ELSEVIER

Contents lists available at ScienceDirect

Social Sciences & Humanities Open

journal homepage: www.sciencedirect.com/journal/social-sciences-and-humanities-open





After COVID-19: What can we learn about wicked problem governance?

Benjamin Klasche

Tallinn University, School of Governance, Law and Society, Narva Mnt. 25, 10115, Tallinn, Estonia

ARTICLE INFO

Keywords:
Coronavirus Crisis
Climate Crisis
Wicked problems
Metagovernance
Governance

ABSTRACT

The governance of the Coronavirus Crisis has shown promising results in some situations, where the spread of the disease to a critical level was avoided. Due to its complex nature, the Crisis must be considered a wicked problem, and its successful governance could, therefore, serve as a resource for governing other wicked problems such as the Climate Crisis. This short article suggests that the principles of *metagovernance* are useful for the governance of wicked problems and places governance strategies of the Coronavirus Crisis and the Climate Crisis in analytical categories derived from it. By doing so, possible lessons for the governance of the Climate Crisis were extracted. Based on these, the key for governing wicked problems lies in the acceptance end embracing of failure as the most likely governance outcome which leads to the ability to modify or abandon policies swiftly. It shows that states can play an essential role in governing the Climate Crisis and that they should not be automatically excluded from it, as long as they can adapt and change policies quickly.

1. Introduction

In April 2021, the global Coronavirus pandemic, has evolved into a major crisis and has virtually all countries searching for adequate responses. This substantial health crisis has most governments opt for policies that lead to social self-isolation of their population. The aim is to mitigate the spread of the disease by the extreme minimization of social contacts. Even though the numbers of affected people are still increasing, there seems to be a light at the end of the tunnel with the promise that most of the vulnerable population will be vaccinated soon. Unfortunately, the implementation of the social isolation turned the Coronavirus Crisis from a global health crisis into a multitude of crises that threaten the collapse of national economies, negatively affect the mental health of many and could see the rise of other societal problems such as domestic abuse and deficient education for large parts of the student body. We can also observe that the mismanagement of the vaccination campaign in many places hurts the people's ability to trust the leadership. The contingent and constitutive nature of this Crisis allows us to classify it as a "wicked problem" (Rittel & Webber, 1973) and therefore compare it with other problems (e.g., Climate Crisis, global terrorism, global inequality) of that kind.

A comparison with the Climate Crisis seems particularly well-suited as the Coronavirus Crisis, especially over time, features similar aspects, for example, both crises threaten everyone in theory, but in practice, we can see asymmetrical levels of vulnerability (see, e.g., Sultana, 2021). Even though all wicked problems are unique, it appears that both crises

can be solved with simple policies such as reducing social contact or Co2-emission. These actions would also have comparable ripple effects. When looking at appropriate governance approaches for the Climate Crisis in particular, it seems that conventional policymaking tools are at odds and only approaches outside of the regular playbook, like bottom-up, have any chance to mitigate the problem. This points towards the fact that we are already doing many things right in dealing with the Coronavirus Crisis as a variety of responses is included in combating the Crisis. It also appears that politicians have embraced their limitations in dealing with this Crisis and accepted failure as the only viable outcome, often leading to swift policy modifications, which is by no means the case in Climate Crisis governance. This mode of governance, among other aspects, is featured in Bob Jessop's notion of metagovernance, which, provides the analytical framework that identifies appropriate governance approaches to wicked problems. By placing the governance approaches of both crises in dialogue, lessons for the continuous governance of both are identified.

This paper proceeds in three parts: Firstly, it establishes the wicked problem concept to compare the two crises adequately. Secondly, the governance approaches of both crises are placed into dialogue highlighting successes and shortcomings of the policies. The paper ends by analyzing the governance strategies of both crises using the principles of *metagovernance*.

E-mail address: benjamin.klasche@tlu.ee.

2. What are wicked problems?

Wicked problems have been much discussed in the realm of governance (e.g., Head, 2019; Peters, 2017; Roberts, 2000; Turnbull and Hoppe, 2019) after its inception by Rittel and Webber (1973). The classical treatment of wicked problems classifies them as such if these ten criteria are fulfilled:

- 1. No definite formulation of the problem.
- 2. They have no stopping rule.
- 3. Solutions are not true-or-false but good-or-bad.
- 4. There is no immediate and no ultimate test of a solution.
- 5. Every solution is a "one-shot operation"; there is no opportunity to learn by trial-and-error; every attempt counts significantly.
- 6. They do not have an enumerable set of potential solutions, nor is there a well-described set of permissible operations.
- 7. They are essentially unique.
- 8. They can be considered to be a symptom of another problem.
- The choice of explanation determines the nature of the problem's resolution.
- 10. The planner has no right to be wrong (Rittel & Webber, 1973, pp. 161-167).

