

PART I

GOVERNING CIRCULAR ECONOMY: PLACE-SPECIFIC BARRIERS THAT HAMPER THE CLOSE OF THE LOOP

Guest Editor: Viktor Varjú* 

FOREWORD

In the past decade, the concept of ‘circular economy’ (CE) has been gaining importance on various levels. CE has plenty of definitions, however, based on Kirchherr and colleagues’ (2017) systematic analysis it can be argued that most often circular economy is depicted as the set of activities reduce, reuse and recycle. Kirchherr *et al.* (2017) has indicated that the necessity of a systemic shift in order to achieve CE is often not highlighted (Kirchherr *et al.*, 2017).

According to Reike *et al.* (2018), the first CE article was recorded in 2007, while an exponential increase could be detected since 2015. However, the concept dates back much further, though framed differently, and CE can be divided into three phases (Blomsma and Brennan, 2017; Reike *et al.*, 2018). Alongside environmental movements in the 1970s, the focus was on the ‘output side’, on the pollution, and less attention was paid to prevention. From the 1990s, the second phase had a stronger integration among preventive and output measures, while the third phase in the last decade “is phrased as a way out of ‘resource trap’” (Reike *et al.*, 2018, p. 249).

* Viktor VARJÚ, KRTK Institute for Regional Studies, 22 Papnövelde Street, 7621, Pécs, Baranya county, Hungary; e-mail: varju@rkk.hu, ORCID: <https://orcid.org/0000-0003-3954-4518>.

On the meta-governing level, the urgency of closing materials loops is a new phenomenon, UNEP (2011) or OECD (2011) promoted the resource efficiency via their reports. Consortia of global actors (e.g. Ellen MacArthur Foundation¹) play also a significant role in the field, and in 2015 the EU introduced its first Circular Economy Action Plan² and adopted a new one (COM/2020/98) in March 2020. Additionally, there are many initiatives to implement a CE, where the main actors are legislative and governmental bodies, NGOs, and consultancy firms (cf. Kalmykova *et al.*, 2018), from global, national, and local/regional levels (Milligan and O'Keefe, 2019), each yielding specific responsibilities and territorial limitations/scopes.

There are several lenses through which the aim of CE can be viewed, placing the emphasis on different part. CE is usually presented with a goal to achieve a transition towards a circular economy with a focus on closing material flow loops, aiming for 'zero waste', generating new business models based on waste as a precious resource, and deeply transforming the society's approach to consumption and disposal of goods and materials. With other emphases, CE "is expected to promote economic growth by creating new businesses and job opportunities, saving materials' cost, dampening price volatility, improving security of supply while at the same time reducing environmental pressures and impacts" (Kalmykova *et al.*, 2018, p. 190). Whatever ambitions one considers, those tend to be moderated when confronted with the multiple governance, economic, legal, socio-spatial, socio-cultural, sociological, and behavioural barriers (Dąbrowski, 2019). A resource-efficient Europe can only be achieved with 'a policy mix that optimises synergies and addresses trade-offs between different areas and policies' (EC, 2011). Thus, local authorities, citizens, and other stakeholders need a collaborative and science-informed decision environment for developing proper resource management scenarios and assessing their impacts on the environment, the society, and the economy. Hence, circular economy transition needs to work with and in complex systems (Remøy *et al.*, 2019).

Sustainability transitions – beyond traditional planning and development – require broader engagement, empowerment, and breakthrough strategies. The optimised management of a transition (that is often cited as 'transition management' in subject literature) combines frontrunners from policy, science, business, and the society (Wittmayer and Loorbach, 2016). It can ensure that (eco)innovation (that is a key aspect of the concept) serves the transition from linear towards circular economy. As Ghisellini and colleagues (2016) have indicated – based on their research seeking successful experiences – a key aspect of the transition towards CE comes from the involvement of all actors of a society and their capacity for creating collaboration and knowledge exchange (Ghisellini *et al.*, 2016). Actu-

¹ <https://www.ellenmacarthurfoundation.org/> [accessed on: 18.08.2020]

² https://ec.europa.eu/environment/circular-economy/first_circular_economy_action_plan.html [accessed on: 15.06.2020]

ally solutions and eco-innovations “require broadly carried «bottom-up» initiatives and innovations that can connect and interact with governance structures and «top-down» policies on higher levels,” (Loorbach and Shiroyama, 2016, p. 9).

This thematic issue partly presents studies and cases from *Hamburg* (Germany), *Łódź* (Poland), *Pécs* (Hungary), *Naples* (Italy), *Ghent* (Belgium), and *Amsterdam* (the Netherlands). These studies were conducted under the umbrella of the EU Horizon 2020 research project of REPAiR – REsource Management in Peri-urban Areas: Going Beyond Urban Metabolism.

