



Response to Oberlack *et al.* 2018. “Polycentric governance in telecoupled resource systems”

What is governance in global telecoupling?

Jens Newig¹, Andrea Lenschow², Edward Challies^{1,3}, Benedetta Cotta¹ and Almut Schilling-Vacaflor²

ABSTRACT. The concept of telecoupling is increasingly used as a framework to understand globally distant interconnections and their sustainability implications. Although there is a growing research focus on issues of governance related to global telecoupling, there appears little consensus over the meaning of “governance” in this respect. Papers in the recent *Ecology and Society* special feature titled “Telecoupling: A New Frontier for Global Sustainability” reveal quite different understandings of the telecoupling-governance relationship. We want to suggest that greater clarity and a common understanding of how governance figures in telecoupled systems will aid constructive dialogue on how to govern telecoupling toward more sustainable pathways in the face of pressing global social and environmental issues. This response, though not aiming to define a single, definitive framework of governance as it pertains to telecoupling, seeks to identify three distinct perspectives applied to governance in the context of global telecoupling: (1) governance by states or other actors that induces or fosters telecoupling in the first place, often irrespective of its sustainability implications; (2) governance mainly by private companies that coordinates telecoupled flows; and (3) governance by states, nonstate actors, and hybrid or multistakeholder initiatives that aims to address the negative externalities of telecoupling. By distinguishing these perspectives, we aim to make underlying understandings of governance explicit, and to foster further constructive exchange on the topic.

Key Words: *global commodity chains; global environmental governance; inter-regional connectedness; sustainability governance*

THE ASCENT OF 'TELECOUPLING' AND THE IMPORTANCE OF GOVERNANCE

The concept of “telecoupling” has been gaining ground in recent years. It emerged in the context of land change science (Liu *et al.* 2013, Eakin *et al.* 2014, Bruckner *et al.* 2015), drawing on the earlier concept of “teleconnections.” Whereas the latter originated in atmospheric science, denoting weather phenomena linked over large distances, it was later also used metaphorically to refer to globally distant effects of human action in certain localities (Adger *et al.* 2009, Seto *et al.* 2012, Challies *et al.* 2014, Friis *et al.* 2016). It is this meaning that is captured in current usage of the term telecoupling, distinguishing it from the natural phenomenon of teleconnection. Although phenomena of telecoupling thus reflect overall tendencies of globalization, telecoupling can be seen as a more specific concept, referring to particular linkages and flows between distant regions as well as their implications for local social-ecological systems (Eakin *et al.* 2014).

Telecoupling has in particular been linked to problems of environmental sustainability (Liu *et al.* 2013, Lenschow *et al.* 2015). An interdisciplinary community of scholars—geographers, land-change scientists, sustainability scientists, and social scientists—have been studying the often negative environmental, economic, and social implications of telecoupling. To give just two examples, researchers have been studying loss of forests in Southeast Asia due to European demands for biofuel (Rulli *et al.* 2019), or migrants from Nepal, working in the United Arab Emirates, who through remittances induce land-use change in Nepal (Eakin *et al.* 2014). More generally, negative sustainability impacts of telecoupling have been studied through analyses of global commodity chains, migration patterns, disease spread, tourism, and transnational land deals (Hull and Liu 2018).

Given the complex sustainability challenges arising out of globally telecoupled issues, the question of governance invariably arises (Kissinger *et al.* 2011, Eakin *et al.* 2014, Oberlack *et al.* 2018, Munroe *et al.* 2019). However, understandings of what constitutes governance, and what its role could be in relation to telecoupling, are still extremely diverse, as evidenced by the variety of perspectives on governance expressed in different contributions to the recent *Ecology and Society* special feature, “Telecoupling: A New Frontier for Global Sustainability.” We suggest that developing a common understanding of how governance relates to telecoupling would aid progress in identifying solutions to some of the major sustainability issues facing telecoupled systems. To date, differences in understanding in this regard have largely remained implicit, and have not been a topic of discussion or debate. With this response article, we therefore seek to identify and pinpoint different understandings of and perspectives on governance with regard to global telecoupling and, through this, stimulate wider academic discussion of the role of governance in fostering sustainability in a telecoupled world.