This list is a good starting point to understand the concept. However, to move from this descriptive notion to an analytical one, it might be easier to understand what wicked problems are by pointing out what they are not. The ideal-typical assumption is that all governance problems can be classified into three categories based on the acceptance of the problem definition and the definition of the solution: simple, complex and wicked problems (see also Roberts, 2000; Alford & Head, 2017; Turnbull & Hoppe, 2019). Simple problems have a clear definition and a clear solution. An example is the need to issue new identification cards and the establishment of a government agency in charge of it. Complex problems only have a clear problem definition but produce many contesting opinions on how to solve them. Many social policy reforms fall under this category. Here, the problem might be obvious, e.g., based on the new PISA survey, our student's reading ability is worse than before, but the solution to this problem, e.g., new textbooks, new training of teachers or even reform of the school system, could be imagined very different by many different stakeholders. Regardless of which solution attempt is chosen, governments have a significant structural toolbox to fall back on. Wicked problems, however, have no clear definition and no clear solution. The lack of definition is expressed in the fact that wicked problems are in constant change, and solution attempts will inevitably turn it into another problem. In the case of the Coronavirus Crisis, we can observe that it started as a health crisis but has quickly turned into a situation that is constituted by a multitude of crises, such as an economic crisis, a mental health crisis and an epistemic knowledge crisis (Selg, Klasche, & Nõgisto, 2021). There is, for example, aclear disagreement whether the health or the economic crisis requires most urgent attention. Additionally, governance approaches need to be continuously reconsidered with the ongoing appearance of new mutations of the virus and the management of the vaccination campaigns. In this situation, no right or wrong solutions but only good or bad ones exist, since every intervention will turn the problem into something new. In this light, the Coronavirus Crisis must be considered a wicked problem (e.g., Moon, 2020) as it is not just a global health crisis anymore but is slowly turning into an economic and social crisis, too (see also Pourdehnad et al., 2020).

3. Different crises, different governance approaches

The Climate Crisis has been identified as a wicked problem by the academic community, and has been associated with the concept for the last 20 years (Crowley & Head, 2017, p. 540), and it can perhaps be considered the classic example (McBeth & Shanahan, 2004, p. 319):

In practice, despite enormous amounts of dedication and inspiration, environmental planning only ever achieves partial success. This is due to the 'wickedness' of environmental issues, deriving not only from their technical complexity, but also from the multiple arenas where they are contested and debated. As capacities are built to overcome one barrier, another one arises; as progress is made towards sustainability, so the finishing line recedes. (Selman, 1999, pp. 168–169)

When considering the attempts to govern the Climate Crisis, all attempts have failed. The example of the Kyoto Protocol is very telling here. It did not only fail because notable states like the USA and Australia have refused to sign it but also because it was the "wrong type of instrument (a universal intergovernmental treaty) relying heavily on the wrong agents exercising the wrong sort of power to create, from the top down, a carbon market" (Rayner & Prins, 2007, p. V). A technical solution from the government's toolbox was applied, and even in the light of failure, no modifications were made, and incomplete successes were sold off as small victories by policy-makers. In part, this is mistaken for the general inability of states to govern the Climate Crisis successfully and leads to the conclusion that intergovernmental treaties will not "achieve meaningful progress" which has "reinvigorated discussions about the role of cities, NGOs and other sub- and non-state actors" (Gordon & Johnson, 2017, p. 694). Others call the local public and private actors into action (e.g., Sabel & Victor, 2017). In turn, others focus on "governing climate change [in Europe] through transnational municipal networks [TMNs]" (Kern & Bulkeley, 2009, p. 309), which are "non-hierarchical, horizontal and polycentric" (Kern & Bulkeley, 2009, p. 310). They are also acting outside of the traditional power structures: "TMNs face the challenge that they cannot use hierarchical authority to achieve the overall network goals. Instead, they must develop new modes of governing" (Kern & Bulkeley, 2009, p. 319). The focus on transnational governance that governs" 'beyond' the state" (Bulkeley et al., 2012, p. 592) or" 'outside' the UN regime" (Aykut, 2016, p. 318) frequently appear in approaches to governing climate change.

