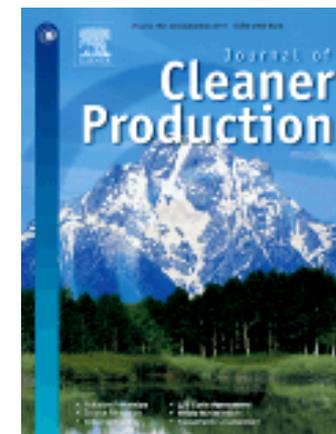
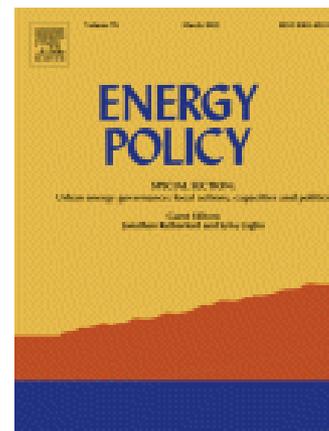
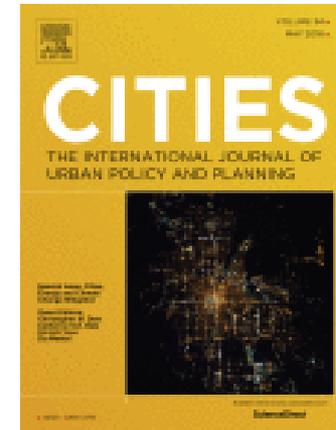
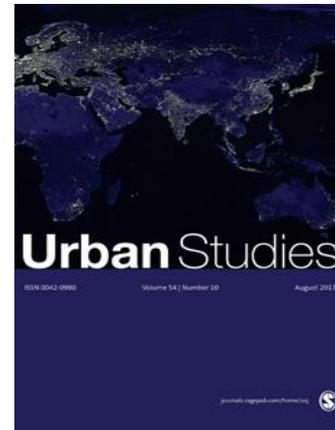
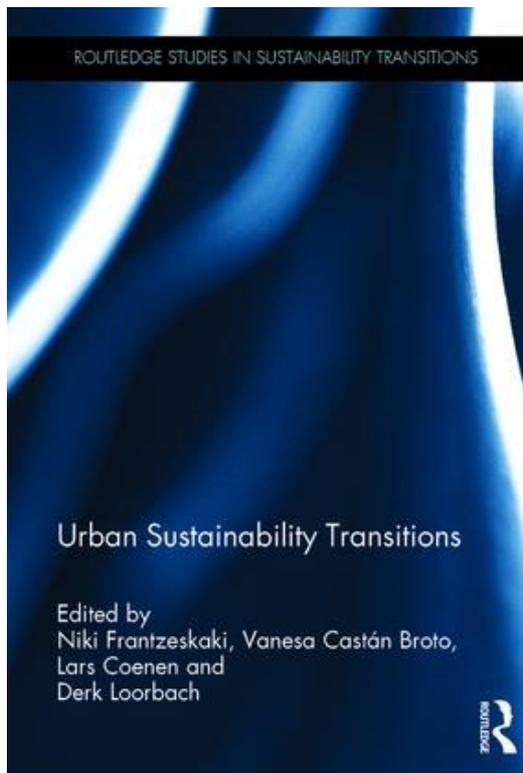


The governance of urban energy transitions in China: building-integrated solar thermal systems in Rizhao and Shenzhen

