

# Cumulating Evidence in Environmental Governance, Policy and Planning Research: Towards a Research Agenda

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*Jens Newig and Michael Rose*

*Leuphana University of Lüneburg, Research Group Governance and Sustainability  
Faculty of Sustainability and Center for the Study of Democracy*

*“As a consultant designing participatory processes, I seldom draw on social science research, because I am often questioning the validity of research results. My previous experience with research projects have been rather sobering – questionable methods, shaped by dubious assumptions. I did not feel that one should base decisions on such results. Therefore I tend to view research as often being quite remote from praxis, disregarding potentially important aspects. Therefore I tend to rely on other practical experiences rather than research “results”. Such distrust is of course unfortunate for research which does produce reliable results which we could learn and profit from.”*

*– E-mail from a consultant to the first author, June 2019 (own translation from German).*

## 1 Introduction

There appears to be a growing unease among scholars of environmental governance, policy and planning that their research is hardly informing policy-making, despite a generally continued interest in the use of evidence by policy-makers (Nutley et al. 2019). Arguably, this is at least partly due to the apparent inability of environmental social science to provide robust knowledge on the mechanisms through which policy and planning work towards environmental sustainability: We still do not know how and under what conditions governance interventions work towards effectively addressing urgent issues of environmental sustainability (Lange et al. 2019). This, our paper argues, is due to two main tendencies in the field: First, empirical ‘evidence’ is spread over a myriad of mostly individual case studies; while these are useful and necessary, little effort is made to cumulate knowledge – to integrate case-based evidence through meta-analytical studies. Second, the literature is beset with a proliferation of incompatible and unclear concepts, which make knowledge cumulation a futile task.

This paper starts out from the assumption that environmental governance, policy and planning (EGPP) ideally serve to improve environmental sustainability. Examples are legion: Participatory planning as mandated by the European Water Framework Directive aims to improve the ecological status of Europe’s waters (Newig and Koontz 2014); collaborative governance aims to improve environmental conditions (Scott 2015); the REDD+ mechanism encompasses policies aiming to reduce carbon emissions

due to deforestation in developing countries through technical and financial support (Zelli et al. 2017). While some governance interventions are found at the national or international level, many are implemented at relatively local levels – hence the myriad of individual case studies on adaptive management, participatory planning, collaborative, multi-level, scale adapted, polycentric, networked or hybrid governance. But do they deliver in terms of environmental sustainability? And under what circumstances?

This article is not about evidence-based governance. It is about the provision of robust, reliable social-science evidence that bears the potential for being used by policy-makers. We will borrow here and there from discussions in the fields of medicine and public health, where the production of usable evidence is by now firmly established and where it is common professional practice to base interventions on the best available evidence, but where also overly reductionist tendencies are critically discussed.

We start our analysis in the subsequent section 2 by sketching a diagnosis of the lacking evidence cumulation in the research area of EGPP. We suggest that EGPP may be seen as a scientific field, which can be characterized as ‘fragmented adhocracy’ in the sense of Whitley (2006), which could explain the widespread failure to produce robust and cumulative knowledge.

Next, we argue that in order to produce reliable knowledge and to become credible in the realm of policy and planning praxis, EGPP needs a major reform impetus. To this end, we propose a research reform agenda covering three areas, which are presented and discussed in sections 3, 4 and 5, respectively.

- First, we argue in favour of an agreed canon of definitions shared within the community, while being open to reinterpretations and novel concepts. This includes the development of common concepts, measures and research protocols.
- Second, we advocate the stronger use of meta-analytical methods such as the case survey methodology, or systematic reviews following the Cochrane standard, to cumulate published case-based evidence – drawing on both ‘successful’ and ‘unsuccessful’ cases. This may serve to distill overarching patterns (“the intellectual gold” in the sense of Jensen and Rodgers 2001) from case-based research.
- Third, we argue for a systematic recognition of the institutional, political and social context of governance interventions. This becomes increasingly important to the extent that meta-analyses reveal general patterns and trends. Here, we elaborate on what constitutes a ‘case’ of governance interventions as opposed to its ‘context’, and discuss challenges and opportunities arising in meta-analysis of integrating published case-based insights with knowledge on the respective context (which is currently seldom done).

For each agenda item, we briefly formulate the motivating problem and an ideal-typical vision to strive for, and sketch out the pragmatic, epistemological and normative limits to its realization.

We close with overall reflections on our agenda and suggest pathways for implementation.

## **2 Environmental governance, policy and planning as a scientific field of “fragmented adhocracy”**

In scientific fields such as physics, medicine and epidemiology, scholars are subject to standardized definitions, concepts, methods and scientific practices. This enables the knowledge produced to be aggregated and transferred into the political realm, informing policies and regulatory agencies. The field of environmental governance, policy and planning (EGPP) research, in contrast, is highly dispersed. In our perception, it resembles what has been called a “fragmented adhocracy” in the sociology of science

(Whitley 2006 [1984]). Fragmented adhocracies are characterized by high task uncertainty and low mutual dependence. Research, therefore, is rather idiosyncratic and misses strong coordinating mechanisms across research institutions to systematically link strategies and results. There is no single reputational organization that could enforce common standards, so scientists do not have to make contributions that unambiguously fit to an existing research corpus. Goals that scientists contribute to tend to be fluid, broad, and contingent upon external pressures and local requirements. As the level of scientific professionalization in terms of standardized competence criteria, work procedures and significance criteria across research institutions is relatively low, the field is more permeable for professional and non-professional outsiders than, for example, the natural sciences, both regarding its contributors and its audience. Accordingly, standards are fairly volatile and can be interpreted differently. The fragmentation discourages integrative, standardizing and coherent theoretical frameworks and promotes empirical diversity. In fragmented adhocracies, theoretical frameworks and syntheses for overarching goals are produced nonetheless, but are unlikely to become dominating the entire field, as the field's small groups sustain their strength in reproducing as legitimate reputational systems perpetuating their own common concepts, research objects and methodological approaches (Whitley 2006 [1984], 159, 168-176).

