **PROBLEMS (Global):**

- Climate change
- Biodiversity
- Food, water, energy, security



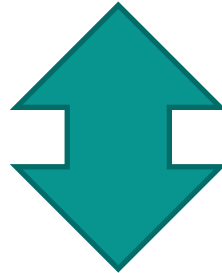
## **SOLUTIONS (Local):**

- **Local governance:** local governance structures emerge and change,
- **Old problems, new agendas for implementation:** global policy implementation more effective at the local level by integrating with other policies

# Linking Global and Local

## **PROBLEMS (Global):**

- Climate change
- Biodiversity
- Food, water, energy, security



**Innovations**

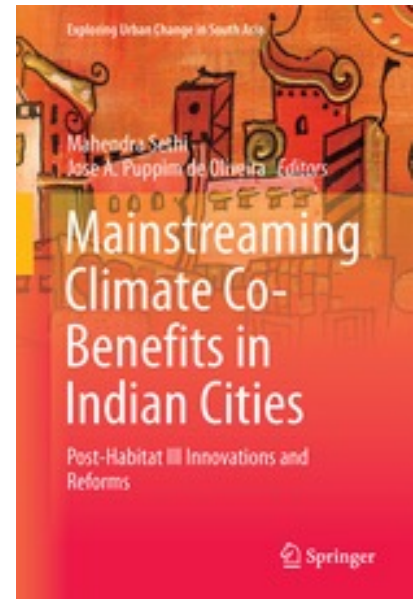
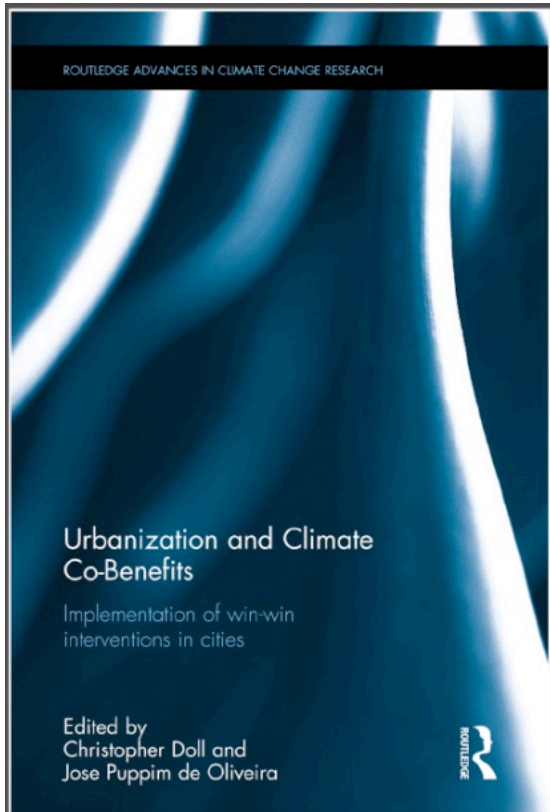
## **SOLUTIONS (Local):**

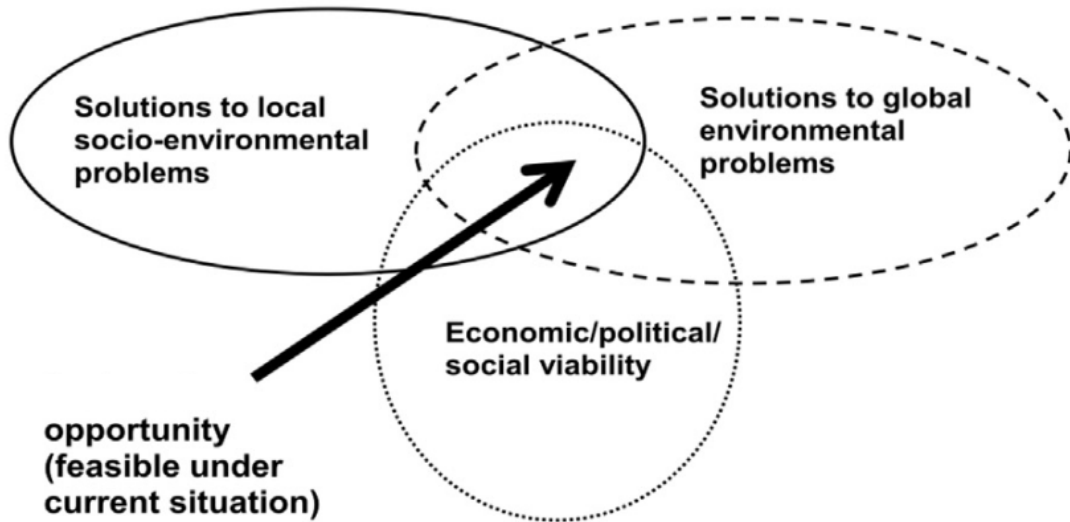
- **Local governance:** local governance structures emerge and change,
- **Old problems, new agendas for implementation:** global policy implementation more effective at the local level by integrating with other policies



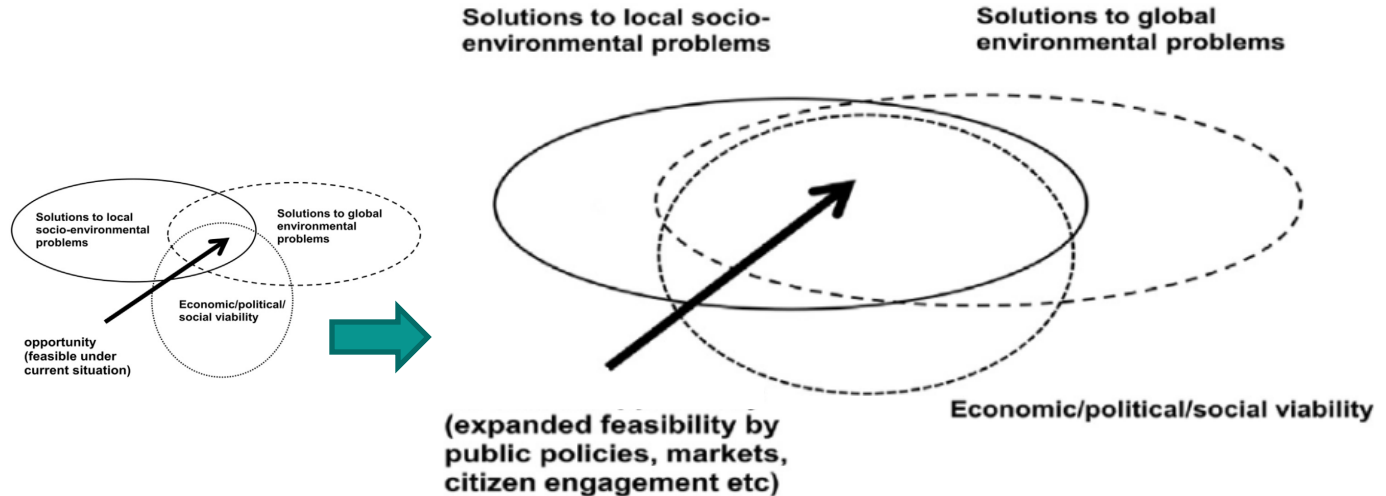
# Innovate for Co-benefits

- Innovate to create opportunities for Co-benefits
- Win-win situations exist in large scale
- No need for “rocket science”





# Expansion of Opportunities through Learning

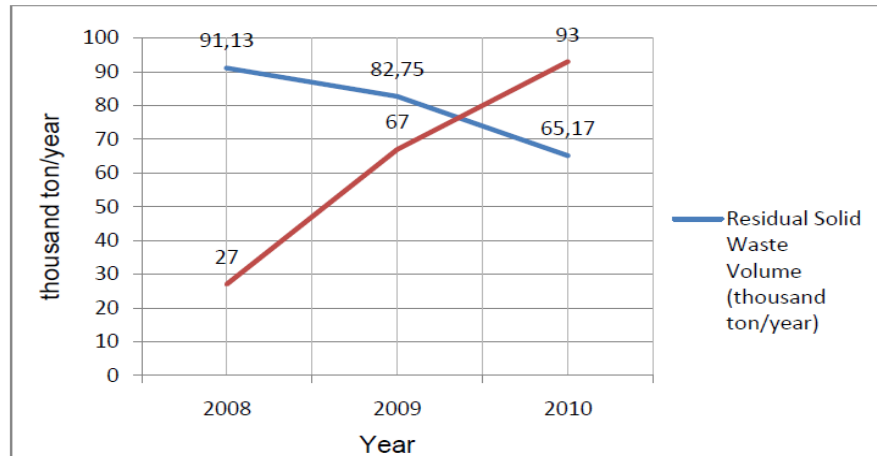


Puppim de Oliveira, 2013

# Community-Based Waste Management Actions – Indonesia, Co-Management



Correlation between Amount of CBSWM Group and Volume of Disposal Solid Waste into the Landfill in Yogyakarta City, 2008 – 2010



Source : Environmental Agency of Yogyakarta City (2008 – 2010); Yogyakarta City CBSWM Association “Jari Polah” (2011).

Figure 1 - Correlation between among of CBSWM group and volume of disposal solid waste into the landfill in Yogyakarta city

The growth of CBSWM shows correlation to waste generation and disposal into landfill. There is a decreasing of solid waste about 28 % from 2008 until 2010.

# Yogyakarta and Surabaya



Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: [www.elsevier.com/locate/jclepro](http://www.elsevier.com/locate/jclepro)



City-to-city level cooperation for generating urban co-benefits:  
the case of technological cooperation in the waste sector between  
Surabaya (Indonesia) and Kitakyushu (Japan)

Tonni Agustiono Kurniawan<sup>a,b,\*</sup>, Jose Puppim de Oliveira<sup>a,b,\*</sup>, Dickella G.J. Premakumara<sup>c</sup>,  
Masaya Nagaishi<sup>d</sup>

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## ARTICLE INFO

Article history:  
Received 20 April 2013  
Received in revised form  
31 July 2013  
Accepted 2 August 2013  
Available online 14 August 2013

## ABSTRACT

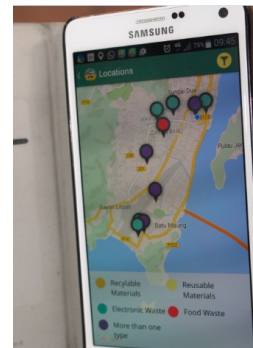
In recent years, Surabaya has confronted municipal solid waste (MSW) with a partnership with Kitakyushu city for the use of the Takakura Home Composting (THC) method. A large number of Takakura bins have been distributed to households and cadres have been involved in educating local households about organic waste reduction through the method. In the past decade (2005–2013), the city has reduced organic waste through many diverse composting methods such as THC and about 3421 Mt of CO<sub>2</sub> equivalent emissions could be reduced annually. By adapting the THC method, Surabaya has made





# Penang: Emerging institutional arrangements

- Promote the competition among schools (PGC)
- Provided funds for the composting machines (MBPP)
- School recycling competition organised by F&N Beverages Marketing Sdn Bhd and MBPP, supported by the Penang Education Department (Fed ...)



Journal of Environmental Management 253 (2019) 481–488

International Journal of Urban Sustainable Development, 2017  
Vol. 9, No. 2, 170–183, <https://doi.org/10.1080/19463138.2016.1236027>



## Breaking resilience in the urban system for improving resource efficiency: the case of the waste sector in Penang, Malaysia

Jose A. Puppim de Oliveira

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(Received 2 May 2016; accepted 6 September 2016)

Many have emphasised the importance of strengthening urban system resilience. However, resilience can affect cities in adverse ways. Weak governance in cities in developing countries has detrimental outcomes, which are reinforced by the strong resilience of the urban system. Thus, breaking the resilience of urban systems in the first place is necessary to advance the agenda of sustainability avoiding the return to the initial (unsustainable) state.