PERSPECTIVES ON GOVERNANCE IN RELATION TO TELECOUPLING

Diverse governance discourses

Understandings of what constitutes governance in, or of, telecoupling vary considerably. This is perhaps not surprising, given the ambiguity of the governance concept more generally (Peters 2011). With regard to telecoupling, some authors refer to governance in an encompassing sense as rule formation and interpretation by actors. An example is the institutional analysis perspective taken by Oberlack *et al.* (2018), who employ an actor-centered approach that “enables analysts to identify characteristics of, and activities in, polycentric governance systems as *drivers of telecoupled sustainability problems* and as

¹Research Group Governance and Sustainability, Leuphana University Lüneburg, Germany, ²Jean-Monnet-Chair of European Integration, Osnabrück University, Germany, ³Waterways Centre for Freshwater Management, University of Canterbury, New Zealand

transformative opportunities to tackling sustainability challenges” (Oberlack et al. 2018, emphasis added). Others, however, have described telecoupling as an essentially “ungoverned” process (Eakin et al. 2017) because unintended negative consequences of telecoupling escape the reach of the established governance arrangements: governance institutions in one region cannot cope with implications in distant, linked regions; likewise, higher level institutions are missing (Eakin et al. 2014). How can we resolve the apparent contradiction that telecoupling on the one hand emerges through governance, but on the other hand is seen as an ungoverned process?

It appears that each of the two perspectives implies a different understanding of governance. An instructive example of two contrasting kinds of governance relating to telecoupling is offered by Hamilton-Hart (2015), drawing on the case of palm oil. The global palm oil sector is emblematic of telecoupling because of the complex and long-distance commodity chains, the patterns of labor displacement and migration involved, and the immense environmental and sustainability issues induced, especially in producing regions. The author observes the following:

Market demand has driven the expansion of the palm oil industry in South-East Asia, but the *industry could not have developed without a complex set of governance institutions and authoritative interventions*. These institutions and interventions ... involve both public and private actors. Together, they have developed a palm oil industry that is, in significant ways, regionalised. In contrast, regional *cooperation to govern the negative externalities associated with palm oil production is at a very low level*. The institutions that provide a degree of regulatory governance are largely transnational, often private, and very limited in their ability to constrain negative social, economic, and environmental impacts. ... [T]he failures of regulatory governance are rooted in the successes of the facilitating governance framework that has supported palm oil development. (Hamilton-Hart 2015:179, emphasis added).

Evident in this example is that two very different kinds of governance regimes are at work: one that facilitated the telecoupled system in the first place, and another that the author describes as “regulatory governance,” which comprises multilevel “networks of public and private actors” including multistakeholder entities such as the Roundtable on Sustainable Palm Oil (RSPO), and aims to address the negative impacts of palm oil production (but which, in this case, is not delivering particularly well). Moreover, governance that facilitates telecoupling may actually do so unintentionally. For example, the requirement of the European Union (EU) Renewable Energy Directive for a 10% share of biofuel in gasoline has been a driver of unsustainable land use change in distant regions by increasing demand for fuel crops (Eakin et al. 2014, Popp et al. 2014).

To complicate matters, yet another kind of governance is discussed in the literature, namely in relation to global commodity chains or value chains (e.g., Gereffi et al. 2005, Challies 2008). Governance in this field essentially refers to how chain actors (usually private companies) coordinate the functioning of cross-border value chains, for example, whether and how chain relations are producer- or buyer-driven, or coordinated in a network-like

manner. In short, governance in this sense refers primarily to how chains are organized from within.

Three emerging perspectives on governance related to telecoupling

In light of the above, we can distinguish three distinct understandings of governance related to telecoupling. For the sake of simplicity, we refer to these as “telecoupling governance” perspectives 1, 2, and 3.