As different audiences and decentralized resources are available to the individual researchers, scholarly differences do not have to be resolved, but can be used to show their own originality. As Whitley (2006 [1984], pp. 174–175) puts it,

“Rather than co-ordinating their research with one another, or combating the ideas and results of opponents, practitioners [i.e. researchers] in these fields develop highly individual research strategies around distinct topics and problems often with idiosyncratic methods – or at least highly tacit and non-comparable ones – in order to obtain high reputations for originality. Differentiation of contributions is a higher priority here than co-ordination of results and contribution to the collective enterprise. [...] The proliferation of case studies in the human sciences with the expansion of practitioners can be seen as part of this process preferring differentiation and security to co-ordination and challenge.”

Of course, there are many severe epistemological reasons for the differences between fields like physics, medicine or epidemiology on the one hand and EGPP on the other, that prove this comparison to be a bit unfair. One of the axiomatic differences being the former dealing mostly with quantifiable phenomena including natural laws, whereas the latter addresses per se nondeterministic phenomena such as human behavior, institutions and human-environment-relations, producing results which are less generalizable. In social sciences, research problems and cognitive objects tend to be rather specific and context-sensitive (Whitley 2006 [1984], p. 175). Moreover, EGPP can hardly be regarded as an own discipline with a unified framework of theoretical approaches, methods and quality criteria. Instead, the field is cultivated on the one hand by scientists with very different disciplinary backgrounds such as political science, administrative science, social sciences, planning, engineering, ecology, geography and economics, who are loosely held together by a common research topic (i.e. the human-environment system). On the other hand, there are scholars with an interdisciplinary background in environmental studies, an interdisciplinary field increasingly gaining ground in university study programs and only slowly developing common references, heuristic concepts and (to a lesser extent) theoretical approaches.

In addition to the supposed absolute priority of the value of originality in science (Merton 1957), what researchers in the scientific field of EGPP share with their colleagues in all other fields is the growing incentive to publish as much as possible in order pursue an academic career (Hammarfelt 2017). In its extreme this can be observed in China, where scientists get cash per publication, totalled often exceeding their regular annual salary, leading to a decreasing publication quality as a side effect (Quan et al. 2017).

The pressure to publish cuts time available for a deepened encounter with the works of others, and as journals first and foremost call for “originality”, its fostering the trend to idiosyncratic research described above.

Only in more natural-science parts of environmental sciences such as climate modelling, the cumulation and transfer of evidence seem viable, as can be observed with the discursively quite impactful IPCC reports. In the field of EGPP, reputable authoritative organizations are largely missing both within the very scientific community and the policy advice landscape. In Germany, for example, scientific environmental policy advice organizations such as the German Advisory Council on the Environment (SRU), the Ecologic Institute, the German Advisory Council on Global Change (WBGU) or the Wuppertal Institute, even when trying to cumulate evidence on environmental governance to a certain extent, seem to have less impact on politics and policies than economic councils and think tanks such as the German Council of Economic Experts.

To overcome our field’s fragmentation for the sake of producing evidence for better science and policy, we would need to put efforts not only in coordinating our substantive research practices, methodological standards and key concepts, but also in the institutional realm, addressing incentive structures and suitable institutions of scientific knowledge coordination, cumulation and transfer.

In this paper, however, we discuss what we need in order to provide robust knowledge on how EGPP can work for (and against) the benefit of ecological sustainability. We thereby focus on the cumulation of evidence as a necessary (yet not sufficient) condition both inner-scientific progress and, ultimately, for evidence-informed environmental policy-making. Evidence is defined by the Oxford English Dictionary as “the available body of facts or information indicating whether a belief or proposition is true or valid “. Here in particular, we refer to the best available knowledge on either the state of an EGPP system (e.g. the number of states which have an environmental impact assessment system in place) or – more importantly – on how and under what circumstances EGPP interventions work. Best available knowledge means that at a given point in time, this is regarded as such by the EGPP community of scholars. Following Popper, we assume that EGPP evidence can never be proved but only contested and falsified. Evidence cumulates when findings of one research build on those of older research such that the understanding of EGPP advances. Technically, evidence cumulation can occur by either challenging (‘falsifying’) or by confirming – hence strengthening the validity of – existing research, or by adding nuances to existing research (e.g. by specifying context factors under which a previously studied EGPP intervention works). In a broader sense, knowledge cumulation refers to both cumulation of empirical evidence and of theoretical advances.

Quillay and Loyal (2005) contrast knowledge cumulation in the scientific discipline of biology with ‘cumulative disarray’ in the established social science discipline of sociology. Not buying into reductionist tendencies in biology, the authors argue that the re-emergent holism in biology and its reference to the objective non-human world allows the discipline to be inherently cumulative in its knowledge production: “As science, evolutionary biology is cumulative. (...) There will always be new syntheses, but these will still be syntheses of cumulative perspectives and vantage points, in relation to a natural world with which we are becoming increasingly familiar” (Quillay and Loyal 2005: 810). In contrast, after sociology turned away from its early erroneously deterministic socio-biological understanding of the social world and parts of the discipline bought into a radical socio-constructivist world view, “the illusion of any kind of paradigmatic consensus has been shattered”, the authors state (Quillay and Loyal 2005: 811). Quoting Dunning and Mannell (2003: 1), Quillay and Loyal (2005: 811) find that “[s]ociology remains ‘a multi-paradigmatic or multi-perspectival subject ... conflict ridden ... [and without any] overall consensus . . . regarding concepts, theories and methods’”, and that a majority of sociologists

abandoned “the very idea that the investigation of social processes can be *scientific*, and by implication (...) the idea that it should be possible to build up, over time, a social-stock of reality-congruent ideas about the operation of social processes” (original emphasis).