The paper examines the case of solid waste management (SWM) in the city of Penang Island, Malaysia. Three main factors facilitated the weakening of the system resilience and improved resource efficiency in SWM: engagement of civil society, local control of waste management and institutions that bridged the

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Journal of Environmental Management

journal homepage: [www.elsevier.com/locate/jenvman](http://www.elsevier.com/locate/jenvman)

### Research article

## Intergovernmental relations for environmental governance: Cases of solid waste management and climate change in two Malaysian States

Jose A. Puppim de Oliveira

Fundação Getúlio Vargas (FGV), Management School of São Paulo (FGV/EAESP) and Brazilian School of Public Administration (FGV/EBRAP), Brazil

### ARTICLE INFO

**Keywords:**  
Intergovernmental relations  
Environmental governance  
Climate change  
Waste management  
Developing country  
Asia  
Malaysia  
Labor  
Penang

### ABSTRACT

Institutions for environmental governance evolve differently across sectors. They also vary in the same sector when governments at two levels (national and subnational) have different political alignments. As the policy environment becomes more complex, with global problems like climate change, and politics more dividing, better coordination among various levels of government is a tough governance challenge. Scholars and practitioners need to realize how best to build institutions to bridge the various levels of government in different political environments and environmental sectors. This research analyzes the influence of intergovernmental relations in two environmental sectors in two localities with contrasting political alignments between two levels of government. It draws lessons from solid waste management and climate policy in two Malaysian states (Johor and Penang). In an evolving State and new policy arena, when formal institutions for intergovernmental relations may not be effectively in place, politics play an even larger role through the discretionary power of federal and subnational authorities. An open political process can help with the engagement of different political groups and civil society to bring legitimacy, resources and efficiency to environmental management, if it is done with robust intergovernmental institutions; otherwise, intergovernmental relations can also become a tool for zero-sum games, cronies and patronage, which can undermine policies, and result in inefficiency and

# IFWEN - Understanding Innovative Initiatives for Governing Food, Water and Energy Nexus in Cities



## Consortium Partners (€ 1.3 million)



## Funded by:



## Institutional support:

Cities of São Paulo, São José dos Campos, Florianópolis, Kunming, Gangtok, Nagpur, Dodoma, Johannesburg, Lilongwe, Antananarivo, Taipei



# BELMONT FORUM





# THE SUSTAINABLE URBANISATION GLOBAL INITIATIVE (SUGI) FOOD-WATER-ENERGY NEXUS



## Projects overview

Topic 1 Relevant Knowledge, Indicators and Assessments  
Topic 2 Multi-level Governance and Management  
Topic 3 Emerging Strategic and Solutions

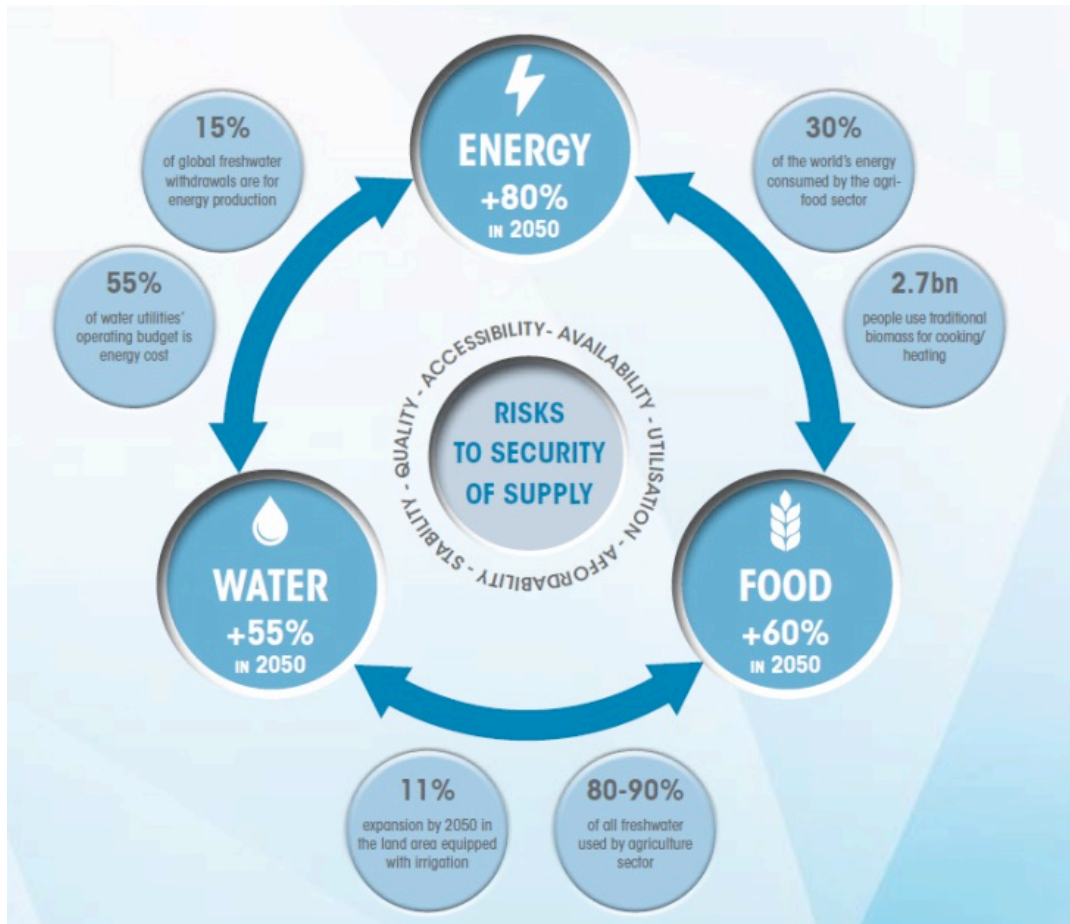
● Environmental Sustainability and resilience  
● Urban Governance and Participation

| Project             | Urban Living Lab | Thematic priority in SERIA* | EU Urban Agenda Theme                          | SDG        | SUGI call Topic 1 | SUGI call Topic 2 | SUGI call Topic 3 |
|---------------------|------------------|-----------------------------|--|------------|-------------------|-------------------|-------------------|
| CITYFOOD            | ●                | ●                           | 10.9, 10.7, 12.5                               | 11.6       | ●                 | ●                 | ●                 |
| Creating Interfaces | ●                | ●                           | 10.9, 12.1, 12.4                               | 11.6       |                   | ●                 |                   |
| CRUNCH              | ●                | ●                           | 10.7, 12.4, 12.5                               | 11.6       | ●                 |                   |                   |
| ENLARGE             |                  | ●                           | 10.7, 10.9                                     | 11.6       | ●                 |                   | ●                 |
| FEW-meter           |                  | ●                           | 10.9, 10.7, 12.5                               | 11.6       | ●                 | ●                 |                   |
| FUSE                | ●                |                             | 10.9   | 11.6       | ●                 | ●                 |                   |
| GLOCULL             | ●                | ●                           | 10.9, 12.1                                     | 11.6       | ●                 | ●                 | ●                 |
| IFWEN               |                  | ●                           | 10.9, 12.1                                     | 11.6, 11.3 |                   |                   |                   |
| IN-SOURCE           |                  | ●                           | 10.9, 12.3                                     | 11.6       | ●                 | ●                 |                   |
| METABOLIC           |                  | ●                           | 10.5   | 11.6       |                   |                   | ●                 |
| M-NEX               | ●                |                             | 10.9, 12.5                                     | 11.6       |                   | ●                 | ●                 |
| SUNEX               |                  | ●                           | 10.9, 12.1                                     | 11.6       | ●                 |                   | ●                 |
| Urbanising in Place |                  | ●                           | 10.9, 10.7, 10.5, 10.6, 12.1, 12.4, 12.5, 12.7 | 11.2, 11.4 |                   | ●                 |                   |
| Vertical Green 2.0  |                  | ●                           | 10.7, 10.9, 12.5                               | 11.6       |                   | ●                 |                   |
| WASTE FEW ULL       | ●                | ●                           | 10.5, 10.7, 10.9, 12.5                         | 11.6       |                   | ●                 |                   |

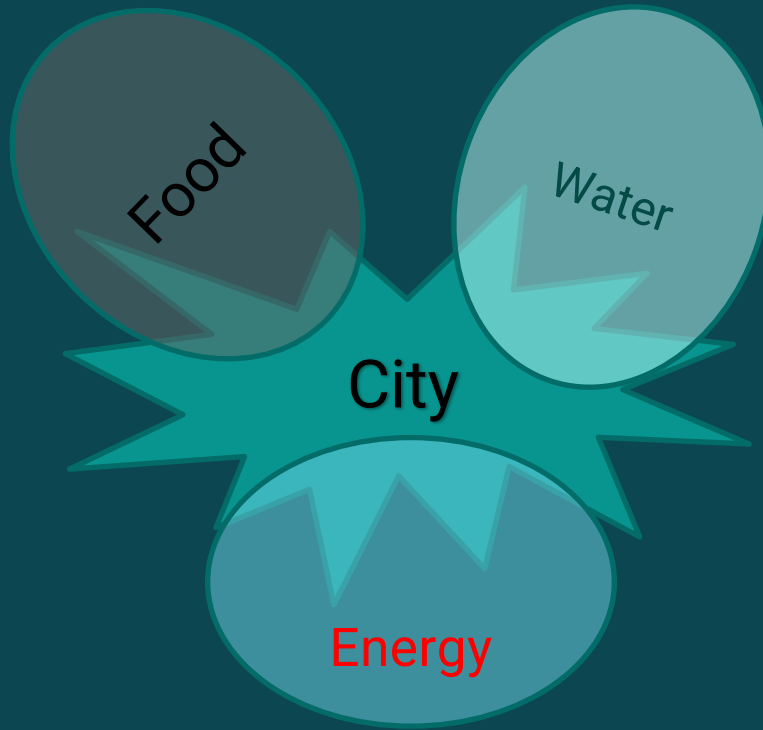
\*JPI Urban Europe Strategic Research and Innovation Agenda, 2015

## THE PROJECTS

CITYFOOD  
Creating Interfaces  
CRUNCH  
ENLARGE  
FEW-meter  
FUSE  
GLOCULL  
IFWEN  
IN-SOURCE  
METABOLIC  
M-NEX  
SUNEX  
Urbanising in Place  
Vertical Green 2.0  
WASTE FEW ULL



Source: IRENA (2015).