- Perspective 1: Governance induces telecoupling. State-based or other governance interventions create the institutional and economic context that enables telecoupling to develop. As discussed above, for example, such governance interventions enabled the development of a fuel-crop producing industry in SE-Asia, with negative environmental, social, and economic externalities (Hamilton-Hart 2015, Oberlack et al. 2018). Likewise, regional governance, e.g., EU biofuel policy, may have unsustainable side effects in distant parts of the world. Perspective 1 telecoupling governance, while facilitating interregional connections, can often be linked to the emergence of unsustainability in the respective regions while typically being blind to these effects.
- Perspective 2: Governance coordinates telecoupled flows. (Private) chain actors “govern,” i.e., coordinate and organize, commodity or value chains. Insofar as activities along a chain give rise to sustainability problems, governance of this type also contributes to these problems, or is at least usually not sufficient to avoid or overcome them. However, within-chain governance increasingly does incorporate measures to mitigate or alleviate adverse effects (Bush et al. 2015).
- Perspective 3: Governance responds to telecoupling, addressing its negative externalities (Eakin et al. 2014, Hamilton-Hart 2015). Governance targets leverage points to mitigate sustainability problems created by telecoupling across the connected regions, or in “spillover” regions (Liu et al. 2018). Governance here ranges from state-based environmental measures, which also potentially include private and civil society actors, to nonstate actor-driven and multistakeholder initiatives (Lenschow et al. 2015).

These three perspectives are presented in a logical sequence of creating and facilitating telecoupling (1), maintaining and coordinating telecoupled chains (2), and responding to the negative consequences of telecoupling (3). However, this order does not imply a strict temporality. For example, chain governance (2) may be occurring as state authorities consolidate an enabling regulatory framework (1). Rather than referring to a sequence of discrete temporal phases, the different perspectives serve different functions: enabling, coordinating, and responding to telecoupling.

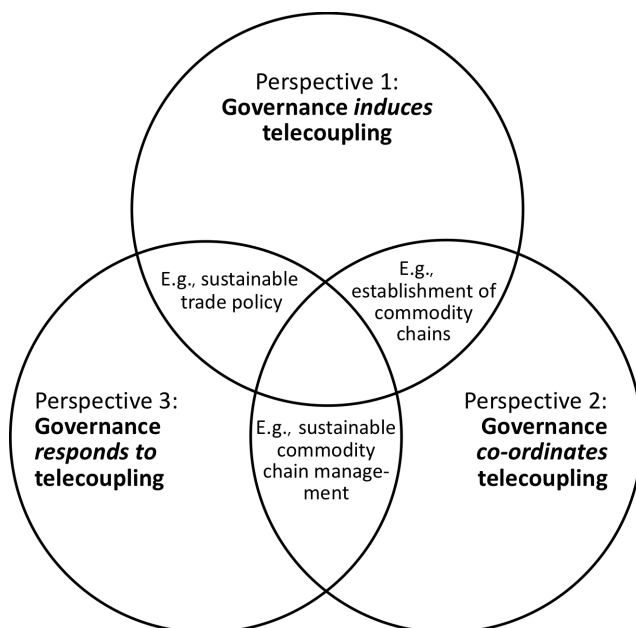
Making sense of governance of global telecoupling toward environmental sustainability

Perspective 3 governance aligns most clearly with what scholars commonly regard as environmental or sustainability governance. As defined by Meadowcroft (2007:299), governance for sustainable development “refers to processes of socio-political governance oriented towards the attainment of sustainable development. It encompasses public debate, political decision-

making, policy formation and implementation, and complex interactions among public authorities, private business and civil society - *in so far as these relate to steering societal development along more sustainable lines*" (emphasis in original).

From this perspective, telecoupling would indeed often appear as an "ungoverned" process, insofar as governance mechanisms that would effectively address the externalities caused by spatially distant processes are often lacking (Eakin et al. 2014). However, it may be the case that perspective 1 governance, if it is cognizant of long-term sustainability, anticipates negative externalities of telecoupling, e.g., through systematic impact assessments, and already provides for mechanisms to alleviate negative sustainability impacts in distant regions. Then it could be seen as incorporating elements of perspective 3 (see the example of sustainable trade policy in Fig. 1). However, because of the spatial disconnects involved, we would expect such governance provisions to be the exception rather than the norm (Eakin et al. 2014). Having said that, governance as described in perspective 2 is gaining importance for sustainability, as private actors increasingly recognize a responsibility to avoid or alleviate adverse effects of their economic activity ("sustainable commodity chain management" in Fig. 1). Accordingly, recent papers on the topic have addressed the problems and potentials of governing supply chains toward sustainability, for example, regarding coffee (Donovan and Poole 2014) or rubber (Dwyer and Vongvisouk 2019). These examples demonstrate that, while the three governance perspectives on telecoupling may be distinct in theory, there also may be overlaps in practice.

