Sustainable Cities – the Importance of Collaboration

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SEI Stockholm Environment Institute
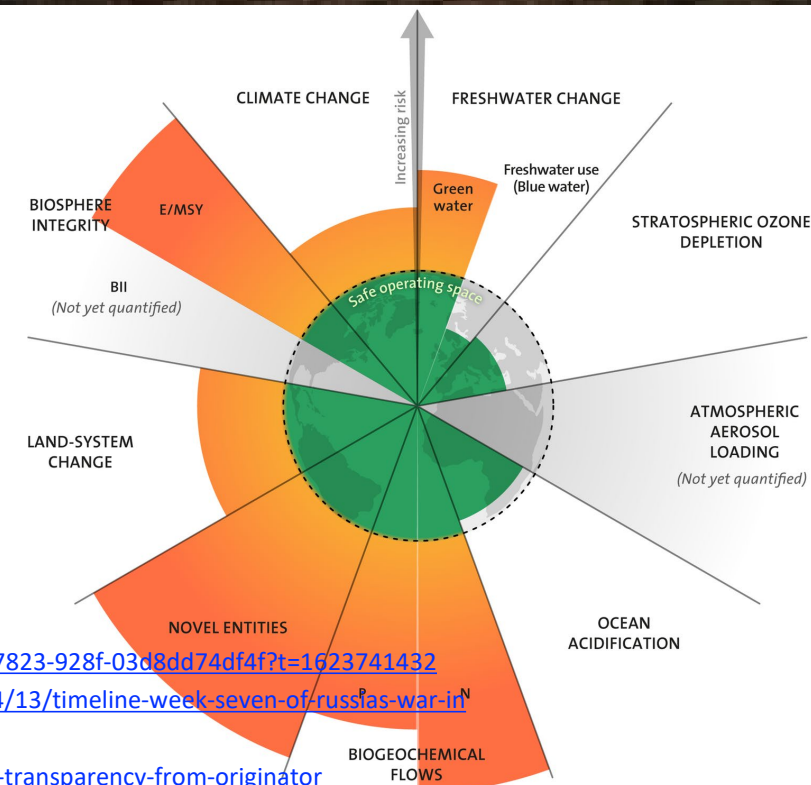
Sources:

2021 edition – sustainable development in the EU - https://ec.europa.eu/eurostat/documents/3217494/12878705/KS-03-21-096-EN-N.pdf/8f9812e6-1aaa-7823-928f-03d8dd74df4f?t=1623741432

Ukrainian forces fire rockets towards Russian positions in Donbas on April 10 [Wolfgang Schwan/Anadolu Agency] - https://www.aljazeera.com/news/2022/4/13/timeline-week-seven-of-russias-war-in

Planetary boundaries - https://www.stockholmresilience.org/research/research-news/2022-04-26-freshwater-boundary-exceeds-safe-limits.html

Covid - https://www.who.int/news/item/22-04-2022-who-recommends-highly-successful-covid-19-therapy-and-calls-for-wide-geographical-distribution-and-transparency-from-originator

Challenges:
- Population: growth – ageing, smaller households
- Mobility: 67% car use; limited active transport; lack of public transport
- More need for social services
- Energy and green spaces

