

# 12

## Agency and Adaptiveness: Navigating Change and Transformation

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### Chapter Highlights

- Earth System Governance (ESG)–Agency scholarship reveals that diverse forms of agency are crucial to cultivating adaptiveness of governance systems within complex and changing contexts.
- ESG–Agency scholars are well positioned to apply extensive insights to major emerging questions in the social sciences about adaptiveness and renewal of political and governance systems across many spheres of society.
- Greater focus is required concerning the effects of agency on adaptiveness of environmental governance systems in several ways: materially, normatively, and temporally.

### 12.1 Introduction

The purpose of this chapter is to summarize the ways in which Earth System Governance (ESG) scholars have studied the interplay between the analytical problems of Agency and Adaptiveness over the last decade, and identify needs and opportunities looking forward. ‘Adaptiveness’ refers to both the ‘governance of adaptation to social-ecological change as well as the processes of change and adaptation within governance systems’, in particular, focusing on ‘changes made by social groups in response to, or in anticipation of, challenges created through environmental change’ (Biermann et al., 2009, p. 45). The focus here is on the *adaptiveness of governance systems*, in contrast to the governance of climate change adaptation, which is an overlapping but differing topic. Diverse forms of agency are intricately bound up in realizing adaptiveness within complex, dynamic, and rapidly changing contexts (Beunen et al., 2017).

Environmental governance is a key field in which the notion of adaptiveness has been developed, across many specific problem domains (e.g., biodiversity conservation, marine systems, freshwater water systems, climate change, development) (see Chapter 1). Agency is often given a prominent (and sometimes primary) role in explaining adaptiveness in environmental governance systems, through variables such as entrepreneurship (Huitema and Meijerink, 2009), niche experimentation (Loorbach et al., 2017), and strategic action vis-à-vis windows of opportunity for transformative action (Moore et al., 2014; Olsson et al., 2014; Westley et al., 2013). Yet constraints on agency are also a key challenge for adaptiveness, for example, within state bodies which generate conflicting demands for and against adaptiveness (Wyborn and Dovers, 2014).

Broader social science disciplines are increasingly also concerned with rethinking and adapting political systems in response to unfolding pressures, such as democratic decay; geopolitical power shifts; and environmental, socioeconomic, and technological change – issues which increasingly intersect with ESG research as identified in Chapters 1 and 3 of the ESG Science Plan 2018–2028 (Earth System Governance Project, 2018a). This points to a key role for agency in public good governance within changing local and global contexts. However, a key distinction between a focus on adaptiveness and many traditional theories of social and political change is that adaptiveness has a distinct focus on intentionally adjusting governance systems to meet normative concerns within a changing environment (e.g., sustainability, equity, democracy). In other words, adaptiveness focuses on understanding how to *shape* or *navigate* change towards normatively desirable futures, not only explain (past) change.

The observation in the 2009 ESG Science Plan that ‘most governance systems are largely unprepared for the expected magnitude and diversity of increased environmental challenges’ (Biermann et al., 2009, p. 46) remains as true today as a decade ago, if not more so. Yet the unfolding Anthropocene also recasts adaptiveness in much broader material, political, and philosophical terms. Fundamental environmental boundary conditions on which human societies depend are being destabilized in ways that make unprecedented demands on global governance systems. Coping with unfolding climatic changes, biodiversity loss, global urbanization, rapid technological change, and instabilities in global economic and political systems is possible only if human societies are able to both adapt and act reflexively at all scales from local to global (Dryzek, 2016; Galaz, 2014). Agency is central to cultivating adaptiveness for both issue-specific governance regimes as well as for broader aspects of political order (and disorder) in global environmental governance. This raises major new questions for ESG scholars about how to understand and study the relationship between agency and adaptiveness, including how agency contributes

to cultivating adaptiveness and what demands adaptiveness makes on agency within changing governance settings.