Fig. 1. Three perspectives on governance regarding telecoupling including areas of overlap, with examples referring to global commodity chains.



From a sustainability governance angle, perspective 3 may be the most natural one to focus on. Numerous forms of governance arrangements can be brought under this category. To name just a few, these include state policies such as financial aid, compensation payments, technological co-operation, trade barriers, or mandatory product labelling; impact assessments and permitting procedures in producing regions; trade and sustainable development chapters in bi- or multilateral trade agreements; international conventions; and multistakeholder initiatives such as the Roundtable on Sustainable Palm Oil. This understanding of governance largely aligns with the vast literature on environmental and sustainability governance (e.g., Lemos and Agrawal 2006, Biermann 2007, Meadowcroft 2007, Jordan 2008, Newig and Fritsch 2009). Like environmental law or environmental policy, environmental governance implies the aim to safeguard the environment and to help make development more environmentally sustainable^[1]. Certainly, perspectives 1 and 2 governance also bear potential for sustainability governance. As mentioned above, and as discussed below, a "greening" of perspective 1 governance, e.g., through impact assessments and allied tools, or of perspective 2 governance, e.g., through sustainability standards and sustainable supply chain management, may serve to improve environmental sustainability in telecoupled systems.

CONCLUSIONS

What to conclude from this exercise? First of all, we suggest, there is a need to simply recognize that there are fundamentally different understandings of the term "governance" when it comes to telecoupling, and notably with a view to sustainability. This would be less of an issue if the differences in understanding were clearly demarcated, but as it stands they are not. Our attempt to distinguish three distinct perspectives used in the literature aims to inform a more explicit recognition of different research foci.

Second, and more to the positive side, we find that a variety of governance functions discussed in the governance literature are discussed with respect to telecoupling, which underscores the relevance of linking the two concepts. Perhaps the primary function of governance is to produce collectively binding decisions, which we find in all perspectives, but particularly in 1 and 3; another is co-ordination (e.g., Benz et al. 2016), which is pertinent to perspective 2; and finally, governance serves the function of steering society toward agreed ends such as sustainability (e.g., Mayntz 2003, Voß et al. 2007), which lies at the heart of perspective 3.

We hope that this response helps to clarify the different "takes" on governance with regard to telecoupling and how they may usefully contribute to research on globally telecoupled phenomena and how telecoupling may be steered toward more sustainable trajectories. In making a preliminary distinction among these perspectives, it is our aim to contribute to a more systematic and coherent approach to scholarship on the governance implications of telecoupling.

^[1]Empirically, this need not be true; not all environmental policy actually aims to protect the environment; there are instances of symbolic politics or legislation, in which policy makers formulate

dishonest aims while pursuing a hidden agenda, e.g., to depoliticize a hot public issue.

Responses to this article can be read online at:
<http://www.ecologyandsociety.org/issues/responses.php/11178>

Acknowledgments:

This work has been funded by the German Research Foundation (DFG) under grant no. CH 1643/2-1 through the project "GOVERNECT - Governance of Environmental Sustainability in Telecoupled Systems of Global Inter-Regional Connectedness" (see <https://sustainability-governance.net/governect>).