Many have argued that social science needs to become more ‘scientific’. Much of this refers to methodology, and unified methodological frameworks have already been proposed (see e.g. Gerring 2015). We will not discuss social science methodology as such, which is treated in numerous books, of which King et al. (1994) ‘Designing Social Inquiry’ is just one – perhaps the most prominent – example. Of course, sound methodology is a precondition for cumulating evidence, both regarding the very cumulation and the studies (or evidence) that are to be cumulated. However, even if we as a scientific community would rigorously apply decent social science methods, cumulation would still be obstructed by the lack of shared common concepts. This is what we are going to focus on in the next section.

For a research reform agenda, we propose (1) to work on common concepts and research practices, (2) meta-analytical research, and (3) an integrative framework taking into account the various levels and contexts research cases are embedded in. For each agenda item, we briefly formulate the motivating problem and an ideal-typical vision to strive for and sketch out the pragmatic, epistemological and normative limits to its realization.

### **3 Develop common concepts, measures and research protocols**

The incentive-structure of the current academic publication system in the field of EGPP rewards the development of novel concepts at the expense of applications of existing concepts. Many of our key concepts are rather vague, or – at least – have different meanings in different contexts. In our scientific field, this problem is accentuated by the field’s interdisciplinarity. ‘Governance’, for example, is an often-used concept in political science, international relations, administrative science, business administration, economics and, to a lesser extent, law. Its (implied) meanings and connotations – what someone means when they use the term ‘governance’ in a certain context – range from ‘governance as opposed to government’ (e.g. Rhodes 1997), to ‘good governance’ as mostly used in the development context (e.g. Weiss 2000) and to broadly referring to political steering with or without non-state actors (e.g. Kooiman 2003). To give another example with particularly stark differences of meaning, the concept and research practice of ‘transdisciplinarity’ is intensively discussed in the scientific community. To some, notably from Anglo-America, ‘transdisciplinarity’ refers to a strongly integrated form of interdisciplinary research (e.g. Klein 2004). To others, mostly from a European context, the term refers to research aiming to address societally relevant problems and to produce ‘socially robust’ knowledge by involving relevant scientific disciplines and non-academic actors into the research (Hirsch Hadorn et al. 2006). Similar to the term ‘governance’, many concepts have been conflated with often normatively positive connotations. These include ‘social learning’ (which, often implicitly, assumes pro-environmental behaviour, as diagnosed by Reed et al. 2010) or ‘adaptive management / governance’<sup>1</sup>, which not only is often conflated with notions of stakeholder participation (Stringer et al. 2006), but also has been confused with ‘climate change adaptation’ – while the former mostly refers to adapting interventions following close monitoring of success, the latter refers to measures alleviating the (local) consequences of climate change. In turn, new terms are created or well-known terms are given new meanings: “The term ‘experiment’ makes for a highly pliable catch-all term used by academics to address the

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<sup>1</sup> “Adaptive management: A type of natural resource management where adjustments are made in response to project monitoring, new scientific information, and changing social conditions that may indicate the need to change a course of action” (Saunier and Meganck 2009, p. 50).

testing, piloting, and demonstrating of novel policy-designs by policymakers and practitioners. These are processes that have for long been at the core of policymaking. The term ‘experiment’ may however give the illusion of a scientific approach to these efforts - i.e., pre-defined and formalised processes, hypothesis testing, ensuring repeatability, etc. (Popper, 2002 [1935]). Sometimes my interviewees considered the processes they were involved in to be experiments in this scientific understanding of the term, but more often they did not.” (Van der Heijden 2005).

As a counter example may serve the terminology on ‘type I’ and ‘type II’ multi-level governance, as defined by Hooghe and Marks (2001), a paper which is cited more than a 1000-times in Scopus, with more than one fourth of citations by environmental science journals. While certainly these two types are imprecise to a certain degree, there is little to no ambiguity in their usage because of the distinct reference to Hooghe and Marks (2001).

To pose an even more basic question, what exactly defines the boundaries of EGPP? These are almost inherently fuzzy, as the overarching concept of sustainability is ubiquitous and rightly points out the deep interconnections between the ecological and the social and economic spheres. One might of course ask why the boundaries of the EGPP field should matter – given the many positive aspects of interdisciplinary collaboration, which tend to blur disciplinary boundaries. Arguably, if boundaries of the research field were clearly defined (as is the case for any research field), it would be easier to delimit the ‘reach’ of certain concepts. To give an extreme example: The concept of ‘power’ is entirely different in physics and in political science. The fact that this does not lead to any conceptual confusion is due to the sharp difference between the two scientific disciplines.

Arguably, the widespread lack of consistent terminology *within* the field of EGPP is impeding the actual challenging of ideas and – in particular – empirical findings, and hence the cumulation of knowledge, as described by Whitley (2006) for fragmented adhocracies. We argue that what is needed is an agreed canon of definitions shared within the community – while still being open to useful reinterpretations and novel concepts. We are well aware that an entire standardization of concepts may never be attainable, nor desirable. Still we find it useful to explore the extreme case of an ideal-typical standardization of concepts as common in the hard sciences – before then discussing the limits from different perspectives.

Ideally, EGPP concepts would be unanimously shared by the community with as little ambiguity as possible. At the lowest level of standardization, stark semantic differences would be resolved. Hence, the term ‘transdisciplinarity’ would either refer to a strong form of interdisciplinarity *or* to a research mode involving extra-academic knowledge – but not to both, depending on the usage. A higher level of standardization would imply commonly shared definitions and concepts that bridge definition and operationalization. According to the seminal work of Goertz (2011), these concepts may consist of dimensions and indicators that make them directly operationalizable and therefore empirically applicable. In a field where the same term is used by different researchers, or schools, with different meanings, and, vice versa, where multiple terms exist for essentially the same phenomenon, procedures will be needed to determine valid definitions of terms.