# Green and Blue Infrastructure (GBI)

**GBI = An interconnected network of a wide range of living landscape elements**

## **Types of GBI**

*UF: Urban forest;*

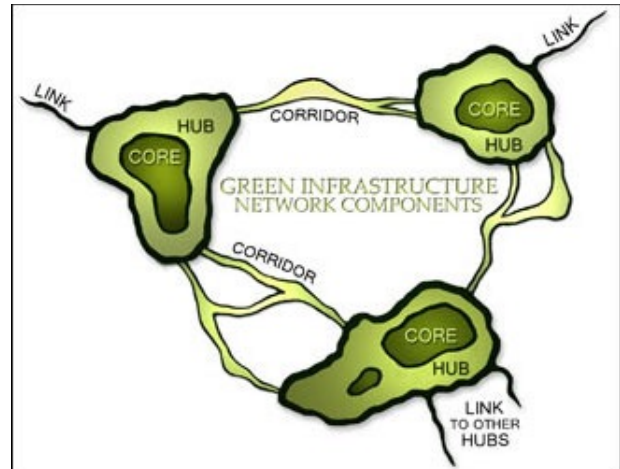
*GS: Green space;*

*ST: street trees;*

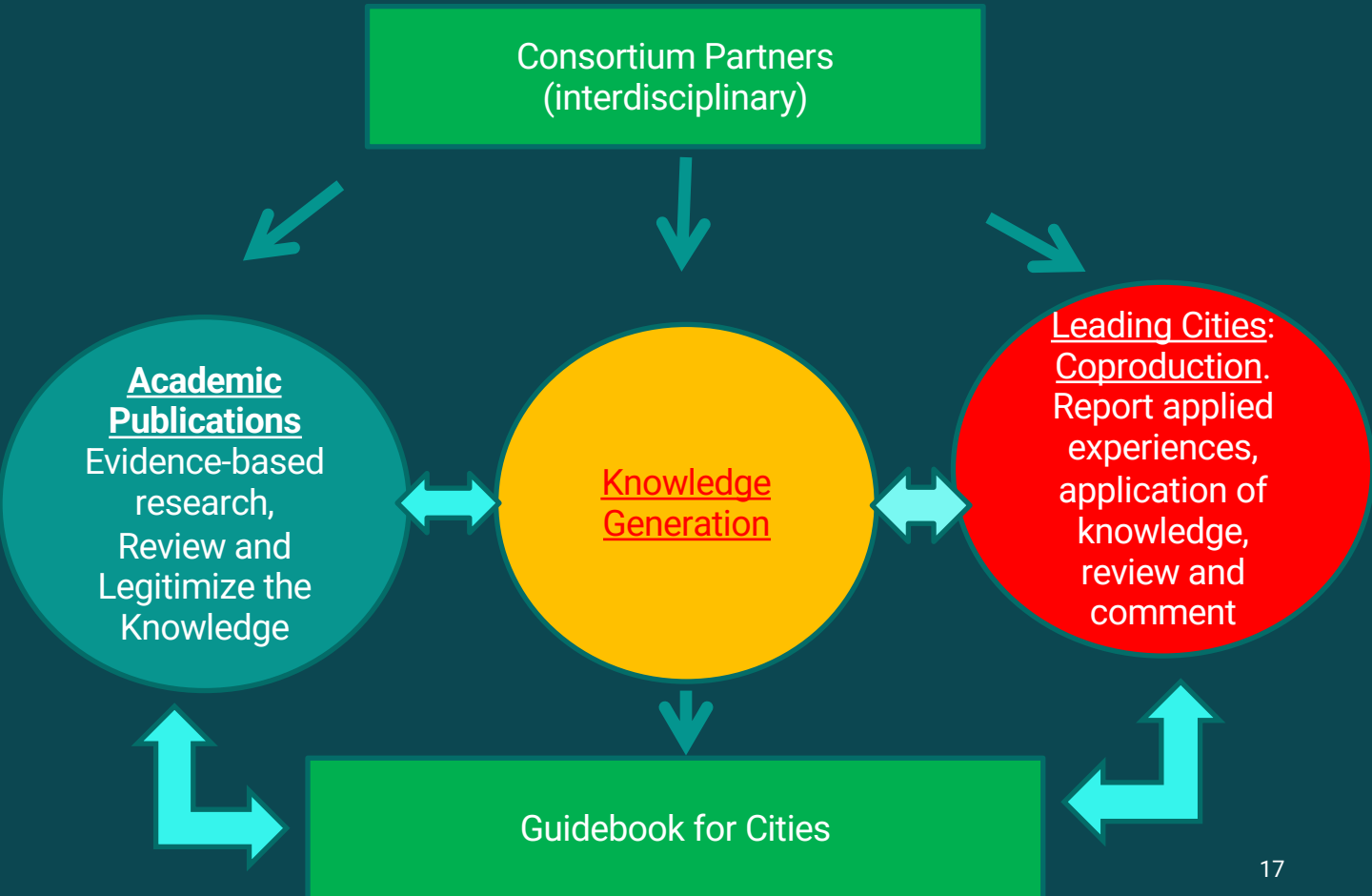
**UA: Urban agriculture;**

*GR: Green roofs;*

*UW: Urban wetlands.*



# IFWEN Approach to Transdisciplinarity

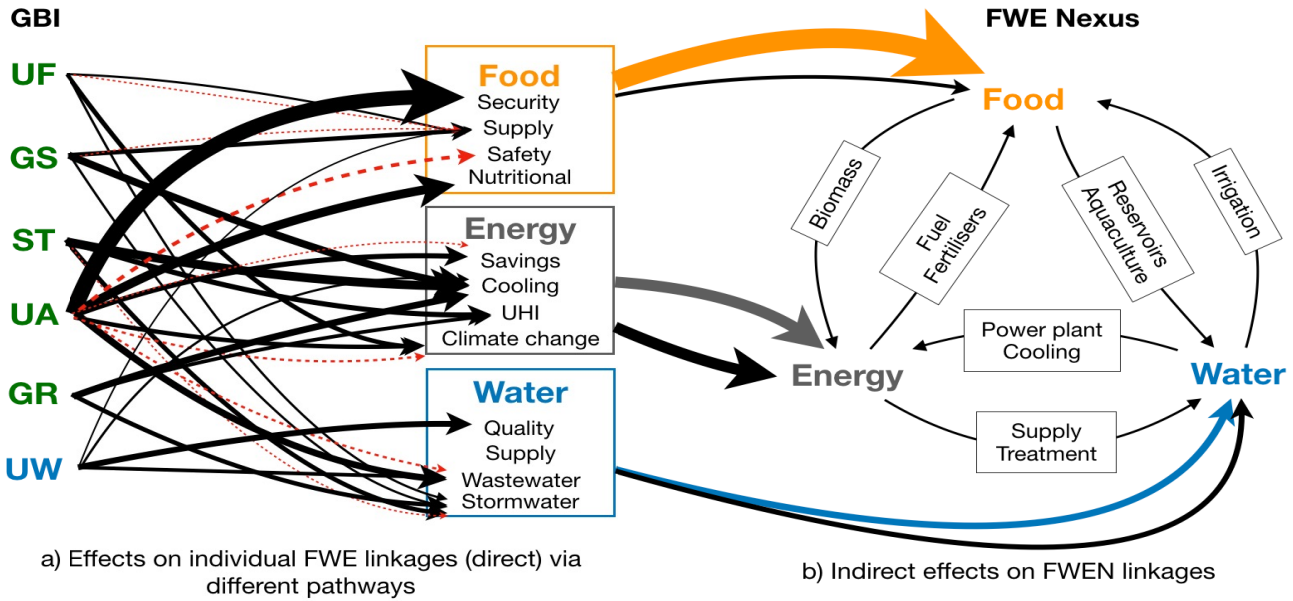


# Objectives

- (1) Understand the innovative governance mechanisms to manage the water-food-energy nexus (innovation for FWEN, or IFWEN) focusing on Green and Blue Infrastructure (GBI) in cities;
- (2) Create a **framework** to explain how cities develop institutions and gain the capabilities to innovate in FWEN based on GBI;
- (3) Develop and disseminate **guidelines and tools for supporting cities to use the nexus approach.**

(1) Understand the innovation in  
FWEN using GBI

# The links between GBI and nexus



**Fig. 3:** Conceptual framework for the effects of GBI on the FWE nexus in cities.   
 UF: Urban forest; GS: Green space; ST: street trees; UA: Urban agriculture; GR: Green roofs; UW: Urban wetlands.



## 4th step

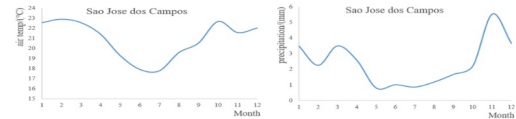
### Trans-boundary Environmental Footprints Accounting (MRIO) and Nexus Indexes

- Food Sector-energy, water, carbon
- Energy Sector-energy, water, carbon
- Water Sector-energy, water, carbon

## 3rd step

### In-boundary FWE-related benefits evaluation (Process-based model)

- Tomato yield—DNDC model



- Direct energy saving—Eco-roof module
- Direct water saving
- Direct carbon capture

## 2nd step

### Environmental Impacts Assessment (LCA)



- Life cycle energy consumption
- Life cycle water consumption
- Life cycle carbon emissions

## 1st step

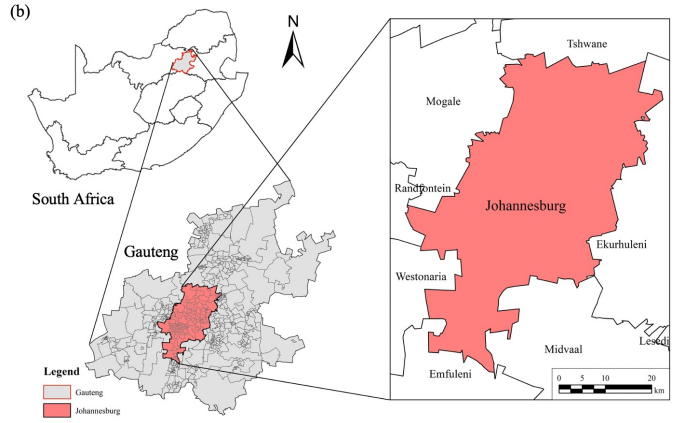
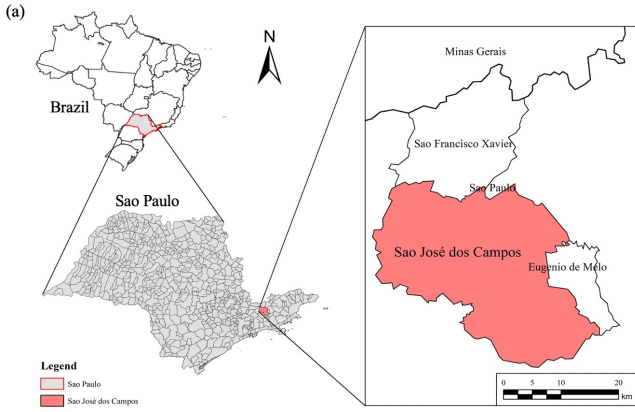
### Extracting Roof Area (GIS)

- Digitalizing the building footprint of 5% and 10% land samples in case cities



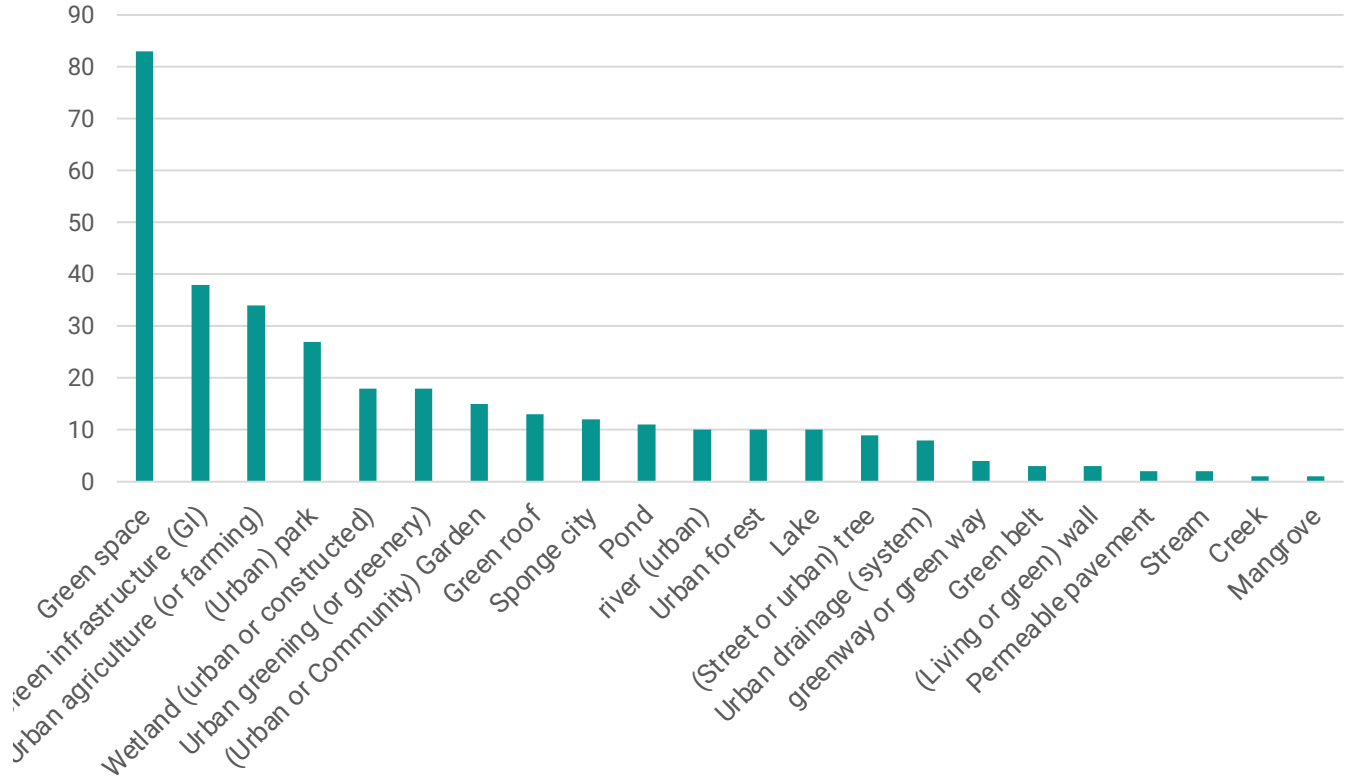
System boundary and methodology framework.