Cities as systems

Municipal government

Private sector/ industry

Citizens

Other government agencies

Academia

Civil society

Utility companies

Role/ Function

Behaviour / habits

Assets

Setting – political, economic, social, technological, legal and environmental

SEI
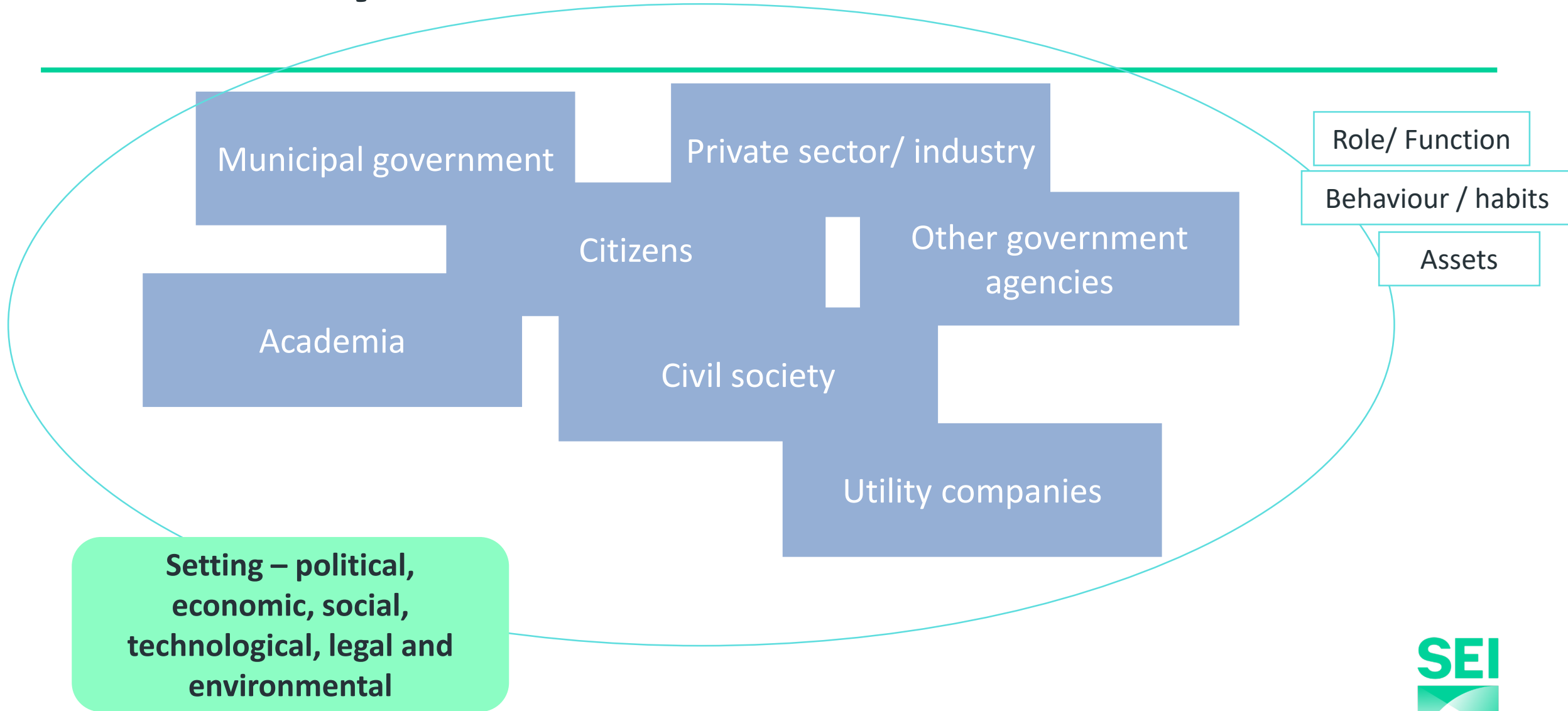
To become more sustainable

- System improvement – incremental adjustments (technological substitution; re-configuration)

- System innovation – society-wide transformation; de-alignment and re-alignment

- Transformation: "messy, conflictual and highly disjointed" (Meadowcroft, 2009)

- Pluralism –
  - Tension = opportunity for thinking and acting beyond solving technological problems
  - Ideas
  - Structures and Agency - power

Sources:
Geels and Schot (2007). Typology of sociotechnical transition pathways. Research Policy, 36, 399-417.
Meadowcroft, J. (2009). What about politics? Sustainable development, transition management, and long term energy transitions. Policy. Sc. 42:323-340
Seppälä, M. (2021). Radical Uncertainty Requires Radical Collaboration. Sitra.
WIREs Clim Change 2016, 7:251–265. doi: 10.1002/wcc.384