The core objective of REPAiR is to provide local and regional authorities with an innovative transdisciplinary open source geodesign decision support environment (GDSE) developed and implemented in living labs in six metropolitan areas. The GDSE allows creating integrated, place-based eco-innovative spatial development strategies aiming at a quantitative reduction of waste flows in the strategic interface of peri-urban areas. These strategies will promote the use of waste as a resource, thus support the on-going initiatives of the European Commission towards establishing a strong circular economy.³

For research purposes, REPAiR used a common solid methodology. The scale of research was urban regions and their peri-urban areas with the classical problems of excessive use of resources and waste production, that is usually accompanied by fragmented (sometimes confrontative) local governments and planning systems within the peri-urban regions (and among the case studies) (Obersteg *et al.*, 2019). Furthermore, their spatial configurations offered a range of possibilities to establish laboratories to co-explore and co-design solutions for the peri-urban regions.

In order to examine governance challenges, a different scale of governance (i.e. multi-level governance), cross-sectoral governance (the involvement of different divisions of the public sector, relating to CE) and ‘quadruple helix’ governance (that focus on the participation actors from the public, the private sector, science, and the civil society) have been considered. To allow a comparison between the cases, the analytical framework of PESTEL (Political, Economic, Social, Technological, Environmental, and Legal) had been used (Fozer *et al.*, 2017; Obersteg *et al.*, 2019; Song *et al.*, 2017).

For applying the above described framework and for conducting empirical research, apart from document analyses, semi-structured interviews with key stakeholders from waste management sector, local and regional authorities, and representatives of the private sector were conducted using a snowball sampling method, which led to the identification of additional stakeholders in the field of CE (Obersteg *et al.*, 2019). The identified stakeholders (from the four spheres mentioned above) – outside the interviews – were invited for a series of meetings following the living laboratory format. This *Peri-Urban Living Laboratories*

³ <http://h2020repair.eu/> [accessed on: 1.09.2020]

(PULLs) enabled a co-exploration of challenges and a co-creation of new solutions in order to push peri-urban regions towards CE (Amenta *et al.*, 2019).

All the studies in these six case-study peri-urban regions followed the same methodological framework (described above) tailoring the implementations to their case specific circumstances, however, each of them faced different challenges towards circular transitions. The Łódź case – at the beginning of the path towards circularity – offers an overview of the new socio-geographical challenges and the changing flows due to a new waste management regulation (enforced in 2013). *Berutti and Palestino* analysed ‘wastelands’ in Naples’ urban region and the *Land of Fire*. As in CE, usually flows are investigated, therefore, the analysis of ‘wastescapes’ is unique in this field. The authors have argued that after a long bad period ‘wastescapes’ can offer potential to rehabilitate spaces and a governance model. The Pécs case, similarly, shows waste as a resource potential and emphasised the drawback of the recent Hungarian centralisation processes and their impacts. Governance is also a critical issue in the case of Ghent, but in a contrary manner. Reflecting to the need for strong and wide collaboration, the case study shows a strategic long-term thinking towards the transition. The Hamburg Altona case indicates that the involvement of local stakeholders (in the format of a living lab) can force place-based solutions in response to CE-related local challenges, however, there is a need for an embeddedness in (local) governance and spatial planning systems. Amsterdam appears a frontrunner in the transitional process towards circularity, however, the Metropolitan Area is also facing barriers in different phases of governance needed for an extensive cross-sectoral and cross-boundary partnership with a “visionary and proactive leadership at the regional level, integrating CE policy with spatial strategies”.

In order to get a broad picture on the transition towards circular economy, other papers have been invited to present the state and challenges on the way towards circular economy. The paper on Visegrád countries (Hungary, Poland, Slovakia, and Czechia) provides an overview of the eastern, while the article presenting citizen involvements (in Copenhagen, Genoa, Hamburg, and Lisbon) shows an insight from the western part of Europe on the way of circularity transition. The latter comparative case reflects the importance of a broader engagement with citizens, while *Szabó and Pomázi* – via different indicators – have shown the performance of Visegrád countries that are lagging behind the EU average.

Acknowledgements. The research presented in the first part of this special issue has been conducted under the umbrella of EU Horizon 2020 REPAiR – REsource Management in Peri-urban Areas: Going Beyond Urban Metabolism project. The project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement no. 688920. The articles reflect only the authors’ view. The Commission is not responsible for any use that may be made of the information they contains.

