Uncovering the political dimension of social-ecological systems: Contributions from policy process frameworks

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ABSTRACT

Research on the governance of social-ecological systems often emphasizes the need for self-organized, flexible and adaptive arrangements to deal with uncertainty, abrupt change and surprises that are characteristic of social-ecological systems. However, adaptive governance as well as transitions toward alternative forms of governance are embedded in politics and it is often the political processes that determine change and stability in governance systems and policy. This paper analyses five established theoretical frameworks of the policy process originating in political science and public policy research with respect to their potential to enhance understanding of governance and complex policy dynamics in social-ecological systems. The frameworks are found to be divergent in their conceptualization of policy change (focusing on incremental or large-scale, major changes), highlighting different aspects of bounded rationality in their model of individual behavior and focusing their attention on different aspects of the policy process (role of information, attention, beliefs, institutional structure, particular actors, etc.). We discuss the application of these frameworks and their potential contribution to unravelling the political dimension in adaptive governance and transformations.

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1. Introduction

Social-ecological systems (SES) research emphasizes the interdependencies between human and natural systems (Berkes et al., 2000; Liu et al., 2007) and their importance for governance of SES. It moves forward from studying society and the natural environment within their own disciplinary domains towards focusing on the relationships between components of the two systems (Berkes et al., 2000). These include interactions among actors and between actors and ecosystems within given bio-physical and institutional settings and the role of such interactions in shaping the co-evolution of SES (Jeffrey and Mcintosh, 2006; Schlüter et al., 2012). A central theme in SES research is the need to adapt, anticipate and manage change through adaptive governance (Folke et al., 2005, 2011).

Governance, as we understand it, is performed by networks of actors – from state, market and civil society – that interact within institutional arrangements to solve societal problems and provide principles for guiding social as well as social-ecological interactions (Rhodes, 1997; Kooiman et al., 2008). Their action or

inaction in regards to such problems are further referred to as policy (Birkland, 2010). Policy process then is the complex pathway that leads to a decision to act (or refrain from action) and the action itself (Hill and Varone, 2014). As one of the outcomes of governance, policy can influence interactions between people and ecosystems by for example introducing a rule with an aim to alter behavior of resource-users. At the same time inaction or simply maintaining the status quo in dealing with social or environmental problems could also be referred to as policy.

One of the central challenges for governance of human-environmental systems is that such systems are complex and adaptive. They perpetually evolve, are difficult to predict, often generate surprises and change abruptly (Holland, 1992; Levin et al., 2013). Research on SES governance has therefore focused on understanding how governance can be designed to successfully tackle irreducible uncertainty, change and complexity. Specifically, adaptive governance approach suggests a set of characteristics that enables management of natural resources 'to recover or adjust to change so as to maintain or improve to a desirable state' (Koontz et al., 2015; p. 2). Adaptive governance emphasizes the role of flexible, inclusive and polycentric institutions that encourage learning and experimentation, integrate different types of knowledge in decision-making and generate trust and social capital (Folke et al., 2005; Chaffin et al., 2014).

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In view of the many sustainability challenges societies are facing, SES research has an interest in understanding *how* governance systems can be transformed to become more adaptive, focusing on both the barriers and the opportunities for successful transitions (Olsson et al., 2004; Anderies et al., 2013; Chaffin et al., 2014). While adaptive governance is about steering policy in a flexible (often incremental) manner in response to perceived social-ecological change, transformation refers to fundamental alteration of structures and processes of a social-ecological system. Adaptive governance can be seen as a set of 'good governance' principles of SES and as such is often prescriptive. Transformation research on the other hand aims to understand and describe the governance system 'as it is' in order to identify factors and processes that enable or hinder change towards adaptive governance.

Policy decisions in adaptive governance as well as large-scale transformations of governance systems, however, do not take place in a vacuum. Governance systems not only face complex environmental problems – they are complex themselves and often involve a broad range of state and non-state actors with different interests and beliefs (Sabatier, 1987; Rhodes, 1996; Ostrom and Janssen, 2005 Duit and Galaz, 2008). Governance is shaped by politics – the 'processing of a diversity of ideas and interests', 'interactions and substantial accounts by which individual and collective actors struggle for the definition and the provision of the common good' (Voß and Bornemann, 2011). Governance of natural systems may be multilevel and involve interactions across the levels (local, national and international) as well as within them (e.g. overlapping international regimes). Policies, as outcomes of such interactions, are to a great extent driven by political processes – such as coalitional and agenda-setting dynamics, power relations, institutional interplay, elite capture and others (Duit, 2015). SES governance sometimes persists in undesirable states, fails to anticipate change or reacts only to specific signals from the social-ecological system, while ignoring others (Khan and Neis, 2010; Axelrod, 2011; Korte and Jörgens, 2012; Biesbroek et al., 2014; Howlett, 2014). It is the 'politics' – internal complex dynamics of governance – that often determine which signals are perceived or ignored and the 'appropriate' policy response to such signals.

