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# Environmental Innovation and Societal Transitions

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## Survey

## Exploring the governance and politics of transformations towards sustainability



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## ABSTRACT

The notion of ‘transformations towards sustainability’ takes an increasingly central position in global sustainability research and policy discourse in recent years. Governance and politics are central to understanding and analysing transformations towards sustainability. However, despite receiving growing attention in recent years, the governance and politics aspects of transformations remain arguably under-developed in the global sustainability literature. A variety of conceptual approaches have been developed to understand and analyse societal transition or transformation processes, including: socio-technical transitions, social-ecological systems, sustainability pathways, and transformative adaptation. This paper critically surveys these four approaches, and reflects on them through the lens of the Earth System Governance framework (Biermann et al., 2009). This contributes to appreciating existing insights on transformations, and to identifying key research challenges and opportunities. Overall, the paper brings together diverse perspectives, that have so far remained largely fragmented, in order to strengthen the foundation for future research on transformations towards sustainability.

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## 1. Introduction

The notion of ‘transformations towards sustainability’ takes an increasingly central position in global sustainability research and policy discourse in recent years. For example, it is one of three core themes of the global sustainability research platform Future Earth (Future Earth, 2014a), and frequently employed in discussions on the Global Goals for Sustainable Development (e.g. HLPEP, 2013; Hajer et al., 2015). Interest in transformations reflects enthusiasm within global sustainability discourse for moving from ‘describing problems’ to ‘identifying solutions’, and for better understanding possible pathways of sustainable environmental and societal change within the looming Anthropocene (Rockström et al., 2009; Raworth, 2012; Bai et al., 2015). Governance and politics are central to understanding, analysing, and shaping transformations towards sustainability. This is because: (1) governance is inherently implicated in any intentional effort to shape ‘transformations towards sustainability’, and (2) transformations towards sustainability are deeply and unavoidably political, and need to be recognised as such. However, despite receiving growing attention in recent years, ways of understanding and analysing governance and politics remain under-developed in academic literature on transformations.

The notion of transformation appears increasingly attractive to articulate aspirations for significant and enduring change in human society towards more sustainable and equitable global futures (Future Earth, 2014a,b). ‘Transformations towards sustainability’ refer to fundamental changes in structural, functional, relational, and cognitive aspects of socio-technical-ecological systems that lead to new patterns of interactions and outcomes (drawing on de Haan and Rotmans, 2011; Hackmann and St. Clair, 2012; O’Brien, 2012; Feola, 2014). It places an explicit focus on the processes of change in human society involved in moving towards more sustainable and equitable futures, which can be approached in both a normative way (e.g. as a good/desirable thing to do) as well as an analytical way (e.g. what actually ‘happens’, and how and why). Efforts to bring about transformations towards sustainability however, are likely to be deeply political and contested because different actors will be affected in different ways, and may stand to gain or lose as a result of change (Meadowcroft, 2011; van den Bergh et al., 2011). Moreover, framings and narratives of transformation processes are socially constructed and may be viewed differently, due to differing judgments about problem boundaries, perceptions of change processes, contested uncertainties and ambiguities, and sometimes incommensurable value sets (Stirling, 2011; O’Brien, 2012). For example, the need for urgent decarbonisation of energy systems in society is framed, promoted and resisted by different actors in a wide variety of ways, and continues to prove extremely complex and challenging to bring about at a societal level (WBGU, 2011; Hilldingsson, 2014).

Research interest in sustainability transformations<sup>1</sup> is growing across a range of problem domains and (inter) disciplinary perspectives. For example, sustainability transformations are explored in diverse problem domains such as energy systems (Loorbach and Rotmans, 2010; WBGU, 2011), water systems (Pahl-Wostl et al., 2010; Ferguson et al., 2013), food systems (Vermeulen et al., 2013; Gliessman, 2015), urban systems (McCormick et al., 2013; Revi et al., 2014), and green jobs (Fischer-Kowalski et al., 2012). A variety of approaches to conceptualising transformations towards sustainability have been developed in the literature, including socio-technical transitions (e.g. Geels, 2002; Geels and Schot, 2007), and transitions management (Kemp et al., 2007; Loorbach, 2009), social-ecological transformations (e.g. Olsson et al., 2006, 2014; Westley et al., 2011), transformative pathways to sustainability (e.g. Leach et al., 2012, 2013; Stirling, 2014), and transformative adaptation (e.g. Pelling, 2011; O’Brien and Selboe, 2015). There is often overlap between these approaches, but they are also distinct and somewhat divergent in how they conceptualise transformations. This burgeoning interest and conceptual experimentation provides a rich landscape for the study of transformations towards sustainability. However, while the fundamental importance of governance and politics is increasingly recognised, these aspects arguably remain under-developed, particularly in light of their fundamental importance to understanding and analysing transformations.

There is a need to place governance and politics at the centre of research on transformations towards sustainability (Smith et al., 2005; Smith and Stirling, 2010; O’Brien, 2012; Olsson et al., 2014; Scoones et al., 2015). This paper aims to explore the governance and politics of transformations towards sustainability by applying a conceptual lens that takes a political perspective of governance for sustainability: the Earth System Governance (ESG) framework (Biermann et al., 2009). This framework is useful because it articulates a high-level set of dimensions and themes that are essential to understanding and analysing the governance and politics of global sustainability issues. It has been widely peer-reviewed and is the organising principle for the largest global network of social scientists in environmental governance (the ‘Earth System Governance Project’). The paper first considers the relationship between governance and transformations towards sustainability (Section 2), and then critically surveys several prominent conceptual approaches to transformations in the global sustainability literature (Section 3). These approaches are then compared through the lens of the ESG framework in order to identify key insights and the existing state of knowledge on transformations regarding governance and politics (Section 4). Research challenges and opportunities are identified discussed by collectively considering the four approaches in the context of the

<sup>1</sup> We use the term ‘sustainability transformations’ as an umbrella term to encompass diverse perspectives on transitions and transformations in the global sustainability literature, including those addressed in this paper but potentially also others. Debates about these terms are ongoing, and we follow Stirling (2014), in using ‘transformation’ as a broad encompassing term. Nonetheless, the utility of this distinction [between transition and transformation] is heuristic . . . rather than formal or definitive. The real value lies in considering implications on a concrete case by case basis, by reference to real-world examples and settings. . . the point here is not to insist on particular definitions for specific words . . . [and] Much existing usage of either term, often legitimately also implies the other (Stirling, 2014, p.13).

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