Across Europe

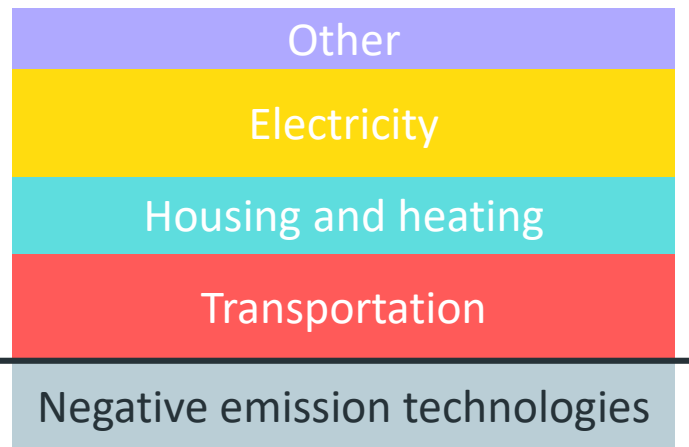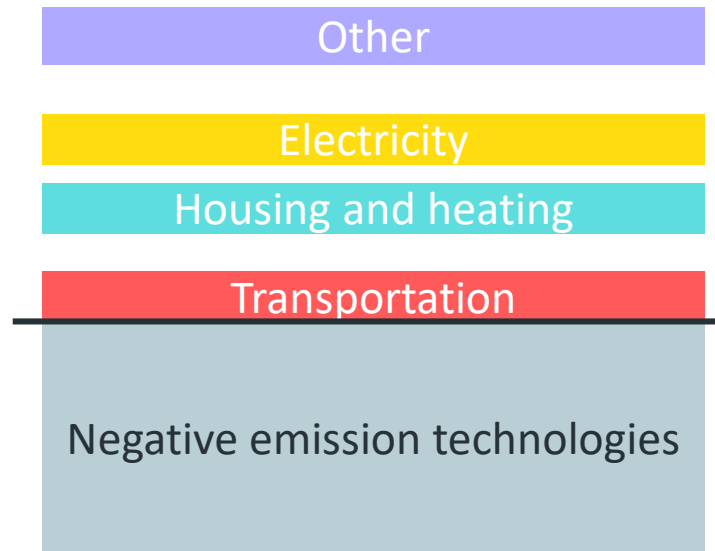Creating climate neutral cities - the approach supported by Viable Cities SIP:

1) Greenhouse Gas Emissions at city level in 2030 = starting from current GHG profile + forecast using assumptions on population growth, behaviour, technology efficiency

2) Defining actions for emission reduction in the city – behaviour change; technology improvements and negative emission technologies -> dynamic, looking at the different actors in the city (citizens, municipal government, private sector, civil society and other government actors)

3) Assessing consequences -> dynamic as step 2 is dynamic

   a. Financial calculation incorporates both capital expenditure and operational expenditure;

   b. Analysis of policy instruments (regulatory; economic and voluntary instruments)

More info: https://en.viablecities.se/

Financing climate neutral cities

1. Forecasted emissions (2030)

Other
Electricity
Housing and heating
Transportation
Negative emission technologies

2. Defining actions – goal is net zero

Other
Electricity
Housing and heating
Transportation
Negative emission technologies

3. Assessing consequences

- Financial needs

$$f(x) = -I_{at} + \sum_{t=0}^{n} \frac{R_{at} - C_{at}}{(1 + i_a)^t}$$

With: Capital investment (I); Revenue (R); Costs (C); over time (t); per actor (a) with i the interest rate per type of actor

- Policy instruments needed to align

Sources
Vanhuyse, F., and Piseddu, T. (2021). Climate neutral cities – estimating the financial investments needed. Smart city Expo. Barcelona, 15–18 November 2021

Collaboration is key

- Combination of options – behavioural change, technology improvements and negative emission technologies

- Connections between options - dynamic

- **All** actors in and around the city – **all** cities

- Consequences – avoiding lock in, white elephants, stranded assets, exclusion, disconnect and disempowerment

How?

Fig. 5. Transformation pathway.