Meng et al., 2022



São José dos Campos (left) and Johannesburg (right).

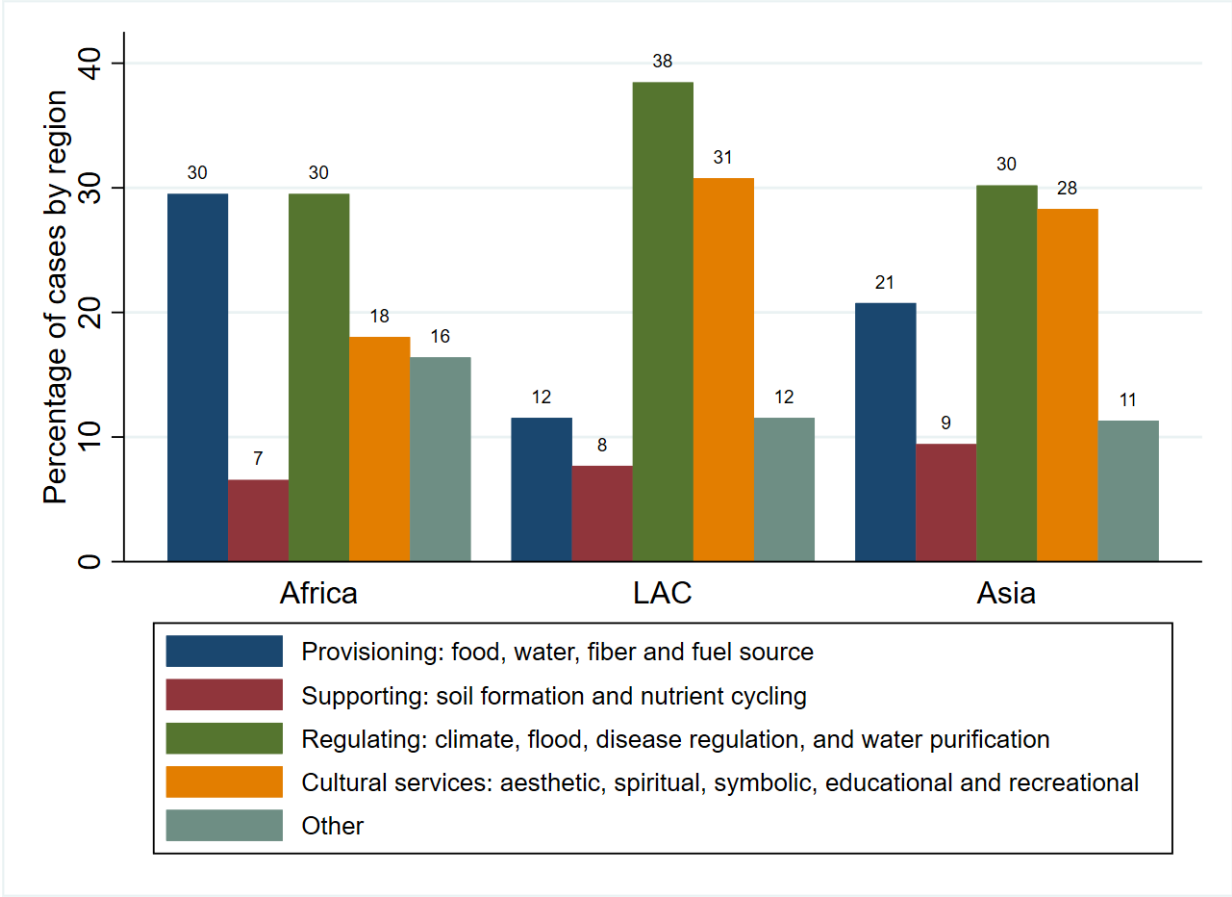
## GBI Typologies citations in the Africa, Asia and Latin America Regions (total 332)



# Survey (ICLEI Database)

- Map the innovations in GBI in ICLEI members (82 Cities)
- Type of innovation
- Why they were created (motivation)
- Impacts
- Understand the institutional arrangements

# Cities Use GBIs for Different Purposes and FWEN Implications



# In-Depth Cases

Sao Jose dos Campos, Brazil  
533,000 inhabitants



Nagpur, India  
2,405,665 inhabitants



Gangtok, India  
100,286 inhabitants



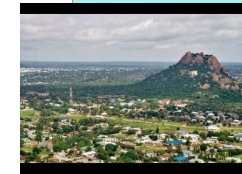
Kunming, China  
3,895,000 inhabitants



Florianopolis, Brazil  
477,798 inhabitants



Taipei  
2,646,000 inhabitants



Dodoma, Tanzania  
2,084,000 inhabitants



Lilongwe Malawi  
989,318 inhabitants



Johannesburg, South Africa  
957,441 inhabitants



Antananarivo, Madagascar  
1,613,375 inhabitants



# Innovating in Urban Green and Blue Infrastructure to Improve the Food-Water-Energy Nexus



## Florianópolis, Brazil

Linking community gardens and composting, 2021.

Source: City of Florianópolis, Cultiva Floripa program.  
<http://cultivafloripa.pmf.sc.gov.br>

Environmental Management  
<https://doi.org/10.1007/s00267-022-01693-w>

### Individuals in Collaborative Governance for Environmental Management

Julio César Zambrano-Gutiérrez<sup>1,2</sup> · Laura Sílvia Valente de Macedo<sup>2,3</sup> · Marc Eric Barda Picavet<sup>2</sup> · Jose Antonio Pupplim de Oliveira<sup>2,4,5</sup>

Received: 5 January 2022 / Accepted: 18 July 2022  
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#### Abstract

Analyzing the effect of individual participants on collaborative governance processes in environmental management has





# Innovating in Urban Green and Blue Infrastructure to Improve the Food-Water-Energy Nexus



**Kunming,  
China,**

**Dian Lake,  
Payment for  
Ecosystem  
Services**

2022.





# Innovating in Urban Green and Blue Infrastructure to Improve the Food-Water-Energy Nexus



**Gangtok, India**

**Organic Waste Compost  
Machine.**

Photo Source: ICLEI IFWEN Case  
Study, 2021

# Innovating in Urban Green and Blue Infrastructure to Improve the Food-Water-Energy Nexus



**Johannesburg, South Africa**  
School Greening Project, 2016.

Photo Source: Kumba Energy Report  
on School Greening Project (2016)



# Innovating in Urban Green and Blue Infrastructure to Improve the Food-Water-Energy Nexus



**Lilongwe, Malawi**

Lingazi River greening,  
2020

Source: UNA Rivers Project,  
ICLEI AFRICA



# Innovating in Urban Green and Blue Infrastructure to Improve the Food-Water-Energy Nexus



**Nagpur, India**

Wastewater  
treatment plant  
for reuse

Source: Ministry of  
Power, Government  
of India, 2020. In  
ICLEI IFWEN Case  
studies series

Journal of Cleaner Production 381 (2022) 135126

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: [www.elsevier.com/locate/jclepro](http://www.elsevier.com/locate/jclepro)



## Tackling climate change through circular economy in cities

Rodrigo A. Bellezoni<sup>a,b,\*</sup>, Ayoola Paul Adeogun<sup>c</sup>, Michel Xocaira Paes<sup>a</sup>, José Antônio Puppim de Oliveira<sup>a,d</sup>

<sup>a</sup> Fundação Getúlio Vargas (FGV), São Paulo Management School (FGV EAESP), Rua Ingoe, 474, sala 712, Bela Vista, São Paulo, SP, CEP: 01332-000, Brazil

<sup>b</sup> Center for Territorial Intelligence (Centro de Inteligência Territorial - CIT, [en.inteligenciateritorial.org](http://en.inteligenciateritorial.org)), Av. Bias Fortes, 382, 11<sup>o</sup> andar, Lozandes, Belo Horizonte, MG, CEP: 30170-011, Brazil

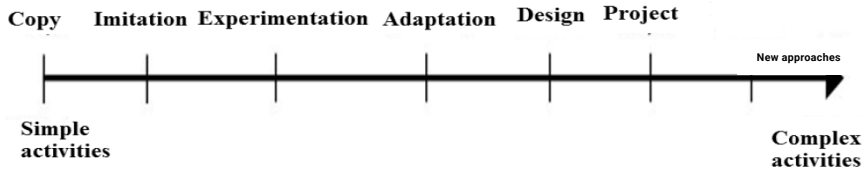
<sup>c</sup> The University of Manchester, School of Environment, Education and Development, Oxford Road, Manchester, M139PL, UK

<sup>d</sup> Fundação Getúlio Vargas (FGV), Brazilian School of Public and Business Administration (FGV EAPE), Orlando Dantas, 38 (Edifício Roberto Campos), Botafogo, Rio de Janeiro, RJ, CEP: 22231-010, Brazil



2) A framework to explain how cities innovate in GBI

# How do cities innovate and learn?

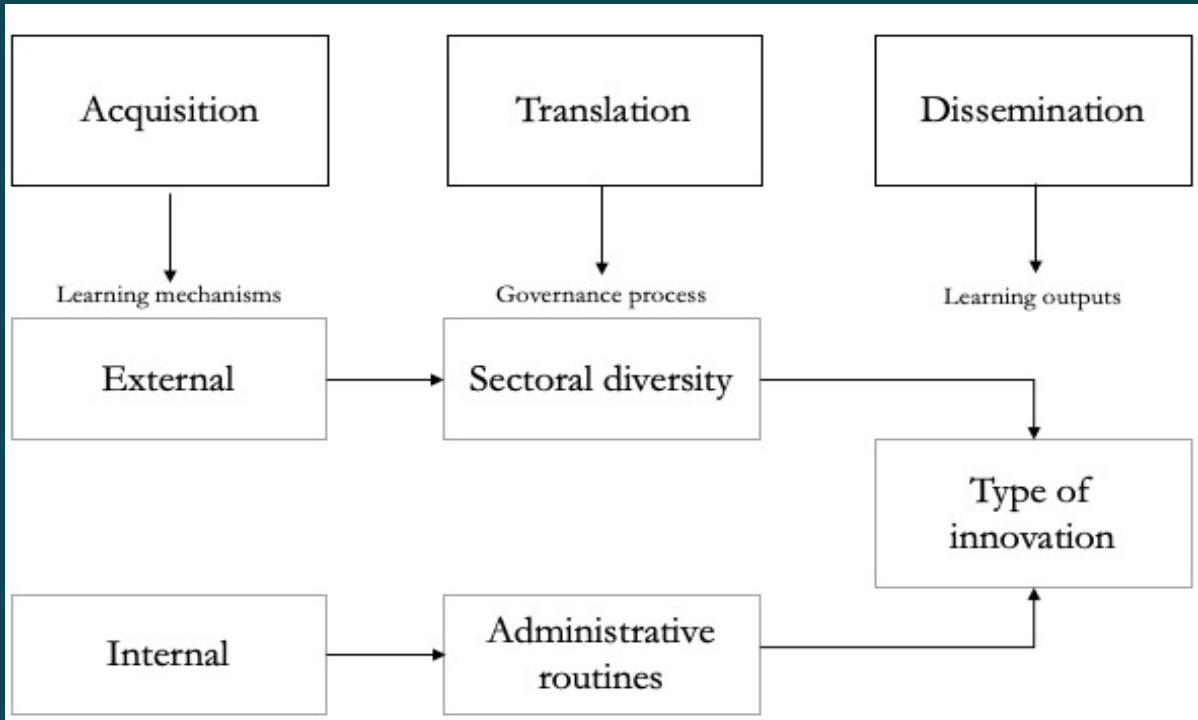


|   | Function A | Function B |  |
|---|------------|------------|--|
|   |            |            |  |
|   |            |            |  |
| <b>Innovation Capability</b>                    |            |            |  |
| 1-Basic (new to the city)                       |            |            |  |
| 2-Incremental/Intermediate (new to the country) |            |            |  |
| 3-Advanced (new to the world)                   |            |            |  |
|   |            |            |  |