In comparison with the Climate Crisis, the need to address the Coronavirus Crisis appeared more pressing due to the immediate threat to human life, which highlighted the role of states more clearly. The most featured governance response to the COVID-19 pandemic is implementing a quarantine type that shuts down large parts of social life. The goal of these "traditional public health measures... [is to] prevent person-to-person spread of disease by separating people to interrupt transmission" (Wilder-Smith & Freedman, 2020, p. 1). These methods (isolation, quarantine, social distancing and community containment) have led to a victory over SARS in the past (Wilder-Smith & Freedman, 2020, p. 1). However, the situation is much more complicated due to the large geographical spread and because non-symptomatic patients can spread the disease. This makes it impossible to differentiate between carriers and non-carriers, which requires everybody to be part of the quarantine measures. Granted, this governing strategy appears to be part of the regular government toolbox. However, in this situation, additional aspects were added. Before the implementation of policies, politicians have openly consulted with various non-policy experts. They have acknowledged that this is a new type of problem, with a high probability of failure, which subsequently requires constant probing and adjusting. This mindset was absent in climate governance attempts as per the Kyoto protocol example or the general tendency to formulate long-term plans and visions that are rarely revisited and adjusted. The opposite can be observed in the

¹ A similar line of argument for the constitution of wickedness is brought forth, using the example of the European Migrant Crisis by Selg and Ventsel (2020, pp. 261–266). In this example they show that the humanitarian crisis, the political and the geopolitical crisis are all constitutive parts that create the wicked problem 'European Migrant Crisis'.

Coronavirus Crisis governance, where successful decision-makers meet every week to adjust policies to new realities.

This behavior has also generated trust among the population braced to endure failing attempts and pro-actively support these actions. This is extremely important as successful governance, in this case, relies on the will of the people to execute the self-isolation and endure all potential negative impacts on income and mental health. It would be impossible for most states (if not all) to enforce adherence to these policies if the population would disagree with the measures. Anderson et al., 2020 point towards this aspect very clearly: "Individual behavior will be crucial to control the spread of COVID-19. Personal, rather than government action, in western democracies, might be the most important issue" (2020, p. 931) and will remain to be throughout the rest of the Crisis.

In the case of the Climate Crisis, the absence of extensive support by the population to abide by radical policies is telling: Many are unwilling to change their diets and travel habits, and indulge in less consumerism. The majority of the recent approaches to climate governance move therefore towards a "mode of indirect governance well suited to the domain of global (...) climate governance, which is characterized by voluntary participation, non-hierarchical relations and the absence of coercive sources of authority" (Kern & Bulkeley, 2009 cited from; Gordon & Johnson, 2017, p. 695). In this process, the issue (human-made climate change) needs to be continuously problematized until it reaches a level of normalization. The goal, in this case, is that the population internalizes the necessary behavioral change and govern (mitigate) the problem that happens this way.

Moreover, in the case of the Coronavirus Crisis, governments around the world have also taken educational measures, but many other actors played a significant role in communicating the importance of behavioral change to the population. Next to global educational/awareness movements like (#stayhomewithme), the involvement of social media platforms in disseminating information during the outbreak should not necessarily be surprising; however, it was crucial. The fact that, e.g., Facebook, was actively sending their users to the WHO website and websites of local health authorities is noteworthy (Merchant & Lurie, 2020). The role cannot be understated, and social media platforms have helped prepare large parts of the population for what measures need to be taken. If compared to the 1918 influenza pandemic – that resulted in 50 million deaths, where information could only travel by telephone, mail or from person-to-person – we are in much better shape considering the nearly 3 billion social media users and the public access to information (Merchant & Lurie, 2020). This indicates that the governance of a wicked problem cannot be fruitful if only single parts of the complex organizational setup that we call society act towards it. State and non-state actors of any kind need to attain the same sense of responsibility of contributing to the problem's successful governance this is where the crises truly diverge.

4. Taking failure head-on. Applying principles of metagovernance

This paper considers the Coronavirus Crisis and the Climate Crisis a wicked problem and states that most governance modes are prone to fail. This is, however, not a reason to resign ourselves, but it must be considered a logical outcome of governance in the complexity of the 21st century. It appears that the first reaction when approaching the governing of a wicked problem is the tendency to break it down into "well structured' micro problems that appear to have technical solutions" (Hoppe, 2010, p. 88). This cannot lead to successful policies, and a change in the policy-makers' mindset has to occur. Head states that due to the complex nature of "'wicked' issues, the challenge for decision-makers is to demonstrate that the issues are being well managed rather than fixed or 'solved'" (2019, 184). This points to the fact that these type of problems are contingent based on the interweaving and constitutive relations from which they emerge and