This chapter conducts a high-level thematic analysis to interrogate and synthesize ESG scholarship on the interplay between the analytical problems of Agency and Adaptiveness over the years 2006–2018. This synthesis is based on the ESG–Agency Harvesting Database (see Chapter 1 and the Appendix). First, a systematic approach was employed to identify all papers within this dataset coded as being linked to the theme of Adaptiveness. Second, a synthesis of paper metadata (title, abstract) for this same subset was conducted to explore ways in which Agency and Adaptiveness are broadly conceptualized, considering two key attributes: (1) intentionality of agency in relation to adaptiveness (e.g., intended vs. unintended effects), and (2) temporal patterns in adaptiveness effects linked to agency (e.g., incremental vs. radical change). The degree of intentionality is important because both intentional activities (e.g., leadership, entrepreneurship, change agents), as well as unintentional activities (e.g., unintended consequences of proximate or distal actions) may conceivably affect adaptiveness. Considering temporal patterns of change is important in light of major contemporary interest in transformative change (Biermann et al., 2012; Patterson et al., 2017), and because effects of agency may be incremental or radical, or both (Streeck and Thelen, 2005). Hence this provides a useful heuristic typology to link agency with adaptiveness dynamics. Finally, a broader discussion of needs and opportunities in studying Agency and Adaptiveness looking forward is presented. This approach is summarized in Figure 12.1.

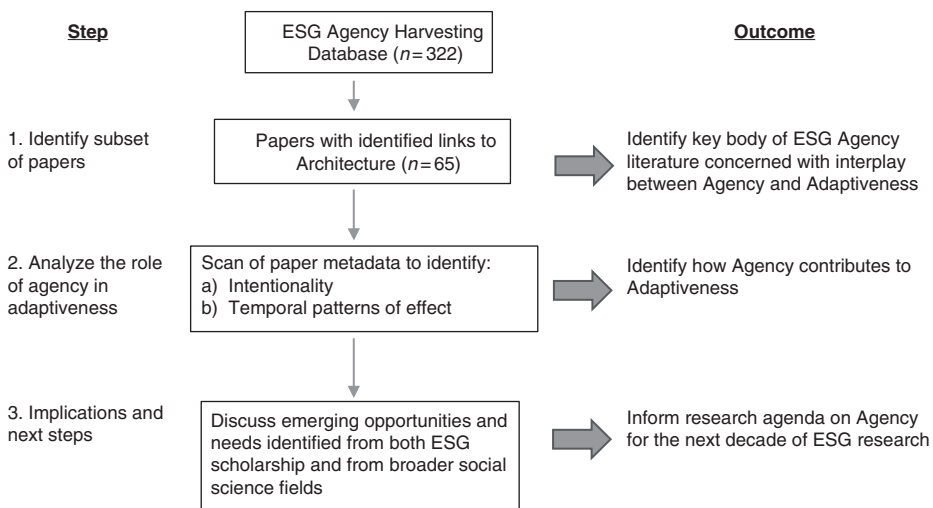


Figure 12.1 Systematic analysis protocol based on ESG–Agency database.

## 12.2 Links between Agency and Adaptiveness

This section interrogates the links between Agency and Adaptiveness in the identified subset of ESG–Agency scholarship (Step 2 in Figure 12.1). This centers on two particular attributes in the way that the relationship between Agency and Adaptiveness is viewed by scholars: (1) the *intentionality* of agents in cultivating adaptiveness, and (2) the nature of *temporal patterns* of change linked to agency–adaptiveness activity. The 2009 ESG Science Plan (Biermann et al., 2009) alludes to the importance of studying the interplay between Agency and Adaptiveness through identifying a range of governance processes that may foster adaptiveness, in which agency plays a key role (pp. 47–9). The attributes of intentionality and temporal patterns aim to provide a general typology for examining Agency–Adaptiveness linkages that is not bound to any specific theoretical approach, and provide a means to critically reflect on where scholarship to date has focused or neglected. The attributes applied in analyzing Agency–Adaptiveness linkages are presented in Box 12.1.

The results of applying the categories in Box 12.1 to the subset of ESG scholarship on Agency and Adaptiveness are presented in Table 12.1. This shows that in regards to intentionality, the majority of papers focus on intentional adaptiveness, although a non-trivial amount also consider unintentional aspects. In regards to temporal patterns in the effects of agency for adaptiveness, papers focus mostly on incremental change but a substantial number also focus on radical change. It is important to point out that these coded attributes (i.e., intentionality and temporal patterns in effects) are sometimes clearly identifiable in the abstracts, but other