Learning mechanisms



# The role of learning mechanisms on a collective learning process

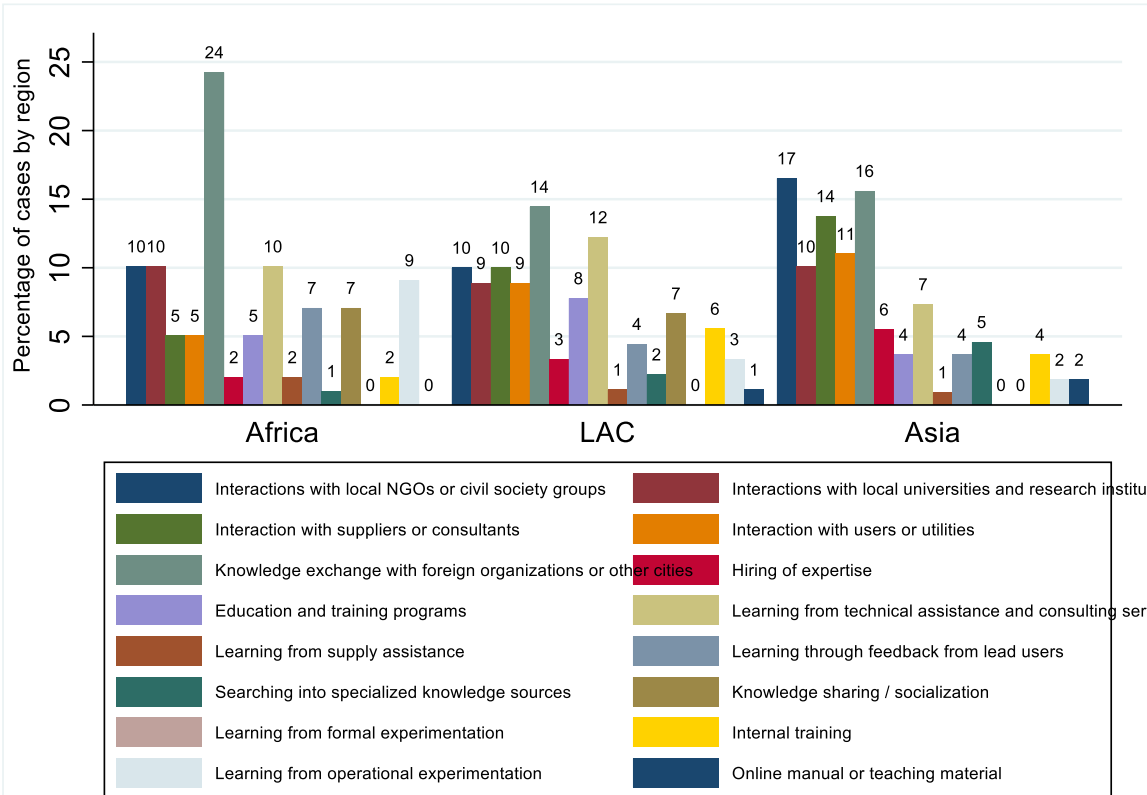


# Learning mechanisms

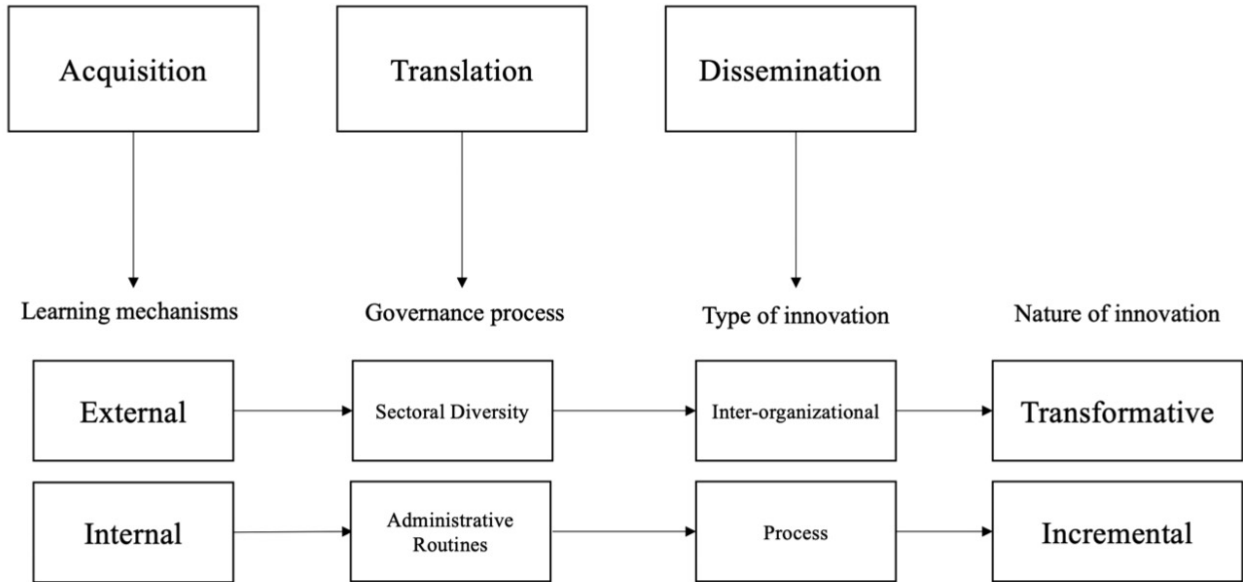
| Source   | Type  | Example  |
|----------|---|--|
| External | Local NGOs or civil society groups              | Training to improve organic agriculture capacities of local farmers implemented by local NGOs (e.g., Tanzania Organic Agriculture Movement) in Dodoma, Tanzania.   |
|          | Local universities and research institutes      | Research about best practices and successful cases to improve the food, water, energy nexus for Florianópolis, Brasil.   |
|          | Technical assistance, suppliers, or consultants | Organic waste composer provider (Reddonatura India Pvt. Ltd.) conducted training to the staff of the Gangtok Municipal Corporation, India.   |
|          | Users   | In order to reduce conflict between actors, the organizations in the river project (UNA Rivers) learned from women composters and male market vendors about the need for educating about who benefit financially from the food waste at Lilongwe, Malawi.    |
|          | Foreign organizations or other cities           | USAID provided technical support with the objective to treat 100% of the sewage water through sewage treatment plants managed by Nagpur Municipal Corporation, India.  |
|          | Hiring expertise                                | Experts from the Dutch government designed a plan to reduce flood risk through green spaces in Panama City, Panama.  |
| Internal | Internal training                               | The staff from San Jose os Campos received internal training to prepare the management plan to regulate its first Brazilian municipal environmental protected area.  |
|          | Learning from experimentation                   | Experimental showcase in Antananarivo (Madagascar) for the local waste management organization (SAMVA) to expand treatment sites and produce biogas, electricity, compost, and fertilizers.  |
|          | Knowledge sharing/socialization                 | Interns from the National Expanded Public Works Program (EPWP) transfer knowledge about the operation and maintenance of technical equipment (e.g., biogas digester) to teachers that are part of the School Greening Project at Johannesburg, South Africa. |



# High dependency from external sources for policy learning



# The dynamics of sources of knowledge for innovation in Local Governments



Environmental Management  
<https://doi.org/10.1007/s00267-022-01685-w>

## How can Transnational Municipal Networks foster local collaborative

Environmental Management  
<https://doi.org/10.1007/s00267-022-01693-w>

## Individuals in Collaborative Governance for Environmental Management

Julio César Zambrano-Gutiérrez<sup>1,2</sup> · Laura Sílvia Valente de Macedo<sup>3,5</sup> · Marc Eric Barde Picavet<sup>6,7</sup> · Jose Antonio Puppim de Oliveira<sup>8,4,5</sup>

Received: 5 January 2022 / Accepted: 18 July 2022  
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Journal of Public Administration Research and Theory, XXX, XX, 1–15  
<https://doi.org/10.1093/jopart/maab053>  
 Advance access publication 28 December 2021  
 Article

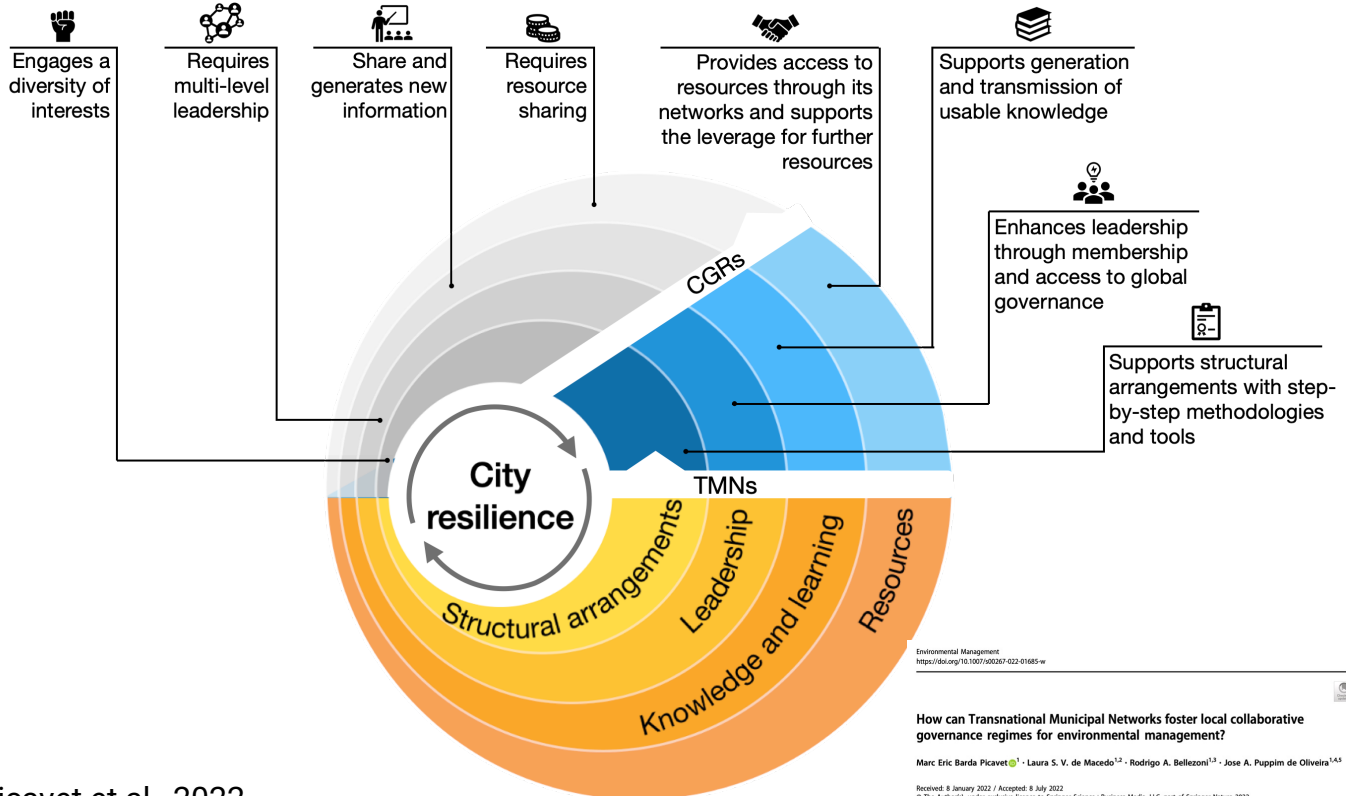


## The Dynamics of Sources of Knowledge on the Nature of Innovation in the Public Sector: Understanding Incremental and Transformative Innovations in Local Governments

Julio C. Zambrano-Gutiérrez<sup>1,2</sup> and Jose A. Puppim de Oliveira<sup>8</sup>

<sup>1</sup>Fundação Getúlio Vargas (FGV EAESP and FGV EBAPE), São Paulo, Brazil;  
<sup>2</sup>Technical University of Munich, Munich, Germany  
 Address correspondence to the author at [julio.zambrano@hfp.tum.de](mailto:julio.zambrano@hfp.tum.de).

