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SCALING-UP ENERGY CONSERVATION INITIATIVES: BARRIERS AND LOCAL STRATEGIES

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OVERVIEW

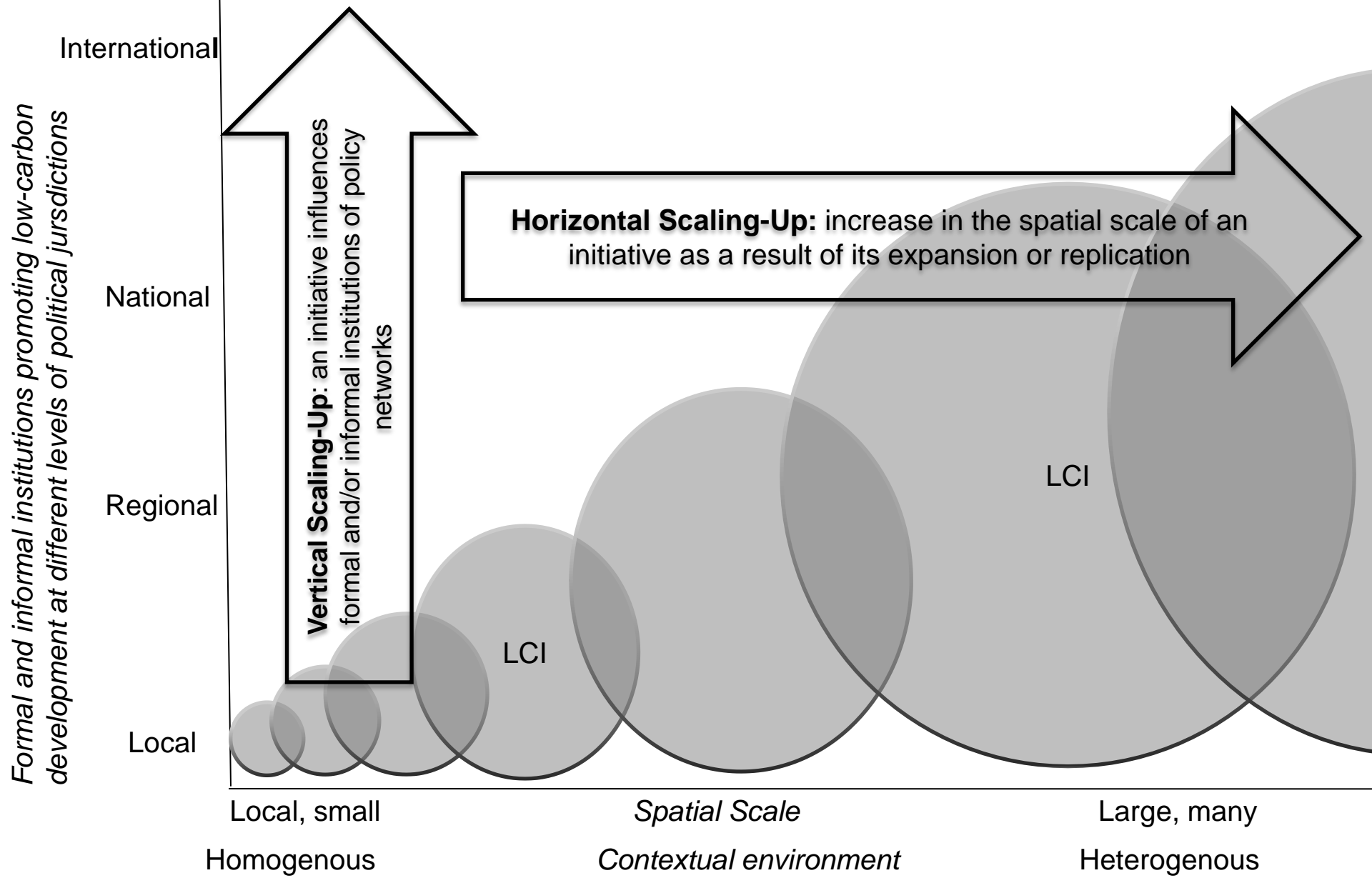
- Research background
- Introduction to the concept of scaling-up
- Paper ‘scaling-up energy conservation initiatives: barriers and local strategies’
 - Research context
 - Research objectives
 - Research strategy
 - Results
- Future research projects
- Questions and discussion