This function could be taken by dictionaries, which, regularly updated, would represent the current state of the art in definitions of terms. Currently, only two dictionaries exist in the field, namely the ‘Dictionary and introduction to global environmental governance’ (Saunier and Meganck 2009); and ‘A Dictionary of Environmental Economics, Science, and Policy’ (Grafton 2001). Neither of them has sufficient standing in the community to truly guide the usage of terms (neither of the dictionaries reach 100 citations in Google Scholar, which is a rather poor record). In the wider field, there are the ‘Dictionary of environment and sustainable development’, including planning and management (Gilpin 1996; cited 132-times in Google Scholar); and the ‘The concise Oxford dictionary of politics’ with a few entries

regarding the environmental or sustainability (McLean and McMillan 1996, third edition 2009; cited 594-times in Google Scholar). Also, a few encyclopedias are available, but many resemble more handbooks with articles on basic topics rather than definitions of concepts, and, as with the dictionaries, non of them is cited even close to 100-times. Hence, a widely accepted dictionary would be needed, with a clear procedure to include the latest state of thinking of key concepts in the EGPP field, being essentially open to every scholar in the field, potentially involving a wiki platform for discussions on definitions (see, e.g. <https://encyclopedia.pub> for a recent attempt in this direction) which would then, however, need to be agreed upon until the next edition is released. Criteria for selection and definition of commonly agreed terms should be usefulness and compatibility to existing concepts as well as a low degree of semantic overlap with other concepts.

Such standardization would allow that individual research findings could be directly compared, such that one study either confirms, challenges or adds nuances to existing research – all of which are currently hardly possible because the different usage of terms implies that many studies speak past each other.

Certainly, there are limits to standardization of terms. Epistemologically, social sciences are different from ‘hard’ sciences, as mentioned above in section 2. Fundamentally, many concepts are bound to a societal context – and hence to geographically and temporally varying circumstances. For example, can the understanding of ‘democratic innovations’ likely be the same in the western hemisphere (where the term originated) and in East Asia, or in development contexts? This is possibly one of the most crucial and contested questions to be discussed (see e.g. Reed and Meagher 2019). Finally, research progress in social sciences is also reflected in prudent definition of concepts. Therefore, a dynamics in terms and definitions is inherent to the field.

#### **4 Evidence cumulation through meta-analytical and comparative research**

Cumulation of research means the individual research evidence builds on other research such that the state of scientific knowledge – in the EGPP field regarding what governance interventions work under what circumstances – progresses. In order to obtain strong evidence for science and policy, a first step is to synthesize the already existent evidence which is dispersed across many case studies (Grönlund and Åström 2009; Parkhurst 2017, p. 120). Ideally, this would require the first agenda item – common concepts and research practices – already to be resolved, allowing for comparability of results and methods.

However, notably the case survey method also allows to compensate for a lack of consistent terminology by developing a coding scheme through which individual case studies (which are typically already part of the published record) with varying terminology are processed and systematically compared – provided that the included studies offer enough detail to infer how terms and concepts are in fact understood. To this end, a coding scheme has to be developed that contains definitions that are as much as possible unequivocal and allow for similar coding results independent of the person who is conducting the coding. In principle, and this is good standard for case surveys, the method even allows to define quantitative variables through which qualitative case narratives can be transformed into quantitative data (see Newig et al. 2013 and Newig et al. 2019 for an example of such an effort from the EDGE project in which the first author was involved in). For example, coders provide expert judgements on the degree of face-to-face communication in a governance process, on a Likert-type scale from 0 to 4 (Newig et al. 2013, p. 37). Using averages over multiple coders’ assessment helps to strengthen the validity of such interpretative exercises. Quantitative data allow for structured evaluation with statistical or otherwise structured

methods such as Qualitative Comparative Analysis (Newig and Fritsch 2009). While the case survey method was developed in the 1970s and is in principle well known (Larsson 1993; Yin and Heald 1975; Lucas 1974; Jensen and Rodgers 2001), it has relatively seldom been used (Fritsch and Newig, in prep., identified 31 case surveys until 2018 in the broader area of political science).

While the case survey draws on individual, mostly qualitative case studies as “input”, classical meta-analysis integrates existing quantitative studies (e.g. Glass 1977; Hunter and Schmidt 2004), which are much less prevalent in EGPP research. In order to avoid issues of selection bias as much as possible, both meta analysis and case survey require a clear account on the criteria by which case studies were identified and selected.

As a less ambitious form of knowledge cumulation from individual (case) studies, systematic reviews serve to distill key insights from a clearly defined set of studies (as in meta-analysis and case survey). In the field of medicine, the Cochrane Collaboration has set important standards and provides tens of thousands of systematic reviews on the effectiveness of medical treatments (<https://www.cochrane.org>). The Collaboration for Environmental Evidence (<https://www.environmentalevidence.org/>) may be seen as a step in this direction for the EGPP field, but as of now governance, policy and/or planning issues have not yet been addressed.

As statistical analysis aims to establish probabilistic causal inference, Qualitative Comparative Analysis (QCA) is looking for conjunctions of necessary and sufficient conditions that cause an outcome. The set-theoretic research approach allows for equifinality, i.e. multiple paths to one outcome, and thereby accounts for causal complexity. QCA is suited for mid-n and large-n research and is positioned in the middle ground between high case orientation and generalizability (Ragin 2000; Rihoux 2009; Schneider and Wagemann 2012). QCA may therefore serve as a tool to not only cumulate, but also generate new insights from case studies, as long as these case studies provide sufficient data on the same conditions and outcome of interest.