### Box 12.1 Lens for Analysing Links between Agency and Adaptiveness

- (i) *Intentionality* of agents towards cultivating adaptiveness:
  - **Intentional adaptiveness** (e.g., purposive or reflexive behaviour)
  - **Unintentional adaptiveness** (e.g., unintended consequences, other causes of adaptiveness)
- (ii) Temporal patterns of change linked to agency–adaptiveness activity:
  - **Incremental change** (e.g., incremental adaptations, gradual transformation over time)
  - **Radical change** (e.g., major reforms, reorganization following shock, rapid transformation)
  - **No change** (e.g., inertia, path dependence, lock-in)
- (iii) *Not determined.*

Table 12.1 *Links between Agency and Adaptiveness in ESG–Agency literature*

Group and category	% of papers <sup>a</sup>
<i>(i) Intentionality:</i>	
Intentional adaptiveness	83%
Unintentional adaptiveness	18%
<i>(ii) Temporal patterns:</i>	
Incremental change	54%
Radical change	37%
No change	15%
<i>(iii) Not determined:</i>	
	9%

<sup>a</sup>Coding in these categories within each group are not mutually exclusive; i.e., a paper may relate to more than one category. In total 37% of papers address more than one category in either group.

times they are inferred. For example, capacity-related factors (e.g., capacities, co-production) are categorized as intentional, whereas structural conditions or experiences that are indicated as surprising in some way are categorized as unintentional; improvements or innovations in governance systems are categorized as incremental changes, whereas changes that are specifically indicated as radical, transformative, or linked to a shock/crisis are categorized as radical changes.

### 12.2.1 Intentionality

The direct role of agency in cultivating adaptiveness was the most prominent way in which Agency–Adaptiveness linkages were conceptualized across the whole body of literature. For example, Uittenbroek et al. (2016) explore how agency shapes climate change adaptation in cities, identifying a key role for various agency-related factors including strategic problem framing, political leadership, and institutional entrepreneurship. This is an example of agency playing a central role in cultivating adaptiveness in a governance system. More generally, Brouwer and Huitema (2017) develop a comprehensive typology of strategies employed by policy entrepreneurs, which reflect a wide range of intentional activities geared towards policy change. These strategies are (1) attention- and support-seeking strategies (e.g., demonstrating need for action, persuading others to join, linking to focusing events); (2) linking strategies (e.g. coalition-building, issue linking, negotiation); (3) relational management strategies (e.g. networking, trust-building); and (4) arena strategies (e.g., venue shopping, timing). This typology offers a potentially generalizable set of insights

about intentional strategies of cultivating adaptiveness in governance systems. Importantly, however, Lebel, Xu and Bastakoti et al. (2010) emphasize the role of power in shaping intentional actions for climate change adaptation in water governance in monsoon Asia, arguing that the political benefits of such actions will be a key determinate of whether or not these efforts are successful. This highlights the importance of power as a mediating variable between Agency and Adaptiveness (see also Chapter 5).

From an ecosystem perspective, scholars have also argued that agency is a crucial factor for cultivating adaptiveness. For example, Plummer et al. (2013) review the propositions of adaptive co-management (a prominent approach to adaptiveness in social-ecological systems scholarship) in relation to environmental governance, with agency playing a key role in several ways (e.g., roles of actors, learning processes). This essentially reflects a capacities-based approach in which intentional forms of agency are emphasized. From an explicit temporal perspective, Österblom and Sumaila (2011) examine a series of crises and responses in fisheries governance in the Southern Ocean over a 14-year period. They identify an evolving set of intentional responses aimed firstly towards immediate short-term intervention, and subsequently towards more strategic and contingency-based approaches, reflecting a sustained and apparently maturing level of adaptiveness over time.

Some ESG scholars have also examined Agency–Adaptiveness linkages from an organizational perspective, which is important when considering the internal dynamics of specific agents within a governance system. For example, Heubaum and Biermann (2015) examine adaptiveness in the mandate of the International Energy Agency (IEA) over time, which has expanded to embrace renewable energy and climate change despite beginning with a very different mission (focused on oil crisis) several decades ago. This demonstrates organizational adaptiveness at a global level through ‘various efforts to pursue its energy-centric mandate in a fast-changing global policy environment’ (Heubaum and Biermann, 2015, p. 229). Also examining the organizational adaptiveness of the IEA, Van de Graaf and Lesage (2009) highlight the importance of agency in crediting the G8 members, and the secretariat and executive of the IEA for producing its ‘institutional adaptability’ over time.