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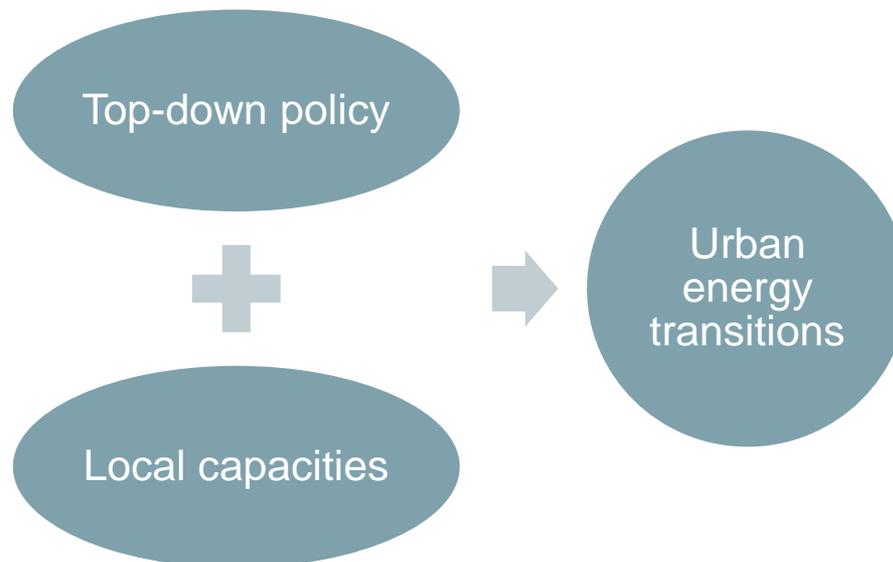
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An emerging strand: Urban Sustainability Transitions



Urban energy governance in China

- Climate change policies in China: **top-down objectives** and **appropriate approaches** (Li, Beeton, et al., 2016).
- Assumptions of **'command and control'** paradigms (Cox, 2016).



Governance in contexts: specific material processes

- Material processes in cities:
 - transition aspirations and the multiple forms of materiality;
 - the array of concrete objects and transitions.
- The built environment and people's everyday life.



Research question

- How urban energy transitions unfold in context, without assuming that local governments play a controlling role and questioning the translation of policy into actual material transformations?

Research methodology

- The Dimensions of Urban Sustainability Transitions (DUST) framework (Huang, P., Castán Broto, V. and Liu, Y., forthcoming; Huang, P. and Castán Broto, V., under review)

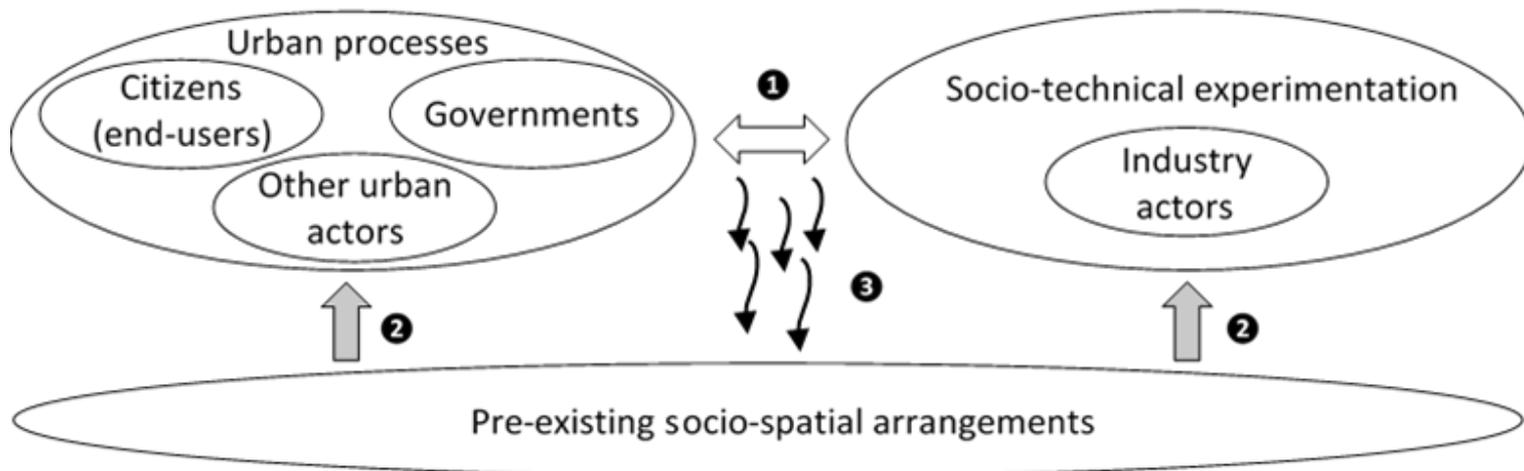
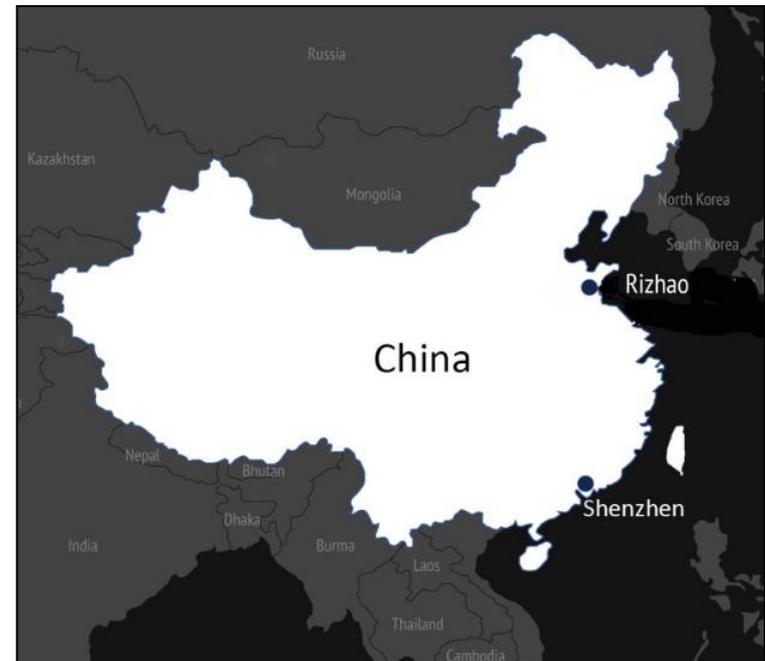