re-emerge, transform and re-develop in the first places.² These considerations are most clearly represented in Bob Jessop's metagovernance (2002; 2003; 2011; 2016). Metagovernance is here a response to the failure of commonplace modes of governance ("exchange, command, network, and solidarity" [Jessop, 2016, p. 166]), which are in themselves an answer to the failure of the market (anarchy) and state (hierarchy) to address the growing complexity of the social. However, all four modes of governance fail to address wicked problems due to various "structural contradictions, strategic dilemmas" (Jessop, 2002, p. 240) inherent in it. Even more generally: "given the growing structural complexity and opacity of the social world, failure is the most likely outcome of most attempts to govern it" (Jessop, 2003, p. 106). Jessop describes in detail how all modes of governance fail in the light of the complexity of the 21st century (see, e.g., 2016, pp. 161-167); however, in the context of the Coronavirus Crisis that stresses the need for solidarity, it is useful to illustrate its failure here briefly. Accordingly, solidarity involves unreflexive, unconditional commitment to a cause that is the strongest in small units (e.g., a couple, a family, or a community of fate) and as soon as the unit gets larger (e.g., in the case of national communities, or humanity) it thins out, becomes less intense and is eventually substituted with unilateral forms of trust in experts and practitioners (Jessop, 2016, p. 169). The asymmetrical impact the crises have on different groups would indeed call for a high level of solidarity (e.g., wearing face masks to protect others) and support the governance of the Coronavirus Crisis. Unfortunately, it is quite observable that solidarity loses intensity when stretched out nationally. It could be, in fact, a big mistake for policy-makers to focus their policies on solidarity which would need to be seen as an act of de-problematization, which "involves removing or displacing contingency and with that also responsibility from problem definitions and their solution" (Selg & Ventsel, 2020, p. 78). When applied to a wicked problem, all four modes of governance must be seen as de-problematizing the problem and displacing it without chance of governing it. They are "spatiotemporal fixes within which governance problems appear manageable because certain ungovernable features manifest themselves elsewhere" (Jessop, 2016, p. 181). The counter is necessary and wicked problems need to be continuously problematized.³ Problematization can also occur outside of times of acute crisis. When considering, for example, Taiwan's effectiveness in managing the Coronavirus Crisis, we can see that the constant problematization of another pandemic hitting the country leads to the establishment of administrative resources to combat future ones (e.g., contact-tracing protocols). As as result, policy-makers need to stop viewing governance as something in which sets of tools provide solutions for causes of problems. This is because in the case of wicked problems, "there is no 'root cause' of 'wickedness', [so] there can be no single best approach to tackling such problems" (Alford & Head, 2017, p. 410). Therefore governance of wicked problems requires a substantial change from "tools talk" (de-problematization of wicked problems) to a form of "ethos governance" (problematizing of wicked problems) built on learning and listening - and failing. Metagovernance is exactly that (Selg & Ventsel, 2020, p. 205).

Jessop brings forth three principles that inform this ethos most suitable: 1) Requisite variety; 2) Reflexive orientation; 3) Self-reflexive irony

² In a way I am proposing a processual-relational approach (e.g. among others, Emirbayer, 1997; Dépelteau, 2008; Selg, 2018) to governance. However, the intricacies of such an approach cannot be laid our in this short paper. For some initial discussion view Selg and Ventsel (2020, ch. 3) that see *metagovernance* as a type of relational governance.

³ Problematization as a mode of governance is also introduced by post-structruralist such as Bacchi (2015; 2016).

⁴ Similar things could be said about Germany's reluctancy to de-fund its health sector which shows a positive effect on the death totals. The opposite, the de-funding of the health sector, has been one of the major problems of the UK's ability to manage the Coronavirus Crisis.

(2011 and 2003; but see also Jessop, 2002, pp. 242–245). Requisite variety is a "deliberate cultivation of a flexible repertoire of responses" (Jessop, 2011, p. 117), so in case of governance failure, the strategies can swiftly be modified. Reflexive orientation addresses the preparation for failure. It states that "a reflexive observer ... cannot fully understand what she is observing and must, therefore, make contingency plans for unexpected events" (Ibid., 117). Lastly, self-reflexive irony is required for "tackling often daunting problems of governance in the face of complex, reciprocal interdependence in a turbulent environment" (Ibid, 118), and it equips the policy-maker with the ability to accept "incompleteness and failure as essential features of social life but [still] acts as if completeness and success were possible" (Ibid., 119). While analyzing both the Coronavirus and the Climate Crisis' governing strategies, these guiding principles will help understand why some are more successful than others.