# How can Transnational Municipal Networks foster local collaborative governance regimes?



Environmental Management  
<https://doi.org/10.1007/s00267-022-01685-w>

**How can Transnational Municipal Networks foster local collaborative governance regimes for environmental management?**

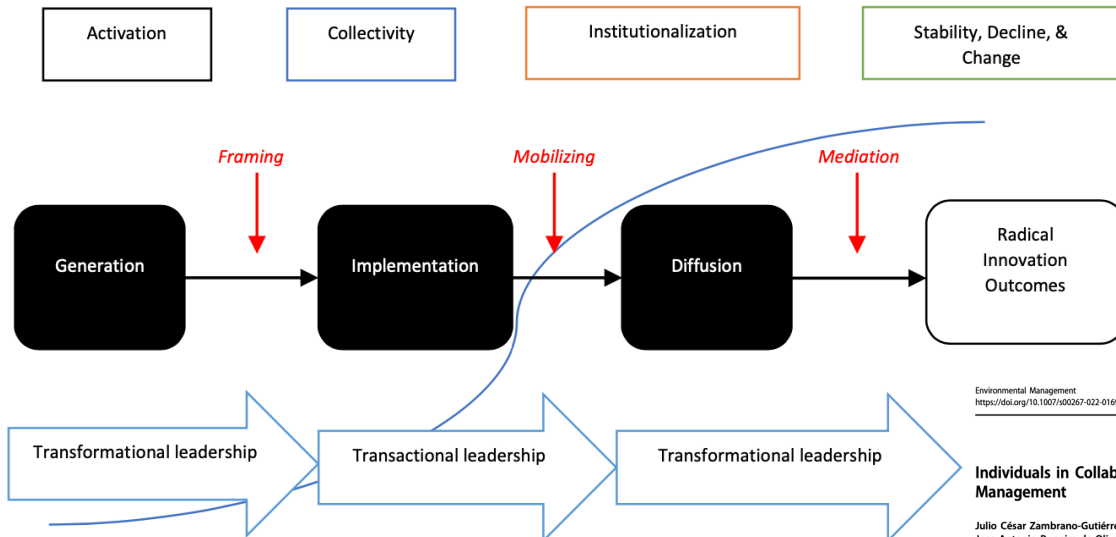
Marc Eric Bards Picavet<sup>1</sup> · Laura S. V. de Macedo<sup>1,2</sup> · Rodrigo A. Bellezoni<sup>1,3</sup> · Jose A. Puppim de Oliveira<sup>1,4,5</sup>

Received: 8 January 2022 / Accepted: 8 July 2022  
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## Abstract

While there is abundant literature on Transnational Municipal Networks (TMNs) and collaborative governance regimes (CGRs) to respond to environmental change, few studies address TMNs as exogenous agents driving CGRs dynamics locally. TMNs have emerged as important actors in multilevel governance, providing formal structures for local

# Innovation and Strategic Leadership in the Public Sector: Understanding Collaborative Arrangements in Florianópolis



Environmental Management  
<https://doi.org/10.1007/s00267-022-01693-w>

Individuals in Collaborative Governance for Environmental Management

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Jose Antonio Puppim de Oliveira<sup>2,4,5</sup>

Received: 5 January 2022 / Accepted: 18 July 2022  
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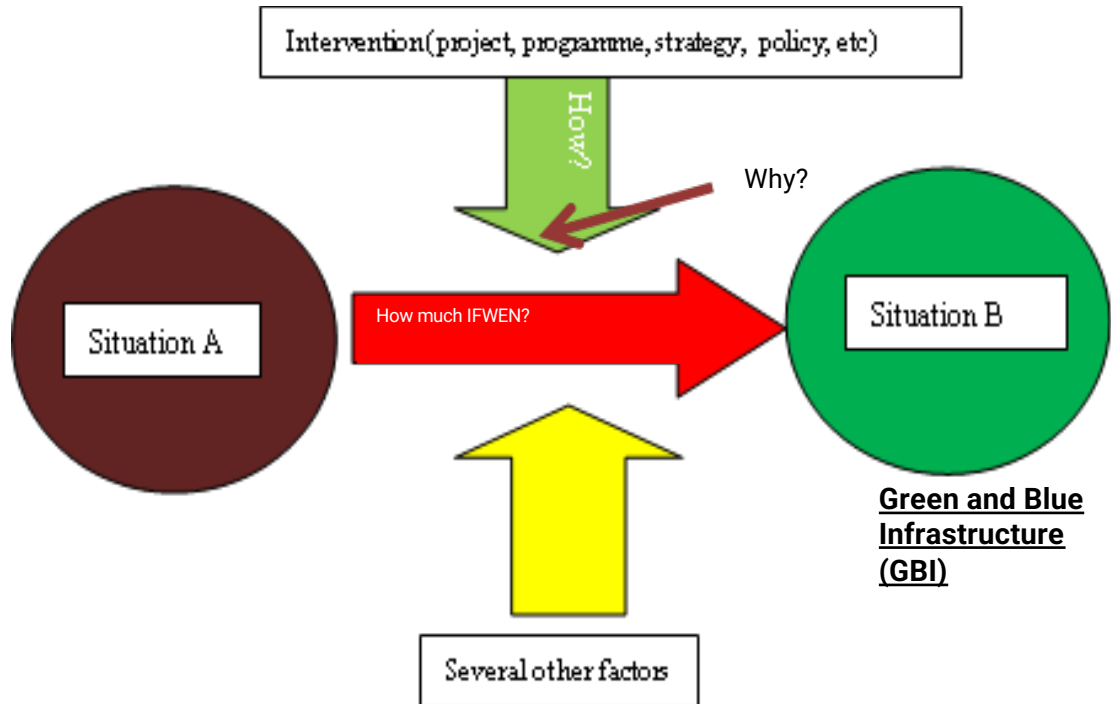
# Assessment of IFWEN in Practice

Combine the sectoral approach with thematic interdisciplinary institutional analyses using a case studies

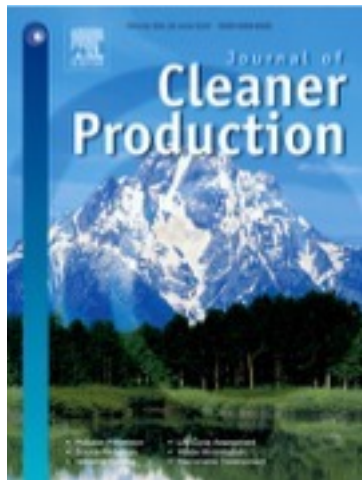
HOW IFWEN HAPPEN



HOW TO MAKE IT HAPPEN



# Main Publications



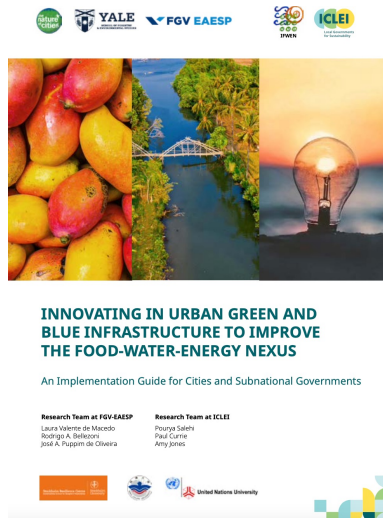
Special Issue in the Journal of Cleaner Production  
“Innovations in Green and Blue Infrastructure in  
Cities: Analyzing the Impacts on Natural Resources  
and Global Change”

<https://www.sciencedirect.com/journal/journal-of-cleaner-production/special-issue/10L8CZF5QCJ>

Introduction:

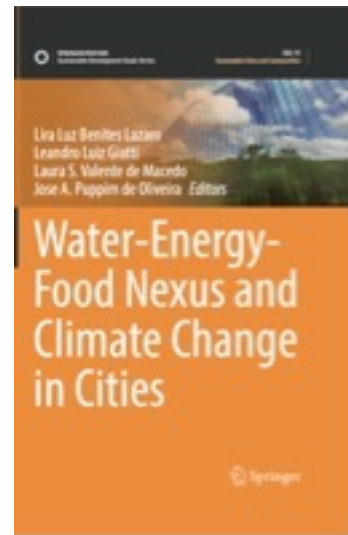
“Innovations in Urban Green and Blue Infrastructure:  
Tackling local and global challenges in cities”

[https://authors.elsevier.com/a/1fBGz\\_LqUdNKHd](https://authors.elsevier.com/a/1fBGz_LqUdNKHd)



Guidebook for Innovation in Nexus:  
ISBN: 978-65-00-42290-0.

<https://hdl.handle.net/10438/32062>



Series ISSN2523-3084.

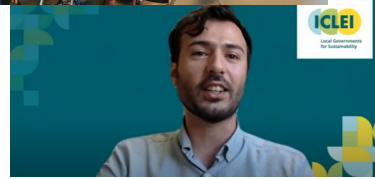
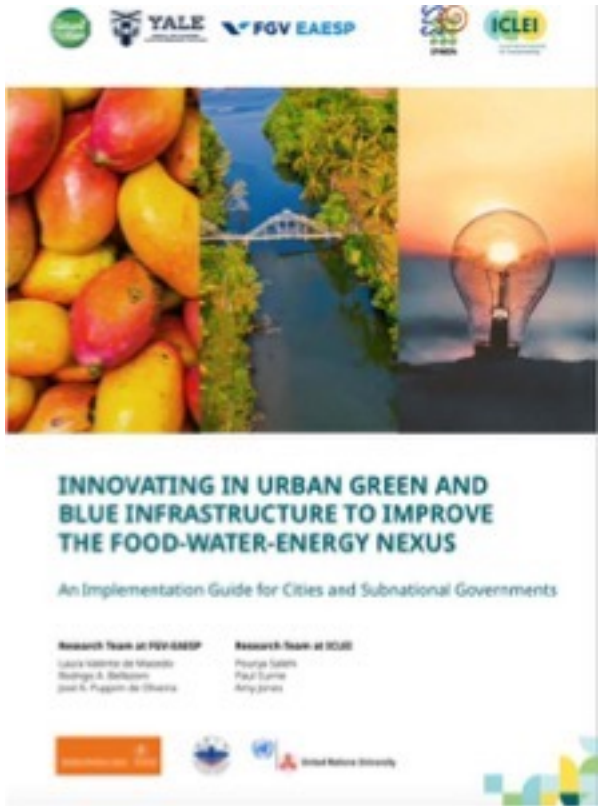
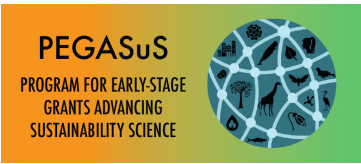
<https://link.springer.com/book/9783031054716>

