WORLD CLASS AND INTERDISCIPLINARY EXCELLENCE RESEARCH

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BASQUE CENTRE FOR CLIMATE CHANGE
Klima Aldaketa Ikergai

Cities and the transition to greener economies

Marta OLAZABAL,
BC3 Basque Centre for Climate Change (Spain)
University of Cambridge, Department of Land Economy (UK)

UNIVERSITY OF CAMBRIDGE

1 INTRODUCTION & OBJETIVE

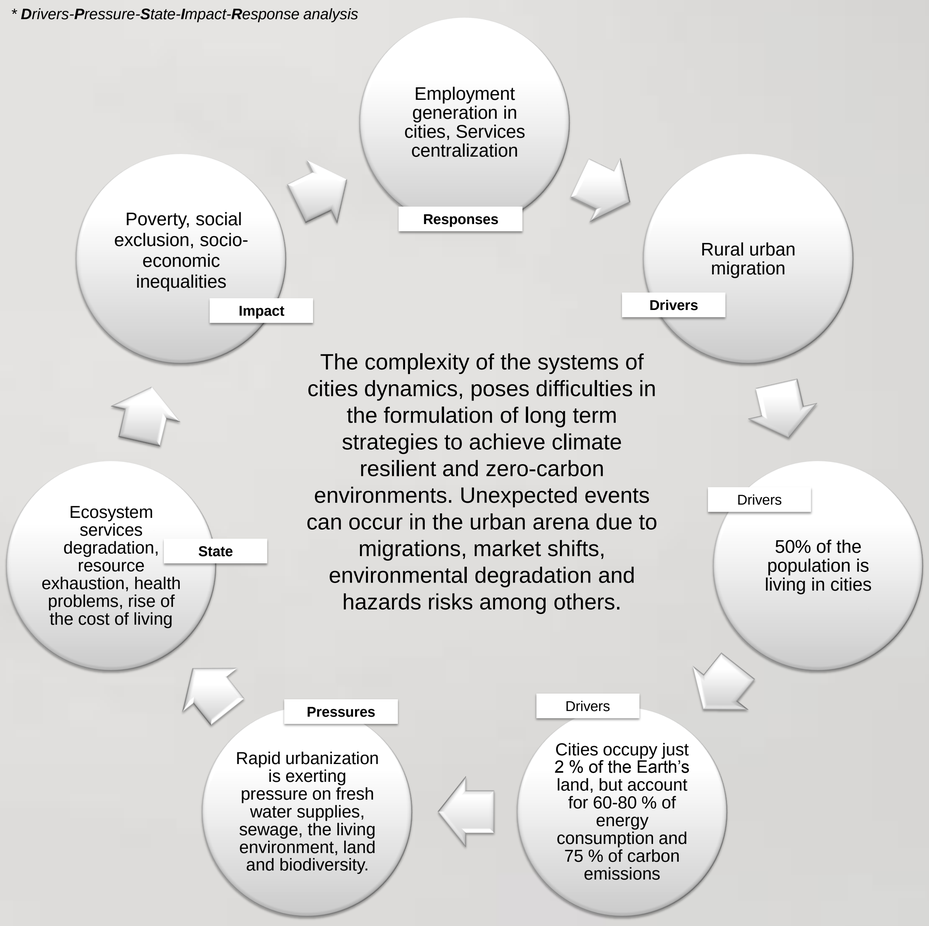
Many evidences show that **cities need to move from rhetoric to action** in the field of adaptation and transformability to low carbon and green economies. As attractors of services and population, cities **generate 70% of the carbon emissions and are responsible for the 70% of the energy demand**. In spite of this, the opportunity relies on cities, taking advantage of the concentration of **knowledge and innovation** to feed transitions. The challenge not only involves low carbon technologies deployment, but also the generation of the conditions required to **engage society and institutions in the process of change.**

This research field is directed to the analysis of suitable and successful pathways of transition to urban resilient sustainability.