Requisite variety: The deliberate search for a new variety of responses finds expression in consideration of experts in the policy-decision process or in the reliance on the role of social media platforms and other base educational programs in supporting traditional government practices. The constant failure of governing the Climate Crisis with traditional government tools, on the other hand, has shifted the attention of the researchers to opportunities created by non-state actors "outside" or "beyond" the state that move away from any hierarchical structure. The exclusion of the state is an extreme reaction that should be reconsidered as we see states make successful policies in the case of the Coronavirus Crisis.

Reflexive orientation: The preparation for imminent failure is well established in the Coronavirus Crisis governance. Policy-makers are working hard to prepare for different outcomes and stress the importance that decisions could be swiftly taken back or be modified in the light of changing circumstances. Similarly, the explicit inclusion of non-political experts is noteworthy, which shows the awareness that the regular government tools might be insufficient in dealing with the Crisis. The unwillingness to adopt such a position has been holding back the successful management of the Climate Crisis for decades. Here policies were put into place and were even in the light of immediate failure left in its original form (see Kyoto Protocol).

Self-reflexive irony: Aspects of this principle can be found in the governance of the Coronavirus Crisis as well. A majority of policy-makers acknowledge the daunting task at hands and, as "ironists", expect incomplete success as the only tangible outcome. This, however, is the necessary mindset to continuously deal with the task at hand and engage in a variety of responses not part of the governmental toolbox. This stance, absence in the Climate Crisis governance, where absolutes dictate the discourse, creates trust in the policy-makers, which is essential in navigating through the failures.

Based on this short analysis, there is reason to assume that the principles of *metagovernance* are useful in identifying adequate strategies to govern a wicked problem. The governance of the Climate Crisis would, therefore, also benefit by focusing on these aspects.

5. Conclusion

The majority of political responses to the Coronavirus Crisis have shown that the Crisis is understood as an extraordinary item on policy-makers' agendas. Principles of the *metagovernance* ethos can be identified in these responses. The key for governing wicked problems lies in the acceptance and embracing of failure as the sole governance outcome, leading to modifying or abandoning policies swiftly. The negative examples for this would be Donald Trump or Boris Johnson, who held on to their responses in the immediate light of failure, leading to unnecessary deaths in their countries. It also stresses, among other things, non-policy experts' involvement, the use of non-traditional communication channels to reach the population to support policies and their execution proactively, and, quite importantly, acknowledging the task's nature. All state and non-state actors need to be involved and

shoulder responsibility. It shows that states can play an essential role in governing the Climate Crisis and that they should not be automatically excluded from it, as long as they can adapt and change policies quickly. This could be a good lesson for the governance of the Climate Crisis where most of these aspects are not considered.

Credit author statement

The author confirms sole responsibility for the following: article conception and design, and manuscript preparation.

Funding

Writing this paper was supported by the Estonian Research Council with the personal research funding granted to the project PUT1485, 'A Relational Approach to Governing Wicked Problems'.

Declaration of competing interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The author would like to thank Jyri Jäntti for providing invaluable comments on this manuscript's initial drafts.