Figure 1. An overview of the DUST framework

Case study: building-integrated solar thermal (BIST) systems in Rizhao and Shenzhen

- Implementation of BIST systems: two radically different trajectories
- Top-down objectives: the Shenzhen government appears to be clearer
- Local capacities: the Shenzhen government appears to be stronger



Pre-existing socio-spatial arrangements (contexts): territorial proximity and socio-spatial embeddedness

- How an energy transition unfolded in Rizhao, with the successful penetration of BIST technology into **the urban physical environment** (reflection of territorial proximity) as well as into **social practices** (reflection of socio-spatial embeddedness)?
- How the same process failed to take shape in Shenzhen, even though stronger policy incentives were clearly available?

Territorial proximity

- Territorial proximity: the proximity to **natural resources** and **industry clustering**, the closeness of **local institutional environment**, and the **shared knowledge base** between various urban actors.
- Proximity to natural resources



Figure 4. Urban fabric in Rizhao (left) and Shenzhen (right) (source: Google Map)

Territorial proximity

- Territorial proximity depends on the proximity to **natural resources** and **industry clustering**, the closeness of **local institutional environment**, and the **shared knowledge base** between various urban actors.
- Proximity to natural resources: Rizhao  and Shenzhen 
- Proximity to industry cluster: Rizhao  and Shenzhen 
- The closeness of institutional environment: Rizhao  and Shenzhen 
- Cognitive proximity: Rizhao  and Shenzhen 

Socio-spatial embeddedness

- Social practices related to hot water usage that embedded in daily life
- Residents in Rizhao:
“This does not bother us at all. While waiting for hot water, we normally use a bucket to collect the cold water, which can be then kept for other users. We are used to it.” (October, 2016)
- Residents in Shenzhen
“I always have to keep the water running for a long time until the hot water comes. It is really inconvenient, and a huge waste of water resources.” (November, 2016)

Conclusion

- Top-down environmental policies per se do not explain urban energy transitions in China.
- The contextual factors (territorial proximity and socio-spatial embeddedness) matter.
- The alignment of political visions and local contexts is the essential condition for urban energy transitions toward sustainability.



Thank you!

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