In this paper we delve into the policy science literature with the aim of presenting a systematic overview and analysis of a variety of theoretical framings and understandings of the policy process and policy change from policy sciences. With this we hope to make the diversity of approaches and knowledge available to SES scholars in order to facilitate incorporating political complexity and the link between social-ecological processes and policy change in social ecological systems research. In this our goal is not to focus on theories that explore specific drivers of policy change, but rather start with a broad set of key frameworks that 'set the stage' for understanding the policy process and can further guide in selecting a theory of interest. Here we use Ostrom's (2011) distinction between theories and frameworks, which she defines as a general set of variables and relationships among them that account for a phenomena; a 'metatheoretical language'. Accordingly, a theory assigns values to some of the variables and provides a more specific and coherent set of relationships.

Policy process frameworks have frequently been applied to study policy change and stability in environmental and natural resource governance. Matti and Sandström (2011) for instance use the Advocacy Coalition (Sabatier, 1987) framework to look at the case of Swedish carnivore policy which represents a 'tug of war' between nature-conservationist interest and hunters and sheep or reindeer-herders' negative attitudes towards carnivores. The clash of interests gave rise to a political struggle between the two belief-based coalitions which greatly determined the policy outcome.

Princen (2010) analyses long-term stasis in a failing fishery policy of the EU and the sudden switch to a more ecosystem-based approach after a successful reframing of the issue and use of alternative policy venues by environmental groups. These details are captured by conceptualizing the problem through the Punctuated Equilibrium framework (Baumgartner and Jones, 1993). At the same time, Pedersen (2010) uses concepts from Policy Networks perspective and Punctuated Equilibrium framework to highlight the role of policy network dynamics influenced by different policy perceptions in the policy change within the Danish river management system.

In all these cases the frameworks provide guidance for understanding the complex phenomena of policy process and policy change – and this is where their value to a SES researcher lies. In the above examples understanding of the political processes behind issues (changing policy images and venues, coalition-building network dynamics, etc.) allows to learn why governance systems come up with solutions and responses that may seem surprising at first glance. In other words, looking at the problem through a policy process lens provides us with a better ability to capture complexity of the political decision-making world.

In the context of social ecological systems the question of importance of political processes for exploring governance in SES has been raised repeatedly (e.g. Duit and Galaz, 2008; Huitema and Meijerink, 2010; Duit, 2015) – for transformations towards sustainability (Olsson et al., 2014) and adaptive governance (Chaffin et al., 2014). It has been suggested that a deeper understanding of social and political dimension and integration of insights from political theory into social-ecological systems research could be useful to address its socio-political context which may provide opportunities as well as create barriers to sustainability transformations (Olsson et al., 2014).

In response to this need, SES researchers in multiple cases have made use of existing policy science or political science literature, although their application of frameworks and theories has been specific to the process or issue of their interest (e.g. learning, institutional setting, role of individuals or windows of opportunity for change). In order to understand how policy change, adaptation and even major transitions come about, SES scholars have often turned to Multiple Streams framework (e.g. Olsson et al., 2004, 2006; Huitema and Meijerink, 2010; Green et al., 2015), Ostrom's Institutional Analysis and Development framework (IAD) and its extensions (e.g. Ostrom and Cox, 2010; Pahl-Wostl et al., 2010; Anderies and Janssen, 2013; McGinnis and Ostrom, 2014; Whaley and Weatherhead, 2014), Advocacy Coalition framework (e.g. Huitema and Meijerink, 2010; Valkering et al., 2013; Babon et al., 2014; Valman et al., 2014) and others.

Though the theoretical contributions from policy sciences to understanding change are anything but forgotten in SES research, we argue that the available diversity of such contributions is rarely addressed. At the same time, policy process frameworks have been used more for conceptualizing the process of interest, but less as a lens for identifying which other processes could also be influencing policy adaptation in the case. A notable exception is the work of Huitema and Meijerink (2010) who discuss multiple ways of understanding the policy process and alternative explanations of policy change provided by a variety of frameworks. Nevertheless, the authors from the beginning acknowledge that their investigation is limited to exploring specifically the role of individuals or 'policy entrepreneurs' in policy change and transitions.

We argue that the state of research on policy change and adaptation in the context of social ecological systems calls for more 'theoretical pluralism', as put by Huitema and Meijerink (2010). Multiple theoretical perspectives on the political context of SES governance should be taken into consideration in order to better explain why in some cases governance fails to anticipate and