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<https://jpi-urbaneurope.eu/project/ifwen/>  
[www.ifwen.org](http://www.ifwen.org)

# Develop and disseminate guidelines and tools for supporting cities to use the nexus approach.



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# **Amazonia+10 Project**

**Innovation for Creating Sustainable Value:  
Understanding Global Value Chains in the  
Amazon**

# **Projeto Amazônia +10**

**Inovação para Criação de Valores  
Sustentáveis: Entendendo as Cadeias  
Globais de Valor na Amazônia**

# Team

(Funding:  
FAPESP  
FAPERJ  
FAPEAM  
FAPESPA)

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| Prof. Eduardo Andrade                    | Imperial College London                |

# Objectives of the Project

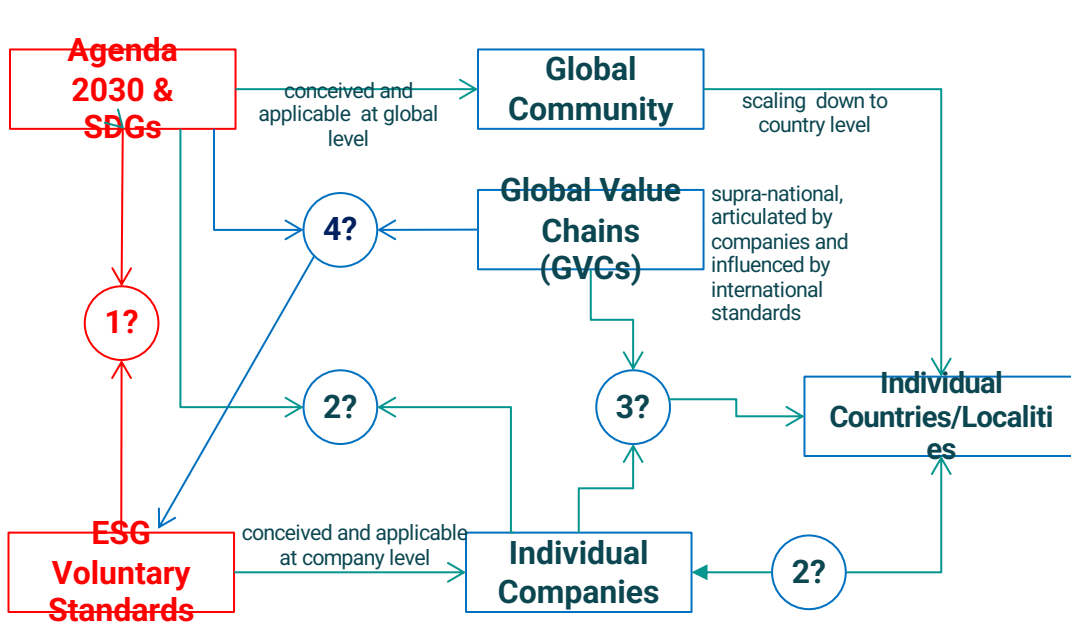
- Analyze the sustainability-oriented governance models of GVCs in the Amazon, and its impacts on the environment and communities,
- Identify the the features of the governance of sustainability in GVC led by firms in the Global South
- Understand the links between private and public governance mechanisms

# Amazonia+10

- WP1. Analytical Framework (Leaders: JP, KN)
- WP2. Sectorial Analyses (Leaders: LM, UM).
- WP3. Value Chain Analysis (Leaders: LM, AC).
- WP4. Strategies for Sustainable Innovation (Leaders: PS, PF, AB).
- WP5. Governance and Institutions (Leaders: JP, KN).
- WP6. Consumer Behavior (Leaders: YV, EA).
- WP7. Impacts of GVCs on Localities (Leader: JC).
- WP8. Effects of Environmental Changes on GVCs (Leader CS).
- WP9. Policy Integration (Leader: JC, CS).

# WP1 - Analytical Framework

# GLOBAL VALUE CHAINS and SDGs



Sectors for study:  
 Beef  
 Fish  
 Cosmetic

For the actual researches  
 (i) relevance as a GVC,  
 (ii) relevance for Amazon  
 (iii) adherence to existing ESG Standards;  
 (iv) accessibility for research and availability of data.

## Core questions:

- 1) What are the GVC governance models in place in the Amazon? How have they been shaped by local and global institutions? What are the impacts on companies and localities?
- 2) How will the expectations for sustainability reach GVCs and individual companies? Since they can't be directly regulated by countries, will it be via companies self-regulation and/or market governance mechanisms, such as voluntary ESG standards? Will Agenda 2030 directly influence GVCs? If so, how? How is the governance of GVCs addressing Agenda 2030? How would this happen?
- 3) How do GVCs that are subject to voluntary private standards influence local governance?
- 4) How the dynamics of GVCs influence and are influenced by global agendas?

**Consumers**



**Local Producers (Amazon)**

**Amazon territory/inputs**



**Country X, Y, Z**

Retails

International  
Institutions



Leading Companies

Brazil - Domestic

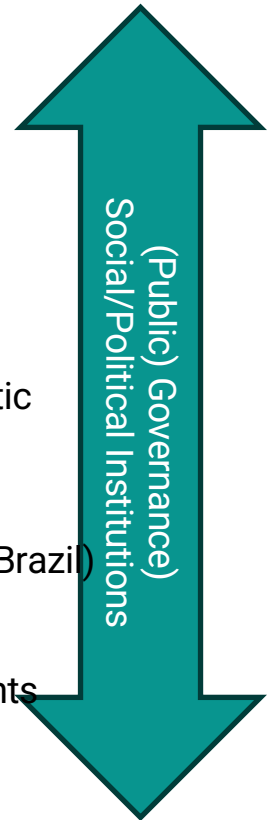
Suppliers (Tier 1, Tier 2,)

Amazon/States (Brazil)



Local Governments

**Territory/Communities**



**Consumers**

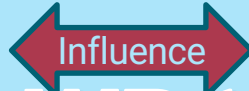


Country X, Y, Z

(Private) Governance of GVCs

Retails

International Institutions



Leading Companies

**WP1**

Brazil - Domestic

Suppliers (Tier 1, Tier 2,)

Amazon/States (Brazil)

(Public) Governance  
Social/Political Institutions

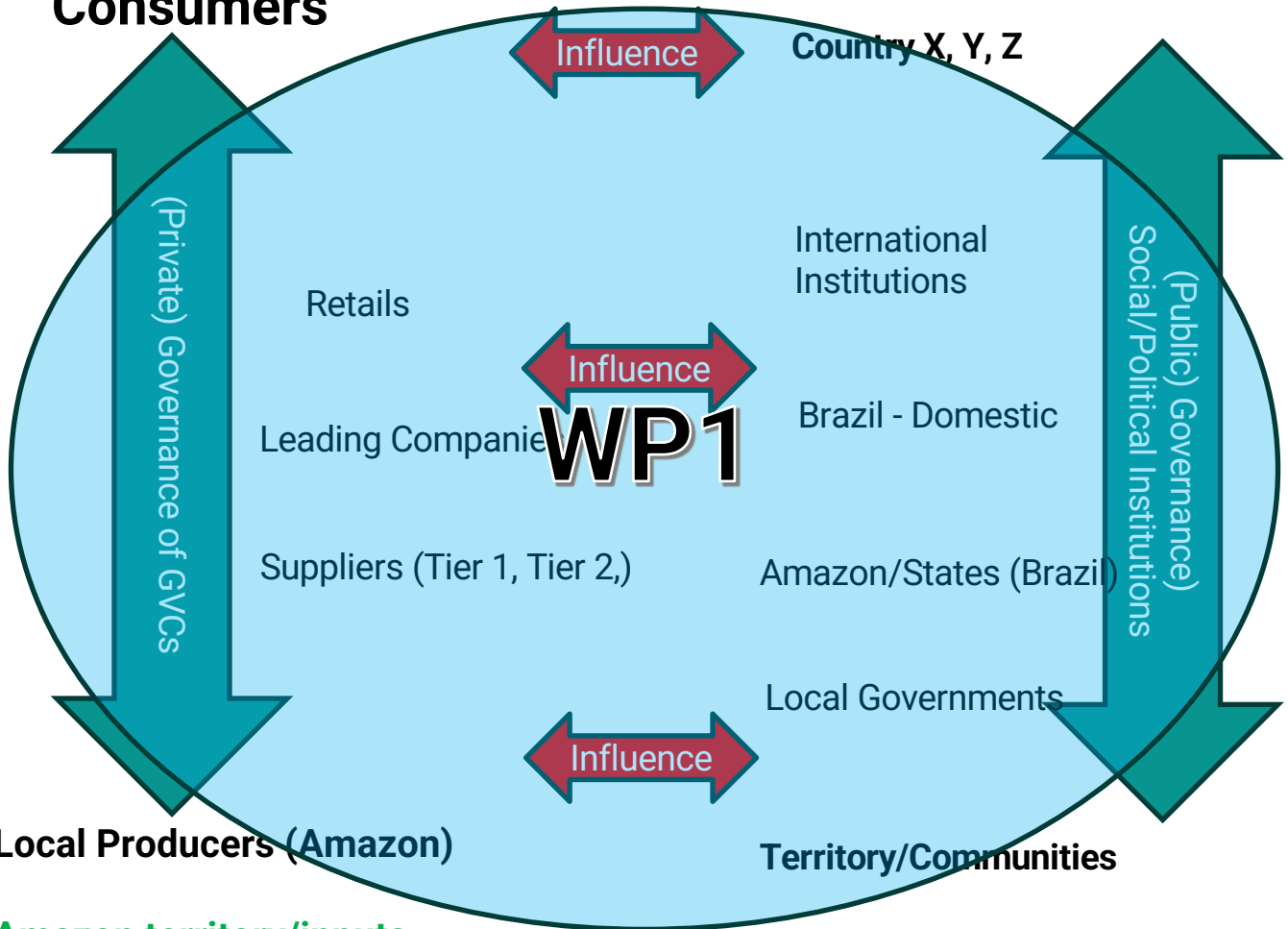
Local Governments



**Local Producers (Amazon)**

**Territory/Communities**

**Amazon territory/inputs**

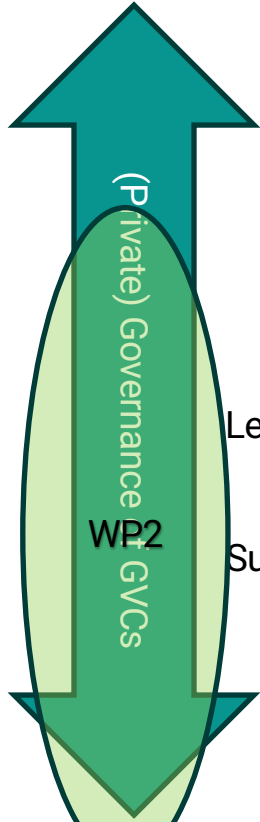




**Consumers**



**Country X, Y, Z**



Retails



International  
Institutions

Leading Companies

Brazil - Domestic

Suppliers (Tier 1, Tier 2,)

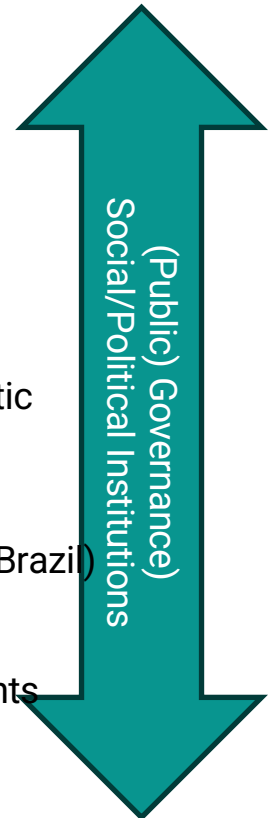
Amazon/States (Brazil)