LITERATURE CITED

- Adger, W. N., H. Eakin, and A. Winkels. 2009. Nested and teleconnected vulnerabilities to environmental change. *Frontiers in Ecological Environment* 7(3):150-157. <https://doi.org/10.1890/070148>
- Benz, A., A. Corcaci, and J. Wolfgang Doser. 2016. Unravelling multilevel administration. Patterns and dynamics of administrative co-ordination in European governance. *Journal of European Public Policy* 23(7):999-1018. <https://doi.org/10.1080/13501763-2016.1162838>
- Biermann, F. 2007. 'Earth system governance' as a crosscutting theme of global change research. *Global Environmental Change* 17(3-4):326-337. <https://doi.org/10.1016/j.gloenvcha.2006.11.010>
- Bruckner, M., G. Fischer, S. Tramberend, and S. Giljum. 2015. Measuring telecouplings in the global land system: a review and comparative evaluation of land footprint accounting methods. *Ecological Economics* 114:11-21. <https://doi.org/10.1016/j.ecolecon.2015.03.008>
- Bush, S. R., P. Oosterveer, M. Bailey, and A. P. J. Mol. 2015. Sustainability governance of chains and networks: a review and future outlook. *Journal of Cleaner Production* 107:8-19. <https://doi.org/10.1016/j.jclepro.2014.10.019>
- Challies, E., J. Newig, and A. Lenschow. 2014. What role for social-ecological systems research in governing global teleconnections? *Global Environmental Change* 27:32-40. <https://doi.org/10.1016/j.gloenvcha.2014.04.015>
- Challies, E. R. T. 2008. Commodity chains, rural development and the global agri-food system. *Geography Compass* 2(2):375-394. <https://doi.org/10.1111/j.1749-8198.2008.00095.x>
- Donovan, J., and N. Poole. 2014. Changing asset endowments and smallholder participation in higher value markets: evidence from certified coffee producers in Nicaragua. *Food Policy* 44:1-13. <https://doi.org/10.1016/j.foodpol.2013.09.010>
- Dwyer, M., and T. Vongvisouk. 2019. The long land grab: market-assisted enclosure on the China-Lao rubber frontier. *Territory, Politics, Governance* 7(1):96-114. <https://doi.org/10.1080/216226-71.2017.1371635>
- Eakin, H., R. DeFries, S. Kerr, E. F. Lambin, J. Liu, P. J. Marcotullio, P. Messerli, A. Reenberg, X. Rueda, S. R. Swaffield, B. Wicke, and K. Zimmerer. 2014. Significance of telecoupling for exploration of land-use change. Pages 141-161 in K. C. Seto and A. Reenberg, editors. *Rethinking global land use in an urban era*. MIT Press, Cambridge, Massachusetts, USA. <https://doi.org/10.7551/mitpress/9780262026901.003.0008>
- Eakin, H., X. Rueda, and A. Mahanti. 2017. Transforming governance in telecoupled food systems. *Ecology and Society* 22(4):32. <https://doi.org/10.5751/ES-09831-220432>
- Friis, C., J. Ø. Nielsen, I. Otero, H. Haberl, J. Niewöhner, and P. Hostert. 2016. From teleconnection to telecoupling: taking stock of an emerging framework in land system science. *Journal of Land Use Science* 11(2):131-153. <https://doi.org/10.1080/1747423X.2015.1096423>
- Gereffi, G., J. Humphrey, and T. Sturgeon. 2005. The governance of global value chains. *Review of International Political Economy* 12(1):78-104. <https://doi.org/10.1080/09692290500049805>
- Hamilton-Hart, N. 2015. Multilevel (mis)governance of palm oil production. *Australian Journal of International Affairs* 69(2):164-184. <https://doi.org/10.1080/10357718.2014.978738>
- Hull, V., and J. Liu. 2018. Telecoupling: a new frontier for global sustainability. *Ecology and Society* 23(4):41. <https://doi.org/10.5751/ES-10494-230441>
- Jordan, A. 2008. The governance of sustainable development: taking stock and looking forwards. *Environment and Planning C: Politics and Space* 26(1):17-33. <https://doi.org/10.1068/cav6>
- Kissinger, M., W. E. Rees, and V. Timmer. 2011. Interregional sustainability: governance and policy in an ecologically interdependent world. *Environmental Science & Policy* 14(8):965-976. <https://doi.org/10.1016/j.envsci.2011.05.007>
- Lemos, M. C., and A. Agrawal. 2006. Environmental governance. *Annual Review of Environment and Resources* 31:297-325. <https://doi.org/10.1146/annurev.energy.31.042605.135621>
- Lenschow, A., J. Newig, and E. Challies. 2015. Globalization's limits to the environmental state? Integrating telecoupling into global environmental governance. *Environmental Politics* 25(1):136-159. <https://doi.org/10.1080/09644016.2015.1074384>
- Liu, J., Y. Dou, M. Batistella, E. Challies, T. Connor, C. Friis, J. D. A. Millington, E. Parish, C. L. Romulo, R. F. B. Silva, H. Triezenberg, H. Yang, Z. Zhao, K. S. Zimmerer, F. Huettmann, M. L. Treglia, Z. Basher, M. G. Chung, A. Herzberger, A. Lenschow, A. Mechiche-Alami, J. Newig, J. Roche, and J. Sun. 2018. Spillover systems in a telecoupled Anthropocene: typology, methods, and governance for global sustainability. *Current Opinion in Environmental Sustainability* 33:58-69. <https://doi.org/10.1016/j.cosust.2018.04.009>
- Liu, J., V. Hull, M. Batistella, R. DeFries, T. Dietz, F. Fu, T. W. Hertel, R. C. Izaurralde, E. F. Lambin, S. Li, L. A. Martinelli, W. J. McConnell, E. F. Moran, R. Naylor, Z. Ouyang, K. R. Polenske, A. Reenberg, G. de Miranda Rocha, C. S. Simmons, P. H. Verburg, P. M. Vitousek, F. Zhang, and C. Zhu. 2013. Framing sustainability in a telecoupled world. *Ecology and Society* 18(2):26. <https://doi.org/10.5751/ES-05873-180226>
- Mayntz, R. 2003. New challenges to governance theory. Pages 27-40 in H. P. Bang, editor. *Governance as social and political communication*. Manchester University Press, Manchester, UK.