REFERENCES

- AMENTA, L., ATTADEMO, A., REMØY, H., BERRUTI, G., CERRETA, M., FORMATO, E., PALESTINO, M.F. and RUSSO, M. (2019), 'Managing the Transition towards Circular Metabolism: Living Labs as a Co-Creation Approach', *Urban Planning*, 4 (3), pp. 5–18. <https://doi.org/10.17645/up.v4i3.2170>
- BLOMSMA, F. and BRENNAN, G. (2017), 'The Emergence of Circular Economy: A New Framing Around Prolonging Resource Productivity', *Journal of Industrial Ecology*, 21 (3), pp. 603–614. <https://doi.org/10.1111/jiec.12603>
- DĄBROWSKI, M. (2019), *From Waste Management to Circular Economy in Regions and Cities: Agendas, Arenas, Actors*, manuscript.
- EC (2011), *European Commission, A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy*.
- FOZER, D., SZIRAKY, F.Z., RACZ, L., NAGY, T., TARJANI, A.J., TOTH, A.J., HAAZ, E., BENKO, T. and MIZSEY, P. (2017), 'Life cycle, PESTLE and Multi-Criteria Decision Analysis of CCS process alternatives', *Journal of Cleaner Production*, 147, pp. 75–85. <https://doi.org/10.1016/j.jclepro.2017.01.056>
- GHISELLINI, P., CIALANI, C. and ULGIATI, S. (2016), 'A review on Circular Economy: the Expected Transition to a balanced interplay of environmental and economic systems', *Journal of Cleaner Production*, 114, pp. 11–32. <https://doi.org/10.1016/j.jclepro.2015.09.007>
- KALMYKOVA, Y., SADAGOPAN, M. and ROSADO, L. (2018), 'Circular economy – From review of theories and practices to development of implementation tools', *Resources, Conservation and Recycling*, 135, pp. 190–201. <https://doi.org/10.1016/j.resconrec.2017.10.034>
- KIRCHHERR, J., REIKE, D. and HEKKERT, M. (2017), 'Conceptualizing the circular economy: Analysis of 114 definitions', *Resource, Conservation & Recycling*, 127, pp. 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- LOORBACH, D. and SHIROYAMA, H. (2016), 'The Challenge of Sustainable Urban Development and Transforming Cities', [in:] LOORBACH, D., WITTMAYER, J.M., SHIROYAMA, H., FUJINO, J. and MIZUGUCHI, S., *Governance of Urban Sustainability Transitions. European and Asian Experiences*, Springer Japan: Tokyo, pp. 3–12. https://doi.org/10.1007/978-4-431-55426-4_1
- MILLIGAN, B. and O'KEEFE, M. (2019), 'Global governance of resources and implications for resource efficiency in Europe', *Ecological Economics*, pp. 46–58. <https://doi.org/10.1016/j.ecolecon.2018.01.007>
- OBERSTEG, A., ARLATI, A., ACKE, A., BERRUTI, G., CZAPIEWSKI, K., DĄBROWSKI, M., HEURKENS, E., MEZEL, C., PALESTINO, M.F., VARJÚ, V., WÓJCIK, M. and KNIELING, J. (2019), 'Urban Regions Shifting to Circular Economy: Understanding Challenges for New Ways of Governance', *Urban Planning*, 4 (3), pp. 19–31. <https://doi.org/10.17645/up.v4i3.2158>
- OECD (2011), *Resource Productivity in the G8 and the OECD. A Report in the Framework of the Kobe 3R Action Plan*, Paris, retrieved from <https://www.oecd.org/env/waste/47944428.pdf>.
- REIKE, D., VERMEULEN, W.J.V. and WITJES, S. (2018), 'The circular economy: New or Refurbished as CE3.0? – Exploring Controversies in the Conceptualization of the Circular Economy through a Focus on History and Resource Value Retention Options', *Resource, Conservation & Recycling*, 135, pp. 246–264. <https://doi.org/10.1016/j.resconrec.2017.08.027>
- REMØY, H., WANDL, A., CERIC, D. and Van TIMMEREN, A. (2019), 'Facilitating Circular Economy in Urban Planning. Editorial', *Urban Planning*, 4 (3), pp. 1–4. <https://doi.org/10.17645/up.v4i3.2484>
- SONG, J., SUN, Y. and JIN, L. (2017), 'PESTEL-analysis of the development of the waste-to-energy incineration industry in China', *Renewable and Sustainable Energy Reviews*, 80, pp. 272–289. <https://doi.org/10.1016/j.rser.2017.05.066>

- WITTMAYER, J.M. and LOORBACH, D. (2016), 'Governing Transitions in Cities: Fostering Alternative Ideas, Practices, and Social Relations Through Transition Management', [in:] LOORBACH, D., WITTMAYER, J.M., SHIROYAMA, H., FUJINO, J. and MIZUGUCHI, S., *Governance of Urban Sustainability Transitions. European and Asian Experiences*, Springer Japan: Tokyo, pp. 13–32. https://doi.org/10.1007/978-4-431-55426-4_2
- UNEP (2011), [in:] FISCHER-KOWALSKI, M., SWILLING, M., von WEIZSÄCKER, E.U., REN, Y., MORIGUCHI, Y., CRANE, W., KRAUSMANN, F., EISENMENGER, N., GILJUM, S., HENNICKE, P., ROMERO LANKAO, P. and SIRIBAN MANALANG, A. (eds.), *Decoupling Natural Resource Use and Environmental Impacts from Economic Growth, A Report of the Working Group on Decoupling to the International Resource Panel*, retrieved from: http://www.gci.org.uk/Documents/Decoupling_Report_English.pdf.