



REBUMAT – German-Vietnamese cooperative project on REsourceefficient building using sustainable BUilding MATerials



Ravi Jayaweera, Sebastian Losacker & Dirk Schwede

International Sustainability Transition Conference 2024 June 2024, Oslo, Norway



Background: Unsustainability of (urban) building sector



- Building and construction sector: 37% global GhG emissions, 40-50% of extracted resources (UNEP 2023, WGBC 2018).
- Cities of the Global South particularly relevant as they see the strongest recent, current and projected construction and urban growth (Kang et al., 2018).
- 85% of growth in building energy use demand will be from urban areas and 70% from cities in "developing countries" (Ürge-Vorsatz et al., 2015, p. 87).
- Progress primarily in terms of operational carbon, while lagging in embodied carbon:
 - "Building materials are set to dominate climate change" (UNEP 2023: ix)
 - Transition urgently needed towards building materials with low embodied carbon → locally sourced, circular and bio-based



Transition towards circular and bio-based building materials (Source: UNEP, 2023, p. 15).



Spatialities of sustainability transitions and eco-innovation



- Place, space and scale in transition processes
 - Place-specificity of socio-technical configurations (Hansen & Coenen 2015) → place-specific configurations require place-specific transition strategies
 - Sustainability transitions = spatial processes, unfolding unequally across space
 - Transitions as multi-scalar processes: inter-actions of processes, actors and factors on multiple scales, strategic use of scale jumping

- Eco-innovation as "new or improved product or practice of a unit that generates lower environmental impacts, compared to the unit's previous products or practices, and that has been made available to potential users or brought into use by the unit' (Kemp et al. 2019, p. 35).
- Based on geography of innovation studies: Spatially unequal conditions for eco-innovation.
- Variety of regional "determinants"/factors of eco-innovation considered (Pacheco et al 2018, Losacker 2023).
- Main categories of "determinants"/factors:
 - demand side, supply side, institutional and political drivers of eco-innovation (Horbach 2008).
- However: Focus on "green" or "eco" innovations as such, without studying particular innovations

Need to study regional (incl. multi-scalar) preconditions for different innovations across contexts



Research Question & Conceptual Framework



How do *regional preconditions* influence the innovation and diffusion dynamics of different "green" building material technologies & transition pathways in different regional settings in Vietnam?





Conceptual Framework







Own graph, building on Henrysson & Nuur 2021

Methodology





Methodology





Preliminary Results







Conclusion and way forward



- Analysis regionally specific, multi-scalar preconditions affecting different technological innovations unequally
- Currently finalising the regional and technology specific characteristics
- Need for transition strategies that use regional and technology specific preconditions as leverage points







Thank you for your attention

Ravi Jayaweera ravi.Jayaweera@th-luebeck.de

REBUMAT – German-Vietnamese cooperative project on resourceefficient building using sustainable building materials

www.rebumat.de



sponsored by:











National University of Civil Engineering Hanoi, Vietnam



Ton Duc Thang University HCMC, Vietnam



Vietnamese Institut for Building Materials Hanoi, Vietnam