RESEARCH BACKGROUND

- Great need and potential for low-carbon urban development (Betsill and Bulkeley, 2006; Bulkeley and Broto, 2013; Collier, 1997; Mulugetta et al., 2009; Schreurs, 2008).
- Increase in the uptake of low-carbon initiatives (LCIs) in cities (see Broto and Bulkeley, 2013; Chmutima et al., 2014; Farreny et al., 2011).
- How to go from such incremental interventions to large-scale systemic change (Bulkeley and Broto, 2013)?
- To accomplish international and national climate mitigation goals, the scaling-up of LCIs needs to be accelerated.
- Climate-KIC aims to develop an assessment tool to identify drivers and barriers to the scaling-up of LCIs.


THE CONCEPT OF SCALING-UP

- Applied definition: to increase the impact of LCIs in terms of promoting low-carbon urban development (LCUD) from a small to a larger scale of coverage.
- Two pathways to which individual LCIs can go to scale, thereby reaching a higher impact in terms of low-carbon urban development :
 - horizontal pathways
 - vertical pathways
- Great potential for synergies between horizontal and vertical pathways to scaling-up.



Horizontal and vertical pathways to scaling-up low-carbon initiatives.

Source: van Doren, D., Driessen, P. P., Runhaar, H., & Giezen, M. (2016). Scaling-up low-carbon urban initiatives: Towards a better understanding. *Urban Studies*.



Paper: van Doren, D. Giezen, M., Driessen P.P.J. and Runhaar H.A.C. (under review). *Scaling-up energy conservation initiatives: barriers and local strategies.*

RESEARCH CONTEXT

- In Europe, the building stock is a great contributor to GHG emissions and is responsible for approximately 40 percent of final energy consumption (Pérez-Lombard et al., 2008; Levine et al., 2007).
- In European cities, energy conservation initiatives (EIs) have been realized that demonstrate the environmental, financial, and social benefits of energy conservation.
- Such initiatives are often initiated by actors who are intrinsically motivated to engage in the process due to their levels of environmental concern and willingness to pioneer (see Chmutina et al., 2014; Klein, Hooimeijer et al., 2012; Seyfang, 2010; van Doren et al., 2016).
- While energy conservation in existing buildings offers the largest and most cost-effective opportunity for GHG mitigation, an increase in the uptake and expansion (*i.e. horizontal upscaling*) of EIs is needed to reach this potential (see EFIG 2014; IEA, 2008; Levine et al., 2007; Immendoerfer et al., 2014; UNEP, 2009).

RESEARCH OBJECTIVES

- To gain insight into the nature and interdependencies of barriers that obstruct the uptake and growth (*i.e. horizontal upscaling*) of energy conservation initiatives (EIs) in residential and commercial buildings.
- To identify local strategies that have been applied by initiators of EIs to address these barriers.
- To examine stakeholders' perceptions on strategies that local governments can apply to address barriers.

RESEARCH DESIGN

- Embedded multiple-case study design
 - Building stock type: residential and commercial buildings
 - Jointly accountable for the major share of energy consumption of the building sector (UNEP, 2009).
 - Two distinct urban environments: Utrecht and Valencia
 - Local governments have set goals to promote low-carbon urban development.
 - EIs in both cities have been realized, but need to scale-up in order to achieve local, national, and international mitigation goals.
 - Cultural, climatic, economic, and political between the Northern-European and Mediterranean context allows for the examination of the context-specificity of barriers and general conditions required for horizontal upscaling.
- Research material
 - Interviews with 28 stakeholders that have been directly involved in EIs and regional operating experts.
 - Desk research of local studies, policy documents, and reports on the EIs.