Agency–Adaptiveness linkages are also observable in regards to several emerging earth system governance issues. From an urban perspective, Seitzinger et al. (2012) argue that the ‘global system of cities’, in connection with their rural surrounds, have become ‘a key component of planetary stewardship’. Thus by virtue of their global importance, cities have a key role both individually and collectively as agents of global-level adaptiveness. From a climate change adaptation perspective, Dzebo and Stripple (2015) examine the nature of global climate

change adaptation governance, arguing that a new transnational ‘era’ is emerging through activities that are both intentional and unintentional, through the growing involvement of nonstate actors in many dispersed ways simultaneously. Lastly, from a global sustainability perspective, Galaz et al. (2012a) reflect on the implications of planetary boundaries for global environmental governance, highlighting the role of international organizations in adapting governance systems to the new conditions for human society imposed by the Anthropocene. This thus relates to a broad notion of adaptiveness, identifying specific agents responsible for cultivating adaptiveness in global governance systems.

Unintentional aspects of agency may also arise in subtle or indirect ways with implications for adaptiveness. For example, Sova et al. (2015b) analyse ways in which subtle power asymmetries, linked to ‘power over’ relations between actors who shape the UNFCCC regime and smallholder farmers affected by the regime, have implications for the agency of these smallholder farmers (see also Chapter 5). This reflects a form of unintentional adaptiveness in which smallholder farmers implicitly adapt their interests and preferences to the broader regime in which they find themselves. This is an example of adaptiveness of subjects to patterns of power in a governance regime, showing the role of power as a key mediating variable between Agency and Adaptiveness. From an environmental migration perspective, Renaud et al. (2011) demonstrate intentional and unintentional aspects of agency involved in environmentally induced migration: most directly the factors influencing decision-making are intentional, but more indirectly they reflect unintentional forces shaping agency because migrants are often responding to environmental changes and political economic conditions beyond their control. This shows how agency can be conditioned by broader forces to which agents are subject.

More generally, this leads to a final key observation regarding the importance of considering the structural context within which agency is situated (Chapter 15). Pahl-Wostl et al. (2012) highlight the role of polycentric governance arrangements which allow innovative activity that enhances the adaptive performance of water governance systems in a large global cross-basin global study (Chapter 9). This demonstrates that agency and adaptiveness should not be looked at in isolation; otherwise this may give a misleading picture of causal pathways and the potential of agency to cultivate adaptiveness (see Chapter 14). Instead, they must be situated within the structural context of governance architectures, as well as broader political, economic, and historical contexts, to examine how agency interacts with architecture to produce adaptiveness (or not) (Chapter 8). From a different angle, Bulkeley et al. (2014) highlight the role of urban ‘infrastructure networks’ in conditioning urban governance, not only materially but also politically and institutionally. Furthermore, these authors argue that urban climate change experiments within infrastructure networks can channel the efforts of dominant agents in new

ways, which can contribute to reconfiguring these infrastructure networks. Similar to Pahl-Wostl et al. (2012), this demonstrates the importance of paying attention to the structural contexts within which Agency–Adaptiveness dynamics play out: both intentional efforts to cultivate adaptiveness, as well as potentially unintentional adaptiveness effects (e.g., new sites of contestation that arise).

### *12.2.2 Temporal Patterns*

Temporal patterns were often not fully discernible based on the metadata analysed, and is likely to require substantial in-depth analysis to elucidate, which is beyond the scope of this chapter. Nonetheless, scholars may indicate dispositions regarding the temporal patterns of effects of agency for adaptiveness (see Chapter 9). This is an important consideration, particularly in light of growing discussions about timeframes and dynamics of sustainability transformations (e.g., Patterson et al., 2017) and transitions (e.g., Loorbach et al., 2017), as well as institutional change in environmental governance (e.g., Biermann et al., 2012) and in social sciences more broadly (e.g., Mahoney and Thelen, 2010; Streeck and Thelen, 2005).

Overall, the majority of papers reviewed imply a disposition towards incremental effects of agency, which is perhaps explainable by the strong focus on political processes among ESG scholars which may tend to foster humility about the pace of change in governance systems. An example where an incremental disposition is made explicit is the study of urban climate change adaptation by Uittenbroek et al. (2016) which identified seemingly incremental emergence of either ‘dedicated’ (i.e., specific policies focusing on climate change adaptation) or ‘mainstreamed’ (i.e., climate change adaptation responses integrated into existing urban governance policies and arrangements). However, a focus on incremental effects should not be seen simplistically to imply a lack of more radical impact, particularly over longer time periods: incremental change may (or may not) lead to transformative effects (Mahoney and Thelen, 2010), yet this is a separate question and a conceptual frontier in ESG scholarship (Patterson et al., 2017).