There are of course many limits to meta-analyses. The more idiosyncratic and non-generalizable the original research is, the more difficult and risky is its meta-analysis. Apart from literature reviews, cumulating evidence usually requires either quantitative source material or the quantification of qualitative source material in order to conduct a meta-analysis. The necessity of quantification limits both the types of data that can be processed and the types of results that can be produced through meta-analyses. Meta-analyses in general and quantification in particular always strongly reduce information. The cases are stripped from their richness and context and are in danger of being reduced to a level that does not do justice to the cases anymore. This increases the probability of misinterpretations. In some cases, the meta-analytical researcher may even investigate another research question than the authors of the included studies did. In these cases, the data the meta-analytical researcher is looking for may not be there, or is at risk of being even read into the respective study only. Or the data may be strongly selective and skewed as is only a side product of the original research, never intended to be in a research focus. Decent case surveys try to reduce these risks by a comprehensive coding scheme and multiple coders for each case, aiming for a high inter-coder reliability. However, strong biases present in the data and translation losses regarding both substantial concepts and data transformations cannot be fully prevented. Meta-analyses and their results therefore require cautious and reflective interpretation as well.

Now that we have sketched out possibilities and limits to cumulate already existing research with meta-analytical methods, a second step would be to encourage new research that is comparative in nature and that strives for causal inference from the very beginning. Comparative research includes everything from qualitative comparative case studies (at least two) to experiments to large-n quantitative studies.



Whereas small-n case studies allow for ‘deep causality’ and multi-faceted, context-sensitive descriptions and analysis, they usually fail to establish overall causal patterns and generalizable results. Large-n studies, on the other hand, are able to produce generalizable results and identify correlations, but fall short on exploring deeper causal mechanisms, especially since panel data is often not available. What we need, therefore, are studies with research designs that methodologically allow for triangulation, combining qualitative and quantitative research approaches. Single case studies will always play an important part in establishing thick descriptions, critical perspectives or complex causality via process tracing (Bennett and Checkel 2015). But purposefully designed comparative research, even when conducted with only a small set of cases, is better suited to explain why what works, and how (Blatter and Haverland 2014).

For causal inference, not only better research designs, but also explanatory theoretical approaches are required for interpreting data relations as causal relations. This also allows for cumulating knowledge on a theoretical and conceptual level. Purely empirical research often is too shallow (and descriptive) in this regard and may be complemented with theory-driven empirical analysis of EGPP.

## **5 Mind the context: towards a multi-level framework of governance interventions**

Scholars and practitioners with a strong instrumental policy orientation are particularly interested in ‘what works’, which of course depends on the context: Under what circumstances works what for whom, and how and why does it work (Sanderson 2002)? We will see that the discussion of context is inextricably linked to the question of what is a ‘case’ in EGPP, and hence, where leverage points for EGPP interventions are located. What counts as a case and what counts as a circumstance or context depends very much on the research object. For example, a particular national environmental policy can be either a case for a study with a national focus, or a key context variable for a study focusing on the subnational (regional or local) level. Working towards an integrative, multi-level framework of EGPP interventions, the following leverage points could be identified –which broadly collapse governance levels from top to bottom with institutional levels of constitutional choice, collective choice and operational choice in the sense of Kiser and Ostrom (1982)<sup>2</sup>:

- The overall institutional system (typically of a country, but supra-national structures such as the European Union or international regimes will likewise be important). It comprises the polycentricity, institutional fragmentation and multi-layeredness of decision-making systems, including its dynamics such as decentralisation, spatial scaling and institutional fit; policy ‘streams’ (Kingdon 1999) and ‘landscape’ developments (Geels 2002); administrative culture including policy experimentation and systematic learning (Newig et al. 2016). As a context factor, it is important to study its impact on policy change and local governance processes. As a leverage point for interventions (essentially the other side of the coin), the question is how to design institutional systems that best allow for effective EGPP mechanisms on national and sub-national level.
- Major policy change (including policy mixes), typically on a national level (but also on supra- or subnational level). Major policy decisions serve to trigger, guide and shape transformation through enabling and fostering (niche) innovation (Raven 2012), through fundamentally re-

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<sup>2</sup> Hill and Hupe (2003) warn against confusing geographical ‘layers’ and institutional ‘scales’. While there is a point in this, in the practice of multi-level governance systems, fundamental policy decisions are typically made on higher jurisdictional levels, while implementation typically occurs locally.

structuring a sector (e.g. mandated phase out of nuclear energy); or through major infrastructure or other investment programs, and often require sub-national or local implementation.

- Local EGPP processes, including implementation of higher-level policies. They determine how decisions are made, often implementing major policy decisions. Here in particular, different modes of governance (Driessen et al. 2012) can be considered. For example, in what stages and to what extent are private sector and civil society organizations, or even broader sections of the public involved (Newig and Fritsch 2009; Emerson and Nabatchi 2015)?

Depending on the focus of analysis, the former two can both figure as interventions (i.e. changing the political system, enacting or changing grand policies) and as context (political system as context for policies and their implementation; policies as context for local implementation decisions).

These distinctions will be particularly relevant when it comes to integrating case-based evidence through meta-analytical methods. Many if not most EGPP case studies are available on relatively local(ized) interventions. Arguably, much of the effectiveness of interventions depends on the context: political and institutional conditions as described above, as well as cultural norms, customs and practices that vary with time and space. How should a case survey of – say – local adaptive governance processes pay attention to these contextual factors? (1) One obvious source would be the original studies included in the case survey themselves. However, very often they will only report on specific circumstances (such as the environmental problem at stake, the prehistory of governance attempt before introducing adaptive governance etc.) but usually not treat the broader political and cultural system, current environmental policies, experimentalist traditions or aspects of meta-governance, which for many readers may be taken for granted. But it is precisely these contextual conditions that matter when comparing case studies from very different geographic locations, or across larger time spans. (2) Another source of contextual knowledge could be academic publications on these contexts. If, for example, there were a recent policy stipulating experimentation and adaptive governance in a particular country, a published analysis of this would provide important contextual knowledge for the local adaptive governance studies within this country. Pursuing this path would result in a sort of ‘multi-level case survey analysis’, in which local case studies are embedded within studies of (national) policies and/or institutional systems. To our knowledge, this has not been attempted so far. Indeed this procedure would risk to include imbalanced context information, which may vary greatly from country to country. (3) A third source of contextual knowledge would be databases on country characteristics<sup>3</sup>. However, these do not cover all countries to