References

- Alford, J., & Head, B. (2017). Wicked and less wicked problems: A typology and a contingency framework. *Policy and Society*, 36(3), 397–413.
- Anderson, R. M., Heesterbeek, H., Klinkenberg, D., & Hollingsworth, T. D. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet*, 395, 931–935.
- Aykui, S. C. (2016). Taking a wider view on climate governance: Moving beyond the 'iceberg', the 'elephant' and the 'forest'. WIREs Clim Change, 7, 318–328.
- Bacchi, C. (2015). The turn to problematization: Political implications of contrasting interpretive and poststructural adaptations. *Open Journal of Political Science*, 5(1), 1–12.
- Bacchi, C. (2016). Problematizations in health policy: Questioning how "problems" are constituted in policies. SAGE Open, 6(2), 1–16.
- Bulkeley, H., Andonova, L., Bäckstrand, K., Betsill, M., Compagnon, D., Duffy, R., & VanDeveer, S. (2012). Governing climate change transnationally: Assessing the evidence from a database of sixty initiatives. Environment and Planning C: Government and Policy, 30(4), 591–612.
- Crowley, K., & Head, B. W. (2017). The enduring challenge of 'wicked problems': Revising Rittel and webber. *Policy Sciences*, 50(4), 539–547.
- Dépelteau, F. (2008). Relational thinking: A critique of Co-deterministic theories of structure and agency. Sociological Theory, 26(1), 51–73.
- Emirbayer, M. (1997). Manifesto for a relational sociology. American Journal of Sociology, 103(2), 281–317.
- Gordon, D. J., & Johnson, C. A. (2017). The orchestration of global urban climate governance: Conducting power in the post-paris climate regime. *Environmental Politics*, 26(4), 694–714.
- Head, B. W. (2019). Forty years of wicked problems literature: Fording closer links to policy studies. *Policy and Society*, 38(2), 180–197.
- Hoppe, R. (2010). The governance of problems: Puzzling, powering and participation. Policy Press.
- Jessop, B. (2002). Governance and metagovernance in the face of complexity: On the roles of requisite variety, reflexive observation, and romantic irony in participatory governance. In H. Heinelt, P. Getimis, G. Kafkalas, R. Smith, & E. Swyngedouw (Eds.), Participatory governance in multi-level context (pp. 33–58). VS Verlag für Sozialwissenschaften.
- Jessop, B. (2003). Governance and metagovernance: On reflexivity, requisite variety and requisite irony. In H. P. Bang (Ed.), Governance, as social and political communication (pp. 101–116) (Manchester).
- Jessop, B. (2011). Metagovernance. In M. Bevir (Ed.), The SAGE handbook of governance (pp. 106–123). Sage.
- Jessop, B. (2016). The state: Past, present, future. Polity: Cambridge.
- Kern, K., & Bulkeley, H. (2009). Cities, europeanization and multi-level governance: Governing climate change through transnational municipal networks. *Journal of Common Market Studies*, 47(2), 309–332.
- McBeth, M. K., & Shanahan, E. A. (2004). Public opinion for sale: The role of policy marketers in greater yellowstone policy conflict. *Policy Sciences*, *37*(3–4), 319–338.

- Merchant, R. M., & Lurie, N. (2020). Social media and emergency preparedness in response to novel coronavirus. *Jama Network*. https://doi.org/10.1001/ jama.2020.4469.
- Moon, M. J. (2020). Fighting against COVID-19 with agility, transparency, and participation: Wicked policy problems and new governance challenges. *Public Administration Review*, 80(4), 651–656.
- Peters, G. B. (2017). What is so wicked about wicked problems? A conceptual analysis and a research program. *Policy and Society*, *36*(3), 385–396.
- Pourdehnad, J., Starr, L. M., Koerwer, V. S., & McCloskey, H. (2020). Disruptive effects of the coronavirus – Errors of Commission and of Omission? School of Continuing and Professional Studies Coronavirus Papers. Paper 2.
- Rayner, S., & Prins, G. (2007). The wrong Trousers: Radically Rethinking climate policy. Institute for Science, Innovation and Society.
- Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4, 155–169.
- Roberts, N. (2000). Wicked problems and network approaches to resolution, 1 International Public Management Review, 1, 1–19.
- Sabel, C. F., & Victor, D. G. (2017). Governing global problems under uncertainty: Making bottum-up climate policy work. Climate Change, 144, 15–27.

- Selg, P. (2018). Power and relational sociology. In F. Dépelteau (Ed.), The palgrave handbook of relational sociology (pp. 539–557). Palgrave Macmillan.
- Selg, P., Klasche, B., & Nögisto, J. (2021). Wicked problems and sociology: Building a missing bridge through processual relationalism. *International Review of Sociology*. In press.
- Selg, P., & Ventsel, A. (2020). Introducing relational political analysis: Political Semiotics as a theory and method. Palgrave Macmillan.
- Selman, P. (1999). Three decades of environmental planning: What have we really learned? In M. Kenny, & J. Meadowcroft (Eds.), *Planning sustainability* (pp. 148–174). Routledge.
- Sultana, F. (2021). Climate change, COVID-19, and the Co-production of injustices: A feminist reading of overlapping crises. Social & Cultural Geography. https://doi.org/ 10.1080/14649365.2021.1910994.
- Turnbull, N., & Hoppe, R. (2019). Problematizing 'wickedness': A critique of the wicked problems concept from philosophy to practice. *Policy and Society, 38*(2), 315–337.
- Wilder-Smith, A., & Freedman, D. O. (2020). Isolation, quarantine, social distancing and community containment: Pivotal role for old-style public health measures in the novel coronavirus (2019-nCoV) outbreak. *Journal of Travel Medicine*, 27(2), 1–4.