2 CITIES COMPLEXITY

*A **DPSIR*** approach in cities*

** **D**rivers-**P**ressure-**S**tate-**I**mpact-**R**esponse analysis*



3 THE HOOK: cities as experimentation places

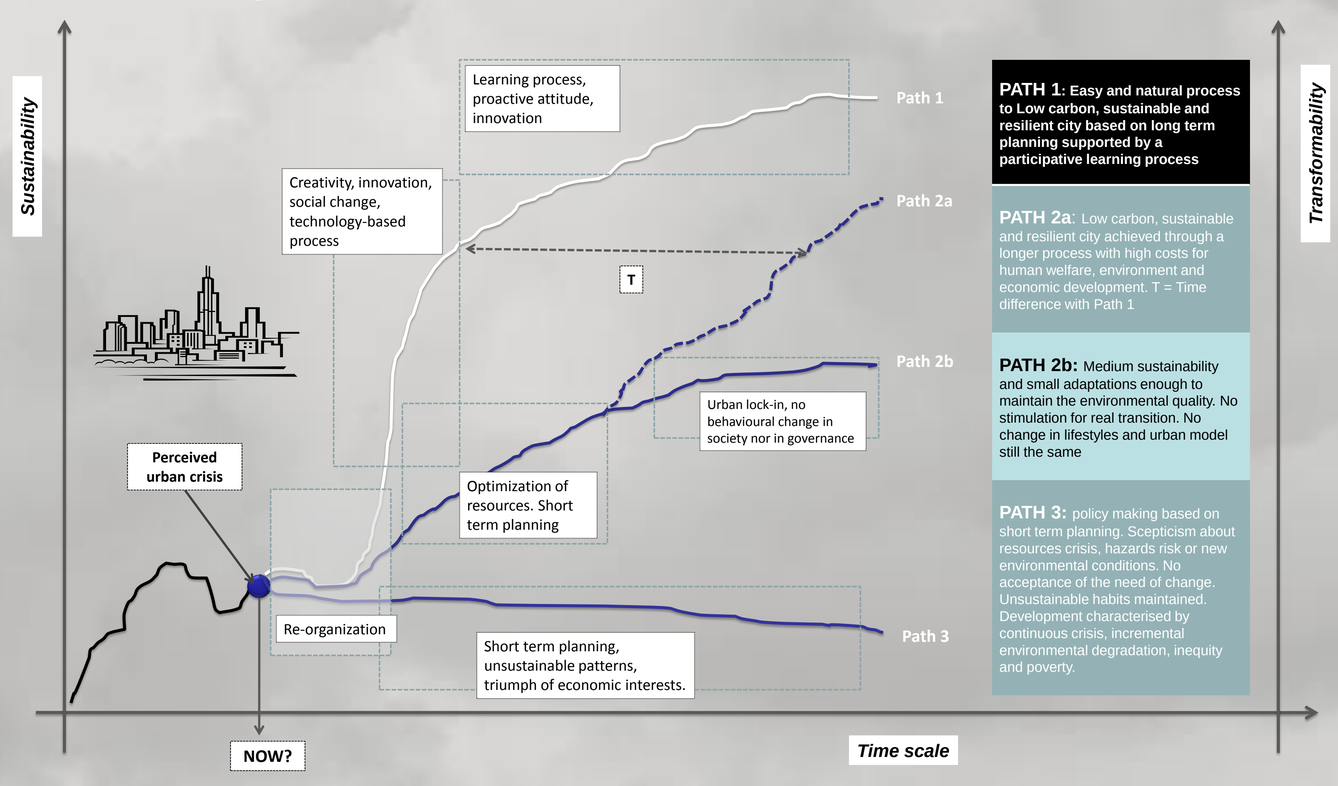
Characteristic	Opportunity	Type	Benefits / Goals
High density of built areas	Efficiency gains reducing resource and energy consumption	Technological	Maintain cost of living, reduce ecological footprint . Economic benefits
High density of industries and businesses	Technological innovation and Industrial ecology	Technological / Economic	Decoupling local economy from resource consumption
High density of knowledge	Social innovation, learning, social movements	Social	Activism, active disposition, education, innovation, flexibility
Diversity of people	Creativity, ideas, knowledge generation	Social	Create innovation hub Adaptive Capacity
Urbanization concentration	Limitation of impacts on ecosystems (soil, water resources, biodiversity)	Ecological	Quality and efficiency in the provision of ecosystem services Reduction of ecological footprint
Concentration and diversity of services	Reduce transport needs, increase accessibility	Urban Planning / Economic	Attraction and competitiveness

*Typical characteristics of urbanized areas and **opportunities to be fostered***

This table shows some of the opportunities that the cities, as they are currently conceived, can bring into the scene. Transformation of urban areas into more resilient and sustainable places, must focus on he identification of these kind of opportunities, so to exploit potential benefits.

However, how to translate the opportunity into benefit without creating more vulnerabilities?

4 POTENTIAL TRANSITION PATHWAYS IN CITIES: combining interventions and social attitudes



In different disciplines (socio-ecological research, socio-technical research, innovation studies …) we find the same idea: in order to support and stimulate transitions, cities need to cross tipping points, thresholds, also referred as crisis or collapse phase. With the right conditions and instruments, in a context of innovation, a successful transition path can be chosen. This will save critical resources and time.

Own elaboration. Adapted from multiple sources (1) Foliente G, et al. 2007 (2) Loorbach 2007, 2012 (Conference presentation)

5 EMPIRICAL ONGOING RESEARCH

ASSUMPTIONS

1. The role of cities in the transition to low carbon future might be limited due to the cross-scale implications of the energy system
2. Acceptance of low carbon technologies is quite varied among society and stakeholders
3. Climate change perception and the urgency of transformation is perceived differently
4. Being itself a learning process, urban transitions are about participation and visions generation.

STAGES OF THE PROCESS OF TRANSITION ENVISAGE

1. Participative process: visions generation
2. Translation of the vision into action
   a. Elaborating the orientation / strategy
   b. Providing the capacity to undertake such transition by institutional and financial means and with policy support

(This process complements quantitative models in building integrated knowledge on the urban complexity and specific dynamics)

***Bilbao** will be used as a case study to identify successful transition pathways using semi-quantitative methods strongly based on the perceptions and interests of different stakeholders and society groups (low carbon transition actors).*

This research is part of the PhD thesis of Marta Olazabal. Supervisor: Dr. Unai Pascual

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marta.olazabal@bc3research.org
WWW.BC3RESEARCH.ORG