On the other hand, some scholars have presented empirical analyses with a focus on explaining temporal patterns in governance that reflect a disposition towards more radical effects of agency. For example, in their study of crisis-response dynamics in fishery governance, Österblom and Sumaila’s (2011) focus on explaining crisis-response dynamics indicates a concern with radical temporal effects within human–natural systems linked to Agency–Adaptiveness dynamics. Olsson et al. (2008) explore transformation in governance towards ecosystem-based management in the Great Barrier Reef (GBR) in Australia. Changes in governance are attributed largely to the intentional activities of the GBR Marine Park Authority to cultivate adaptiveness in governance at an ecosystem scale, in combination with



a growing sense of urgency in the broader scientific and socio-political context. Gelcich et al. (2010) explore transformation in a large coastal and marine governance system in Chile, highlighting the key role of various intentional and unintentional activities in combination with shock/crisis (ecosystem collapse) which stimulated transformation in the governance system, including major legislative reform, and has improved fisheries sustainability. This case demonstrates a clear role for agency in cultivating adaptiveness in governance at an ecosystem scale within a dynamic ecological, social, and political context. Interestingly, these three studies come from an ecosystem perspective where there has been major interest in resilience and transformation through the lens of social-ecological systems, although arguably such literature sometimes shows a normative bias towards a narrative of transformation.

From a transnational governance perspective, Dzebo and Stripple (2015) imply that increasing instances of agency in emerging transnational climate change adaptation governance by nonstate actors are cumulating into more fundamental effects on governance systems. Broadly, Galaz et al. (2012a) begin from a frame of potential radical change occurring in human–environmental systems via the notion of planetary boundaries, which conceptualize tipping points as core concerns for governance systems. Here the focus of agency is on cultivating adaptiveness through avoiding (and where necessary navigating) radical changes linked to such thresholds.

### 12.3 Future Directions

This section discusses future directions for research on the role of Agency in cultivating Adaptiveness in ESG research (Step 3 in Figure 12.1). It identifies three key topics: (1) developing stronger understanding of Agency–Adaptiveness linkages, (2) bringing insights about agency to bear in examining the politics of adaptiveness, and (3) the role of agency in cultivating adaptiveness and reflexivity in the Anthropocene.

#### 12.3.1 Understanding Agency–Adaptiveness Linkages

Based on the findings of the previous section there is a need to develop a stronger understanding of Agency–Adaptiveness linkages in several ways. From the previous section, understanding intentional strategies to cultivate adaptiveness needs to center on the inherently political nature of these processes and their variation across contexts. This is an obvious area requiring further work, although there is an extensive foundation on which to build, as demonstrated by this review. There is a gap regarding the role of unintentional aspects, such as unintended consequences

from proximate or distal factors, experiences that stimulate agency in unexpected ways, or the role of structural forces in subtly conditioning agency. More generally, the role of power as a mediating variable on efforts to cultivate adaptiveness (e.g., Morrison et al. 2017; Chapter 5), and the importance of situating agency within its structural context (i.e., both governance architectures as well as broader political, economic, and historical contexts) (see Chapter 8) are key areas for attention in studying Agency–Adaptiveness linkages.

There is a particular need for attention to the temporal effects of agency in cultivating adaptiveness, and this remains a vastly understudied area (see also Chapter 9). For example, being explicit about the consequences of agency for (and against) adaptiveness. Paying attention to the timeframes of effects will also provide insights about the nature of incremental versus radical change (e.g., Pierson, 2003). Currently, empirical studies claiming to observe radical change tend to be *ex post*, sometimes quite descriptive, and arguably weak in regards to politics and power aspects. ESG scholars have a key opportunity here to develop new insights about causal mechanisms in understanding the operation and effects of agency in cultivating adaptiveness (see Chapters 3 and 14). For example, a causal mechanisms approach (e.g., Beach and Pedersen, 2013) could provide a useful analytical lens for explaining the effects of agency within and across individual cases.