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<sup>3</sup> ParlGov provides data on parties, elections and cabinets for 37 western democracies (Döring and Manow 2019). The *Comparative Constitutions Project* codes the world’s constitutions, including variables on the states’ polity (branches of government, formal institutions, election rules, federalism) and the constitutions’ issue areas, e.g. if and how the constitution refers to the environment and natural resources. Constitutional changes are tracked on a yearly basis (Elkins et al. 2019). *Polity IV* accounts for democratic and authoritative regimes, including variables such as the central state authority, executive constraints, political participation, and transitions (Center for Systemic Peace 2019). The *Party Manifesto Project* codes, inter alia, the party family of ecological parties and statements regarding environmental protection and sustainability in party manifestos (electoral programs) (Volkens et al. 2019). *World Values Survey* and *European Values Study* include information on the interviewee’s membership in environmental organizations, attitudes towards environmental care, participation in demonstrations for the environment, donating behavior towards ecological organizations, confidence in the environmental protection movement, and satisfaction with issues such as air quality, public transport, or water quality (Ingelhart et al. 2019; European Value System Study Group et al. 2019). The *Sustainable Governance Indicators* analyze the policy performance and governance capacities in EU and OECD countries. This includes environmental policies and outcomes (such as waste and GHG emissions), the participation in multilateral environmental agreements and evidence-based instruments such as sustainability checks (Bertelsmann Stiftung 2018; Schraad-Tischler et al. 2018). The *Environmental Performance Index* analyses 24 performance indicators for 180 countries (Wendling et al. 2018). And, of course, the statistics departments of international organizations such as the World Bank and the OECD provide many additional time-series data on key economic, social, environmental, government and development indicators (World Bank 2019; OECD 2019). Moreover, the *Bertelsmann Foundation* and the *Sustainable Development Solutions Network* jointly track the SDG achievements of most of the world’s nations in 2019 (Sachs et al. 2019).

an equal extent, with a bias towards reliable statistics available mostly for countries of the Global North. Hence, information from databases could be usefully combined with insights from academic publications.

One of the most challenging tasks will be to find the ‘optimal’ scale for contextualization, or generalizability. Neither do “universal laws” exist, nor can one learn from highly contextualised knowledge applicable only for one unique case. What appears most helpful, therefore, is a medium degree of ‘contextualisation’ of evidence. Ideally, access to aggregated empirical research results should allow practitioner-analysts to adjust the ‘scale’ of universality or specificity themselves.

## 6 Conclusions

In our agenda, we have considered areas that individual researchers can pursue. However, we also need stronger institutions. As Van der Hel and Biermann (2017) note that “strategies for salience, credibility and legitimacy [in science institutions in sustainability governance] often remain hidden or implicit; only by explicating these strategies is further reflection on their implementation and effects possible. Second, questions posed in the framework focus on the potential discrepancy between the claims of science institutions and their implementation in practice. Our analysis points out numerous instances in which claims and reality lie far apart.” (p. 9). Moreover, funding agencies should require applicants to clearly lay out in what way their research builds on that of others and how they contribute to cumulating research, to building a common body of knowledge and evidence.

Ultimately, science-policy interfaces are needed, transfer of knowledge, etc. Yet – to return to the initial quote preceding this article – science on EGPP first needs to ‘deliver’ lest research results will continue to be disregarded by decision-makers in policy, planning and public administration (Nutley et al. 2019).

While the proposed research reform agenda certainly has a positivist tone, we readily acknowledge that interpretive research is still needed to deeply understand and criticize EGPP. Our aim is not to replace or abandon critical interpretive research, but to transform the more ‘explanatory’ one to allow for evidence cumulation.

An additional aspect we should reflect on is the interdisciplinarity of the field of EGPP. Is it appropriate to demand common concepts, research practices and designs from a scientific field that is as of now strongly interdisciplinary? Are we imposing disciplinary standards on an interdisciplinary field, do we discipline the interdisciplinary? And doesn't it also have its benefits to work in a ‘fragmented adhoc-racy’? Our provisional answer is probably a hesitant “yes” to all of these questions. On the one hand, it is a good thing to have open borders, allowing for many different inter-, trans- and disciplinary perspectives on a broad common research object. As we have diagnosed in section 2, EGPP is inter- and multi-disciplinary, loosely held together by a common topic. This allows for mutual learning and problem-driven research. It accounts for the interconnectedness of the human-environmental system and in principle enables a holistic perspective that is often lost in specialist disciplinary research. On the other hand, the field of EGPP is both expanding and consolidating, as is indicated, for example, from the increasing number of relevant journals and the forming of a scientific community around EGPP. This is an opportunity to actively shape these transitions. From our point of view, further fragmentation will not help us. Building the foundations for cumulating evidence, in contrast, can promote both scientific and political progress in the long run. To reach this goal we would not have to give up our interdisciplinarity, but we need to work more closely together.