Local Governments



**Local Producers (Amazon)**

**Territory/Communities**

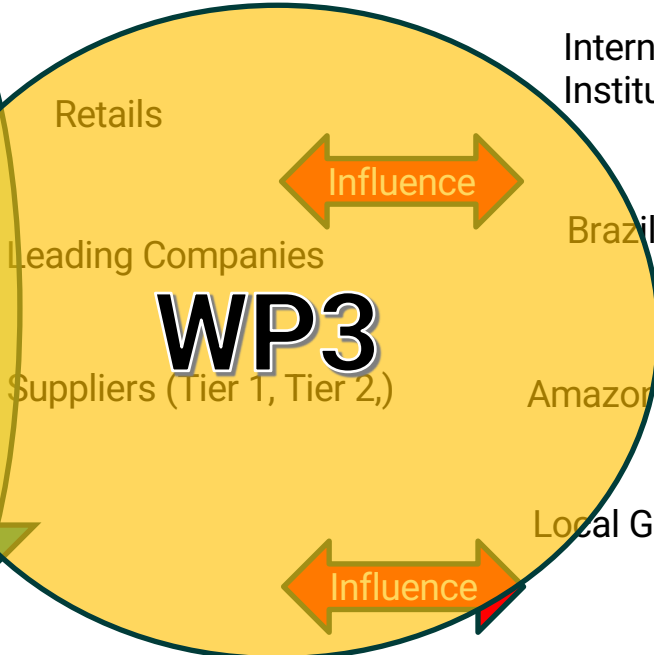
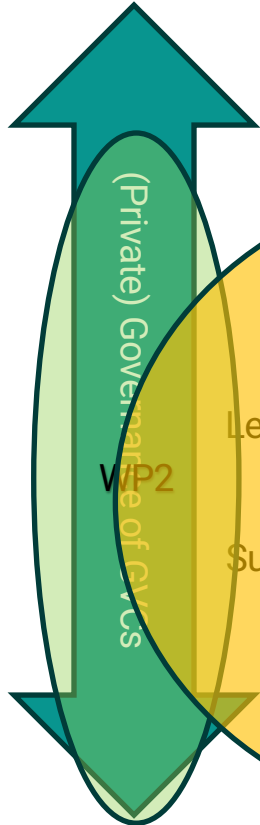


**Amazon territory/inputs**

**Consumers**



**Country X, Y, Z**

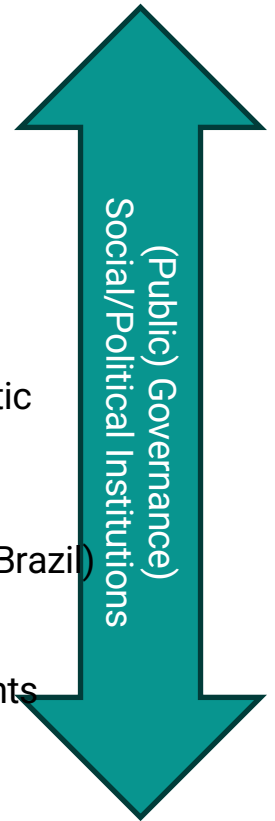


International  
Institutions



Brazil - Domestic

Amazon/States (Brazil)



Local Governments

**Local Producers (Amazon)**

**Territory/Communities**

**Amazon territory/inputs**

**Consumers**



**Country X, Y, Z**

(Private) Governance of GVCs

Retails



International Institutions

**WP4**

Leading Companies

Brazil - Domestic

Suppliers (Tier 1, Tier 2,)

Amazon/States (Brazil)

(Public) Governance  
Social/Political Institutions

Local Governments

**Local Producers (Amazon)**



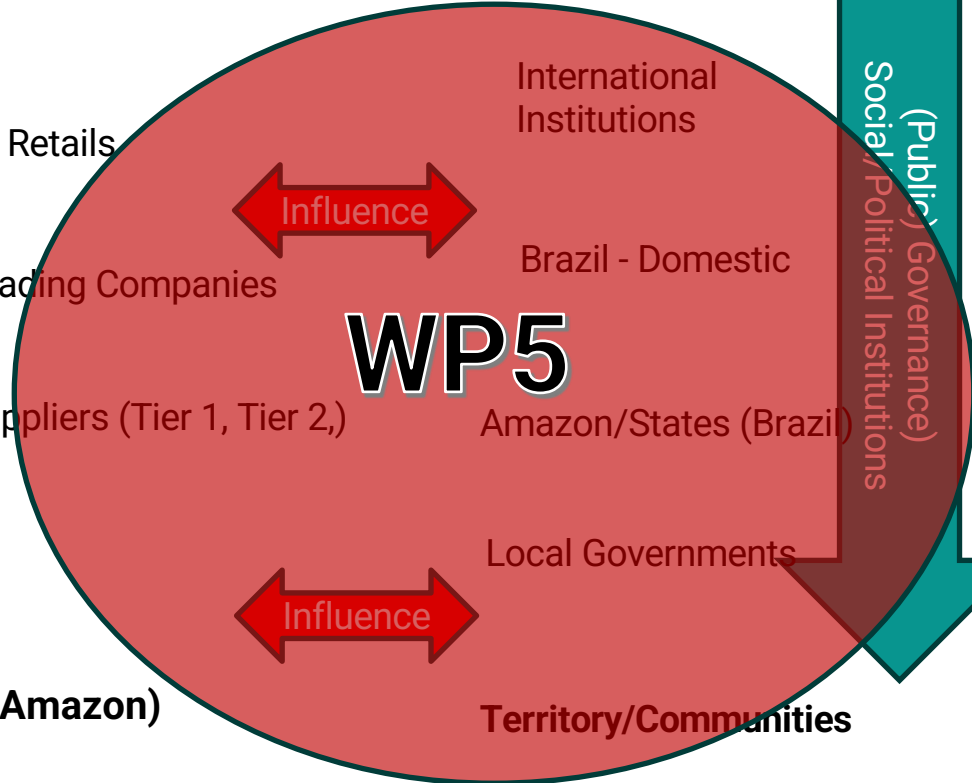
**Territory/Communities**

**Amazon territory/inputs**

**Consumers**

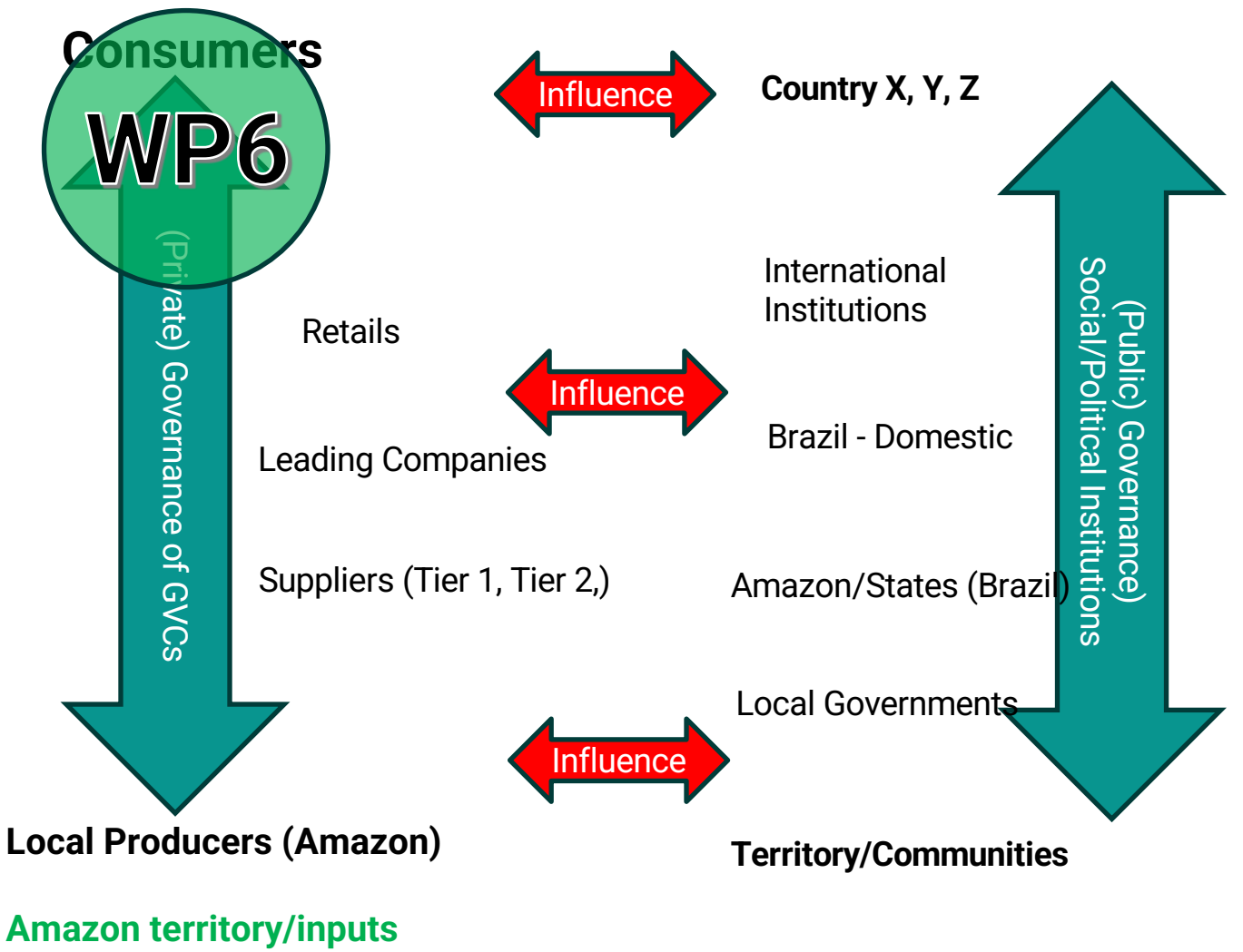


**Country X, Y, Z**



**Local Producers (Amazon)**

**Amazon territory/inputs**



**Consumers**



**Country X, Y, Z**



Retails

International  
Institutions

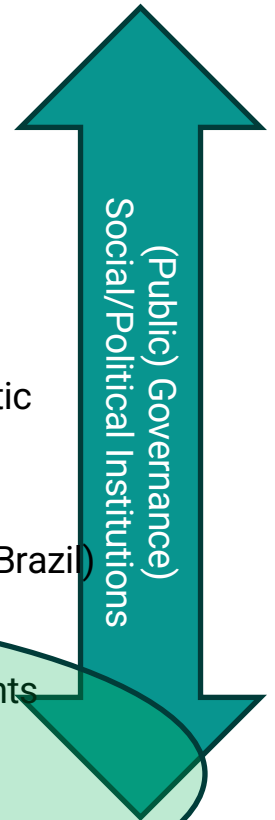


Leading Companies

Brazil - Domestic

Suppliers (Tier 1, Tier 2)

Amazon/States (Brazil)



Local Governments

**Local Producers (Amazon)**



**Territory/Communities**

**WP7**

**Amazon territory/inputs**

**Consumers**



**Country X, Y, Z**

(Private) Governance of GVCs

Retails



International  
Institutions

Leading Companies

Brazil - Domestic

**WP8**

Supplier (Tier 1, Tier 2,)

Amazon/States (Brazil)

(Public) Governance  
Social/Political Institutions

Local Governments

**Local Producers (Amazon)**

**Territory/Communities**

**Amazon territory/inputs**



# Main points on Innovation and Climate Policies

- Climate change, biodiversity loss, pandemics and other global challenges can pose a threat to food, water, energy systems in cities in the tropics. But well positioned with the wealth of biodiversity.  
Need of Innovation!
- Local governments (LGs) have little leverage on the governance of climate change,
- Innovation does not need to be high tech
- Innovation goes beyond technological innovations (e.g., social innovation)
- Other factors beyond economics (e.g., culture) explain the appearance of innovative places/innovation systems
- Individuals and organizations are important, but their interactions are key to understand innovative places, and those interactions determine learning
- Public policies can nurture the development of place-based innovations, but can also hurt



# Selected Main Academic Publications from IFWEN

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Obrigado!

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