ENERGY CONSERVATION INITIATIVES



BARRIERS TO SCALING-UP ENERGY CONSERVATION INITIATIVES

CONTEXT	CONDITION	BARRIERS
Socio-cultural context	Environmental awareness	Limited awareness on benefits and opportunities of energy conservation for own household or enterprise
	Environmental values and attitudes	Energy conservation has no (strategic) priority within the household or enterprise
	Resource capacity	Households and enterprises lack expertise, time, information, and/or financial resources
Market context	Capital and instalment costs	High upfront and instalment costs of energy conservation measures
	Credit availability	Limited opportunities to access credit at low costs (V)
	Skills and expertise of supply-side actors	Limited training of, and collaboration between, supply-side actors
	Information availability	Information asymmetry; Difficulty in retrieving customized information at low-costs
Policy context	Political leadership	Instability of the political and policy framework (V)
	Policy instruments	Lack of, or dispersion of, public funds or subsidies and administrative complexity (V); Lack in regulatory incentives to invest in energy conservation for households and enterprises
	Energy price	Low energy tax for enterprises
Built and geographical context	Building characteristics	Fragmented property ownership and lack in owners' associations (V)
	Geographical environment	Mediterranean climatic conditions (moderate winters) (V)

LOCAL STRATEGIES *APPLIED* TO ADDRESS BARRIERS

- Informative strategies
 - Customized, face-to-face communication about the financial and social benefits and opportunities regarding energy conservation by local, trusted actors.
 - Showcasing the impact of succesful EIs.
 - Barriers addressed:
 - socio-cultural context: lack of awareness, limited priority of energy conservation; lack of information among households and enterprises.
- Cooperative strategies
 - Process assistance from A to Z by local, trusted intermediaries.
 - Barriers addressed:
 - socio-cultural context: limited information, expertise, or time to invest in energy conservation among households and enterprises;
 - market context: information asymmetry;
 - built context: difficulty of decision-making in buildings with fragmented property ownership;
 - policy context: dispersion of public funds.

LOCAL STRATEGIES *APPLIED* TO ADDRESS BARRIERS (ii)

- Financial strategies
 - Collective purchasing of energy conservation measures.
 - Barriers addressed:
 - socio-cultural context: limited financial resources among end-users;
 - market context: high upfront purchase and installment costs of energy conservation measures.
 - Valorization of the co-benefits of energy conservation
 - Barriers addressed:
 - socio-cultural context: energy conservation has no (strategic) priority within the household or enterprise.

LOCAL STRATEGIES *SUGGESTED* TO ADDRESS BARRIERS

- Strategies that local government can initiate or support:
 - Informative strategies
 - Information provision and awareness rising on the benefits and opportunities of energy conservation.
 - Showcasing the impact of EIs.
 - Cooperative strategies
 - Creation of online and physical information points for independent and customized information provision and process assistance.
 - Development of training programs and partnerships aimed at enhancing the training of, and collaboration between, supply-side actors.
 - Financial strategies
 - Support the creation of various public and private financing mechanisms (e.g. revolving fund).
 - Organizing collective purchasing actions in neighbourhoods.
 - Regulative strategies
 - Creation and enforcement of regulatory structures to establish owners' associations in collective buildings (V).

CONCLUSION AND REFLECTION

- The findings of the research project sketch the context-specificity of barriers to scaling-up energy conservation initiatives.
- The findings suggest that while many barriers have international or national dimensions and origins, the local environment is a promising scale to address barriers to scaling-up EIs.
- Initiators of EIs can mitigate socio-cultural barriers (such as lack of awareness, priority, and capacity of end-users), market barriers (information asymmetry, high upfront costs), policy barriers (dispersion of public funds) through informative, cooperative, and financial strategies.
- Stakeholders perceive an important role for local government in initiating and supporting:
 - informative strategies
 - cooperative strategies
 - financial strategies
 - regulative strategies.

FUTURE RESEARCH PROJECTS

- An analysis of local government policy and capacity to promote the uptake and growth of LCIs (*i.e. horizontal pathways to scaling-up*).
- A study on strategies that can be applied to promote the institutionalization of the practices and principles applied by LCIs (*i.e. vertical pathways to scaling-up*).

THANK YOU

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