## References

- Bennett, Andrew; Checkel, Jeffrey T. (Eds.) (2015): *Process tracing. From metaphor to analytic tool*. Cambridge: Cambridge Univ Press.
- Bertelsmann Stiftung (2018): *Sustainable Governance Indicators*. Gütersloh. Available online at <http://www.sgi-network.org>.
- Blatter, Joachim; Haverland, Markus (2014): *Designing case studies. Explanatory approaches in small-N research*. Paperback-[Ausgabe]. New York, NY: Palgrave Macmillan (Research methods series).
- Center for Systemic Peace (2019): *Polity IV Project*. Vienna (Virginia). Available online at <https://www.systemicpeace.org/polityproject.html>, checked on 8/14/2019.
- Döring, Holger; Manow, Philip (2019): *Parliaments and governments database (ParlGov)*. Information on parties, elections and cabinets in modern democracies. Available online at [parlgov.org](http://parlgov.org), checked on 8/13/2019.
- Driessen, P.P.J., C. Dieperink, F. van Laerhoven, H.A.C. Runhaar and W.J.V. Vermeulen (2012) 'Towards a Conceptual Framework for The Study of Shifts in Modes of Environmental Governance - Experiences From The Netherlands.' *Environmental Policy and Governance* 22 (3): 143-60.
- Elkins, Zachary; Ginsburg, Tom; Melton, James (2019): *Comparative Constitutions Project. Informing constitutional design*. Available online at <https://comparativeconstitutionsproject.org>.
- Emerson, K. and T. Nabatchi (2015) *Collaborative Governance Regimes* (Washington DC: Georgetown University Press).
- European Value System Study Group; Tilburg University; GESIS (2019): *European Values Study*. Tilburg, Mannheim. Available online at <https://europeanvaluesstudy.eu>, checked on 8/13/2019.
- Geels, F.W. (2002) 'Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case-study.' *Research Policy* 31 (8-9): 1257-74.
- Gerring, John (2015): *Social science methodology. A unified framework*. 2nd ed. Cambridge: Cambridge University Press (Strategies for Social Inquiry).
- Glass, G.V. (1977) 'Integrating Findings: The Meta-Analysis of Research.' *Review of Research In Education* 5: 351-79.
- Goertz, Gary (2011): *Social Science Concepts. A User's Guide*. Princeton: Princeton University Press.
- Grafton, R. Q.; Pendleton and Nelson, H.W. 2001. "A Dictionary of Environmental Economics, Science, and Policy," Books, Edward Elgar Publishing, number 1825, December.
- Grönlund, Å. and J. Åström. (2009) *DoIT right: Measuring effectiveness of different eConsultation designs*. Berlin, Heidelberg: Springer.
- Hammarfelt, Björn (2017): *Recognition and reward in the academy*. In *Aslib Journal of Information Management* 69 (5), pp. 607–623. DOI: 10.1108/AJIM-01-2017-0006.
- Hill, M. and P. Hupe (2003) 'The multi-layer problem in implementation research.' *Public Management Review* 5 (4): 471-90.
- Hirsch Hadorn, G., D. Bradley, C. Pohl, S. Rist and U. Wiesmann (2006) 'Implications of transdisciplinarity for sustainability research.' *Ecological Economics* 60 (1): 119-28.
- Hooghe, L. and G. Marks (2001) 'Types of Multi-Level Governance.' *European Integration Online Papers* 5 (11): online.
- Hunter, J.E. and F.L. Schmidt (2004) *Methods of Meta-analysis. Correcting Error and Bias in Research Findings* (Thousand Oaks, London, New Delhi: Sage).
- Inglehart, R.; Haerpfer, C.; Moreno, A.; Welzel, C.; Kizilova, K.; Diez-Medrano, J. et al. (2019): *World Values Survey*. Edited by JD Systems Institute. Madrid. Available online at <http://www.worldvaluessurvey.org>, updated on 8/13/2019.
- Jensen, J.L. and R. Rodgers (2001) 'Cumulating the Intellectual Gold of Case Study Research.' *Public Administration Review* 61 (2): 235-46.
- King, G., R.O. Keohane and S. Verba (1994) *Designing Social Inquiry. Scientific Inference in Qualitative Research* (Princeton, NJ: Princeton University Press).