Meadowcroft, J. 2007. Who is in charge here? Governance for sustainable development in a complex world. *Journal of Environmental Policy & Planning* 9(3-4):299-314. <https://doi.org/10.1080/15239080701631544>

Munroe, D. K., M. Batistella, C. Friis, N. I. Gasparri, E. F. Lambin, J. Liu, P. Meyfroidt, E. Moran, and J. Ø. Nielsen. 2019. Governing flows in telecoupled land systems. *Current Opinion in Environmental Sustainability* 38:53-59. <https://doi.org/10.1016/j.cosust.2019.05.004>

Newig, J., and O. Fritsch. 2009. Environmental governance: participatory, multi-level- and effective? *Environmental Policy and Governance* 19(3):197-214. <https://doi.org/10.1002/eet.509>

Oberlack, C., S. Boillat, S. Brönnimann, J.-D. Gerber, A. Heinemann, C. Ifejika Speranza, P. Messerli, S. Rist, and U. Wiesmann. 2018. Polycentric governance in telecoupled resource systems. *Ecology and Society* 23(1):16. <https://doi.org/10.5751/ES-09902-230116>

Peters, B. G. 2011. Governance as political theory. *Critical Policy Studies* 5(1):63-72.

Popp, J., Z. Lakner, M. Harangi-Rákos, and M. Fári. 2014. The effect of bioenergy expansion: food, energy, and environment. *Renewable and Sustainable Energy Reviews* 32:559-578. <https://doi.org/10.1016/j.rser.2014.01.056>

Rulli, M. C., S. Casirati, J. Dell'Angelo, K. F. Davis, C. Passera, and P. D'Odorico. 2019. Interdependencies and telecoupling of oil palm expansion at the expense of Indonesian rainforest. *Renewable and Sustainable Energy Reviews* 105:499-512. <https://doi.org/10.1016/j.rser.2018.12.050>

Seto, K. C., A. Reenberg, C. G. Boone, M. Fragkias, D. Haase, T. Langanke, P. Marcotullio, D. K. Munroe, B. Olah, and D. Simon. 2012. Urban land teleconnections and sustainability. *Proceedings of the National Academy of Sciences* 109(20):7687-7692. <https://doi.org/10.1073/pnas.1117622109>

Voß, J.-P., J. Newig, B. Kastens, J. Monstadt, and B. Nölting. 2007. Steering for sustainable development: a typology of problems and strategies with respect to ambivalence, uncertainty and distributed power. *Journal of Environmental Policy & Planning* 9(3-4):193-212. <https://doi.org/10.1080/15239080701622881>