- Phases: scoping – initiating – implementing

- Transactional to integrative to transformational relationship

- Trustful collaborative working requires:
  - Individual: curiosity, humility and generosity
  - Team: facilitation, shared purpose, identification with own organization and mission of the innovation arena
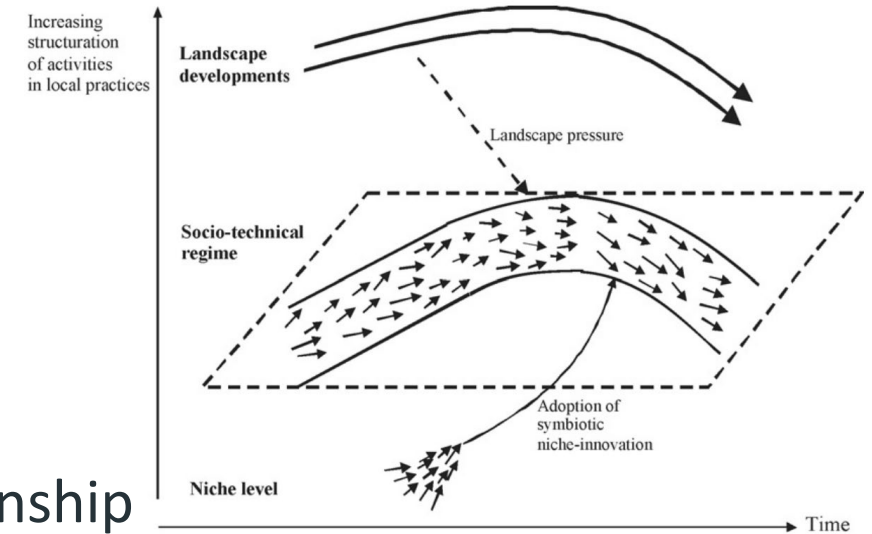 - community: committed policymakers

Sources:
Moreno-Serna, J. et al (2020). Catalyzing Transformational Partnerships for the SDGs: Effectiveness and Impact of the Multi-Stakeholder Initiative El día después. Sustainability, 12, 7189.
Austin et al. (2012). Collaborative Value Creation: A Review of Partnering between Nonprofits and Businesses: Part I. Value Creation Spectrum and Collaboration Stages. Nonprofit Volunt. Sect. Q. 41,726-758.

Who?

- Mayors

- Innovation arenas – quadruple helix – learning
  - Understanding barriers and incentives
  - Anchoring of concepts, group, ideas
  - Developing the vision, plan, setting targets

- Intermediary organizations and transnational networks – horizontal and vertical

Sources:
Evans et al (2021). How Cities Learn: From Experimentation to Transformation. Urban Panning by Experiment Vol 6,No. 1. https://doi.org/10.17645/up.v6i1.3545
Bulkeley (2020). Cities and the Governing of climate change. Annu. Rev. Environ. Resour. 35:229-53
Bush, H and McCormick, K (2014). Local power: exploring the motivations of mayors and key success factors for local municipalities to go 100% renewable energy. Energy, Sustainability and Society, 4, 5.
Fraser et al (2022). Leaders or networkers? The role of mayors in renewable energy transition. Environmental Innovation and Societal Transitions. Vol 42, 301-316

Collaboration – the role of universities

- Knowledge creation

- Orchestration of the multi-actor innovation networks

- Guardians – distributive justice (costs and benefits), procedural justice (due process), cosmopolitan justice (global externalities), and recognition justice (vulnerable groups)

Requires: impartial, curious, long-term perspective, responsiveness, adaptability, strategically direction, autonomous governance and dense links with partners

Sources:
Reichert (2019). EUA Study The Role of Universities in Regional Innovation Ecosystems. https://www.eua.eu/downloads/publications/eua%20innovation%20ecosystem%20report_final_digital.pdf
Sovacool, B.K., Martiskainen, M., Hook, A. *et al.* Decarbonization and its discontents: a critical energy justice perspective on four low-carbon transitions. *Climatic Change* **155,** 581–619 (2019). https://doi-org.ezp.sub.su.se/10.1007/s10584-019-02521-7
Vanhuyse, F. and Jokiaho, J. (2021). The role of municipal governments in the sustainability transition – research and experimentation. Innovate4Cities Conference, 11-15 October 2021.

A miracle

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1 in 400 trillion

Sources
Ali Binazir - http://blogs.harvard.edu/abinazir/2011/06/15/what-are-chances-you-would-be-born/
Mel Robbins Ted Talk - https://www.youtube.com/watch?v=W-h-foRjFX0

Thank you!

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Special thanks to:
- Julia Jokiaho and Tommaso Piseddu (SEI)
- Olga Kordas, Åsa Minoz, Gabriella Doczi, Klaudia Ecker, Miguel Soberón (Viable Cities/ KTH)
- Cities in the Viable Cities and NetZeroCities' platform