- Kingdon, J.W. (1999) *Agendas, alternatives, and public policies* (New York: Longman).
- Kiser, L.L. and E. Ostrom (1982) *The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches*, in *Strategies of Political Inquiry*. Beverly Hills: Sage: 179-222.
- Klein, J.T. (2004) 'Prospects for transdisciplinarity.' *Futures* 36 (4): 515-26.
- Kooiman, J. (2003) *Governing as Governance* (London: Sage).
- Lange, Philipp; Bornemann, Basil; Burger, Paul (2019): Sustainability impacts of governance modes: insights from Swiss energy policy. In *Journal of Environmental Policy & Planning* 21 (2), pp. 174–187. DOI: 10.1080/1523908X.2019.1566062.
- Larsson, R. (1993) 'Case Survey Methodology: Quantitative Analysis of Patterns across Case Studies.' *Academy of Management Journal* 36 (6): 1515-46.
- Lucas, W.A. (1974) *The case survey method: Aggregating case experience*. Santa Monica.
- Merton, Robert K. (1957): Priorities in scientific discovery. A chapter in the sociology of science. In *American Sociological Review* 22 (6), pp. 635–659.
- Newig, J. and O. Fritsch (2009) *The case survey method and applications in political science*. APSA 2009 Paper. Available at SSRN: <http://ssrn.com/abstract=1451643> (Toronto).
- Newig, J., E. Kochskämper, E. Challies and N.W. Jager (2016) 'Exploring governance learning: How policymakers draw on evidence, experience and intuition in designing participatory flood risk planning.' *Environmental Science & Policy* 55 (January 01): 353-60.
- Newig, J. and T.M. Koontz (2014) 'Multi-level governance, policy implementation and participation: the EU's mandated participatory planning approach to implementing environmental policy.' *Journal of European Public Policy* 21 (2): 248-67.
- Newig, J., A. Adzersen, E. Challies, O. Fritsch and N. Jager (2013) *Comparative analysis of public environmental decision-making processes: a variable-based analytical scheme*. INFU Discussion Paper No. 37 / 13. Vol. 37/13 (Lüneburg).
- Newig, J., N.W. Jager, E. Kochskämper and E. Challies (2019) 'Learning in participatory environmental governance – its antecedents and effects. Findings from a case survey meta-analysis.' *Journal of Environmental Policy & Planning*: 1-15.
- OECD (2019): *OECD.Stat*. Paris. Available online at <https://stats.oecd.org/>.
- Parkhurst, J. (2017) *The Politics of Evidence: From evidence-based policy to the good governance of evidence.*, Routledge Studies in Governance and Public Policy (Abingdon, Oxon & New York, NY: Routledge).
- Quan, Wei; Chen, Bikun; Shu, Fei (2017): Publish or impoverish. In *Aslib Journal of Information Management* 69 (5), pp. 486–502. DOI: 10.1108/AJIM-01-2017-0014.
- Ragin, Charles C. (2000): *Fuzzy-Set Social Science*. Chicago: University of Chicago Press.
- Raven, R. (2012) *Analyzing Emerging Sustainable Energy Niches in Europe: A Strategic Niche Management Perspective*, in *Governing the Energy Transition. Reality, Illusion or Necessity*, eds. G. Verbong and D. Loorbach. New York: Routledge: 125-51.
- Reed, M. and L. Meagher (2019) *Using evidence in environmental and sustainability issues*, in *What Works Now? Evidence-Informed Policy and Practice*, eds. A. Boaz, H. Davies, A. Fraser and S. Nutley. Bristol, UK & Chicago, IL: Policy Press: 151-70.
- Reed, M.S., A.C. Evely, G. Cundill, I. Fazey, J. Glass, A. Laing, J. Newig, B. Parrish, C. Prell, C. Raymond and L.C. Stringer (2010) 'What is Social Learning?' *Ecology and Society* 15 (2).
- Rhodes, R.A.W. (1997) *Understanding Governance. Policy Networks, Governance, Reflexivity and Accountability* (Buckingham: Open University Press).
- Rihoux, Benoit (2009): *Qualitative Comparative Analysis (QCA) and Related Techniques. Recent Advantages and Challenges*. In Susanne Pickel, Gerth Pickel, Hans-Joachim Lauth, Detlef Jahn (Eds.): *Methoden der vergleichenden Politik- und Sozialwissenschaft. Neue Entwicklungen und Anwendungen*. 1st ed. Wiesbaden: VS Verlag für Sozialwissenschaften / GWV Fachverlage, Wiesbaden, pp. 365–385.
- Sachs, J.; Schmidt-Traub, G.; Kroll, C.; Lafortune, G.; Fuller, G. (2019): *Sustainable Development Report 2019. Transformations to achieve the Sustainable Development Goals*. Edited by Bertelsmann Stiftung, Sustainable

- Development Solutions Network (SDSN). New York. Available online at <https://sustainabledevelopment-report>.
- Sanderson, Ian (2002): Evaluation, Policy Learning and Evidence-Based Policy Making. In *Public Administration* 80 (1), pp. 1–22. DOI: 10.1111/1467-9299.00292.
- Schneider, Carsten Q.; Wagemann, Claudius (2012): *Set-Theoretic Methods For the Social Sciences. A Guide to Qualitative Comparative Analysis*. Cambridge: Cambridge University Press.
- Schraad-Tischler, Daniel; Schiller, Christof; Hellmann, Thorsten; Lopes, Elisabeth Faria (2018): Policy Performance and Governance Capacities in the OECD and EU. *Sustainable Governance Indicators 2018*. Edited by Bertelsmann Stiftung. Gütersloh. Available online at [https://www.sgi-network.org/docs/2018/basics/SGI2018\\_Overview.pdf](https://www.sgi-network.org/docs/2018/basics/SGI2018_Overview.pdf), checked on 8/2/2019.
- Scott, T. (2015) 'Does Collaboration Make Any Difference? Linking Collaborative Governance to Environmental Outcomes.' *Journal of Policy Analysis and Management* 34 (3): 537-66.
- Stringer, L.C., A.J. Dougill, E.D.G. Fraser, K. Hubacek, C. Prell and M.S. Reed (2006) 'Unpacking "Participation" in the Adaptive Management of Social-ecological Systems: a critical review.' *Ecology and Society* 11 (2).
- van der Heijden, J. (2015) 'What 'Works' in Environmental Policy-Design? Lessons from Experiments in the Australian and Dutch Building Sectors.' *Journal of Environmental Policy & Planning* 17 (1): 44-64.
- Volken, Andrea; Krause, Werner; Lehmann, Pola; Matthieß, Theres; Merz, Nicolas; Regel, Sven; WEßels, Bernhard (2019): *The Maincesto Data Collection. Manifesto Project (MRG/CMP/MARPOR)*. Edited by Wissenschaftszentrum Berlin für Sozialforschung (WZB). Berlin. Available online at <https://manifesto-project.wzb.eu>, updated on 8/13/2019.
- Weiss, T.G. (2000) 'Governance, good governance and global governance: Conceptual and actual challenges.' *Third World Quarterly* 21 (5): 795-814.
- Wendling, Z. A.; Emerson, J. W.; Esty, D. C.; Levy, M. A.; Sherbinin, A. de; et al. (2018): *2018 Environmental Performance Index*. Edited by Yale Center for Environmental Law and Policy. New Haven. Available online at <https://epi.yale.edu>.
- Whitley, Richard (2006 [1984]): *The intellectual and social organization of the sciences*. 2nd ed., repr. Oxford, New York: Oxford University Press.
- World Bank (2019): *World Bank Open Data*. Free and open access to global development data. Available online at <https://data.worldbank.org/>.
- Yin, R.K. and K.A. Heald (1975) 'Using the Case Survey Method to Analyze Policy Studies.' *Administrative Science Quarterly* 20 (3): 371-81.
- Zelli, F., I. Möller and H. van Asselt (2017) 'Institutional complexity and private authority in global climate governance: the cases of climate engineering, REDD+ and short-lived climate pollutants.' *Environmental Politics* 26 (4): 669-93.