### ***12.3.2 Agency and the Politics of Adaptiveness***

The politics of agency and adaptiveness is a particular area requiring an expanded program of research looking forward. For example, how do agents navigate contestations between winners and losers in changing governance systems? What are the consequences of power asymmetries and structural factors which condition agency, in efforts to cultivate adaptiveness? How do agents balance competing demands for flexibility and stability in realizing adaptiveness in governance systems? The politics of adaptiveness was identified as a priority topic in the 2009 ESG Science Plan (Biermann et al., 2009), yet arguably remains understudied. This continues to be key need looking forward, for example, it is a prominent topic identified in Chapter 4.5 of the ESG Science Plan 2018–2028 (Earth System Governance Project, 2018a), both in relation to climate change which has stimulated much discussion about adaptiveness over the past decade, as well as the much broader societal condition of the Anthropocene which profoundly recasts the politics of adaptiveness. There is an opportunity for novel developments here by explicitly (and critically) bringing agency considerations into adaptiveness debates.

Social justice has also become a prominent theme in adaptiveness literature (Bulkeley et al., 2013; Klinsky et al., 2016; Schlosberg et al., 2017). Concerns about injustice and disempowerment in the face of climate change have seeded influential arguments about the need to pivot from adaptiveness (as responding to the impacts of climate change on various vulnerable groups) to transformation (of structural conditions that create vulnerability in the first place) (O'Brien, 2012; Park et al., 2012; Pelling, 2011). Agency is often given a central role in pursuing transformation in these debates, yet exactly how this may be achieved remains poorly understood (see Chapter 11). ESG research stands to make fundamental contributions to understanding the role of agency in pursuing adaptiveness and transformation. For example, how to navigate the complex politics of adapting to climate and Earth system changes in ways that pay attention to both instrumental consequences (e.g., effectiveness) as well as ethical consequences (e.g., social justice), particularly in contexts of failing global governance systems and weak political responses to chronic and acute global problems (Chapter 14). A related challenge for ESG research is to understand the politics of anticipatory action, both within the domain of climate change and beyond (Chapter 4.5, ESG Science Plan 2018–2028), in which agency will play a key role (Earth System Governance Project, 2018a).

### *12.3.3 Agency and Reflexivity in the Anthropocene*

The final priority area identified is the role of agency in cultivating reflexivity in the Anthropocene (Chapter 15). Reflexivity requires that societies and governance systems find ways to intelligently reflect on their performance in context, and change not only their operation but possibly also their overall structure, goals, and even *raison d'être*, in order to navigate shifting boundary conditions that unfold over time (Dryzek, 2016; Galaz, 2014). This implies cultivating adaptiveness in a broad sense: materially, politically, and philosophically, across scales from local to global (Dryzek and Pickering 2018). Agency will be central to pursuing reflexivity because this implies a primarily anticipatory disposition rather than a solely reactive one, not only because of the need to perceive unfolding change, but because reflexivity also inherently involves intelligent responses to such insights. Both aspects (i.e., perceiving/making sense of change as well as taking intelligent action in response) are likely to depend on agency to establish governance architectures capable of supporting such systemic activity, as well as because collective decision-making in human society will always involve navigating political debates (e.g., persuading, contesting, negotiating, deciding). Reflexivity is identified as a priority in Chapter 4.5 of the new ESG Science Plan 2018–2028, which opens up

novel needs for considering the role of agency in realizing reflexivity (Earth System Governance Project, 2018a).

In conclusion, ESG scholars have extensively studied Agency–Adaptiveness interplay, although the importance of this interface only increases looking into the future. Furthermore, as mentioned in the introduction to this chapter, questions of adaptiveness are increasingly coming to the fore in a variety of social science disciplines. Consequently, insights and further questions about agency and adaptiveness in environmental governance can readily contribute to broader fields of social science in disciplines such as international relations, public policy, and sociology, as these disciplines grapple with challenges such as international institutional reform and renewal, overcoming decay and gridlock in domestic political systems, and dealing with rapidly evolving technological, financial, regulatory, and human security challenges. ESG scholars thus have a unique opportunity and vantage point from which to contribute at the forefront of these emerging theoretical and empirical debates, leveraging insights across broader fields of social science. This will demand bold ambition as well as theoretical and methodological innovativeness, although the opportunities are rich and the insights vital for navigating unfolding earth system transformations.