



Policy innovation in a changing climate: Sources, patterns and effects[☆]



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ABSTRACT

States have been widely criticized for failing to advance the international climate regime. Many observers now believe that a “new” climate governance is emerging through transnational and/or local forms of action that will eventually plug the resulting governance gaps. Yet states, which remain oddly absent from most discussions of the “new” governance, will remain key players as governance becomes more polycentric. This paper introduces a special issue that explores the ability of states to rise to these interconnected challenges through the analytical prism of policy innovation. It reveals that policy innovation is much more multi-dimensional than is often thought; it encompasses three vital activities: invention (centering on the ‘source’ of new policy elements), diffusion (that produces different ‘patterns’ of policy adoption), and the evaluation of the ‘effects’ that such innovations create in reality. The papers, which range from qualitative case studies to large ‘n’ quantitative studies, offer new insights into the varied roles that states play in relation to all three.

They show, for instance that: the policy activity of states has risen dramatically in the past decade; that state innovation is affected to similar degrees by internal and external factors; and that policies that offer flexibility to target groups on how to meet policy goals are most effective but that voluntary reporting requirements are ineffective. This paper draws upon these and many other insights to offer a much more nuanced reflection on the future of climate governance; one that deservedly puts states at the front and center of analysis.

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1. The “new” governance of climate

Climate change is a wicked problem par excellence (Dryzek, 1987). The policies and institutions that have been designed to address it should ideally have the capacity to address collective action problems in a stable and predictable manner, so that investors can plan with confidence (Young et al., 2006). But they should also be capable of adapting to new insights into causes and

unfolding consequences of climate change. In other words, they should be rigid and flexible at the same time (Jordan and Matt, 2014; Jordan and Huitema, 2014a,b).

If we start with the notion of rigidity, since the 1980s much hope has been pinned on global collaboration through agreements such as the Kyoto Protocol. There is an undeniable logic to focusing effort at this level, as climate change emissions have global effects, even when they are located in particular jurisdictions and localities. The global framework for addressing environmental issues including climate change has rightly been described as “one of the big (...) stories of the late twentieth century” (Jasanoff and Martello, 2004, p. 3). Suggestions have been made about how to further strengthen the degree of international collaboration (Underdal, 2013), through founding a world environmental organization (Biermann and Bauer, 2005) and removing some of the obstacles to deeper cooperation (Harris, 2013). But since the Copenhagen summit in 2009, where no substantive agreement was reached, the hopes for significantly greater governance at this level have receded. If – as many suspect – international climate governance has now reached an impasse, the question arises as to

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who or what will pick up the slack and/or fill in the resulting “governance gaps” (Abbott, 2013) by innovating, that is by inventing new policies, by helping them diffuse around the globe, and by making sure they have a significant impact?

To suggest, as many have, that the world needs new and possibly more innovative forms of governance tells us little about where they will come from, how they will spread and whether or not they (will) have influential effects – the weighty issues that we engage with in this special issue. International scholars have mostly contributed to these debates by exploring ways to exploit cracks that have appeared in the international regime (Keohane and Victor, 2011). Others have found it more helpful to think in terms of the potential role of transnational forms of governance (Bulkeley et al., 2014), which cut across traditional jurisdictional boundaries and are much less reliant on state steering. Many of these analyses are distinctly pessimistic about state-led activity (see e.g. Harris, 2013), which is entirely understandable given that intransigence shown by a number of big states has done more than anything else to thwart deeper international cooperation. Hence the new forms of governing which are discussed are said to operate outside, underneath and around international fora where nation states meet, such as the UNFCCC (Bulkeley and Moser, 2007; Okereke et al., 2009), and hence are multi-scalar. In this rapidly expanding vein of work, we find even more open concepts such as “climate experiments” (Hoffmann, 2011) – which refers to initiatives that are taken by non-state actors, “polycentric orders” (Ostrom, 2009) and “transnational initiatives” (Hale and Roger, 2014) – relating to situations in which independent actors from different sectors and levels of governance work together, often via local initiatives that lie beyond the reach of states. This line of inquiry, which effectively brackets off states from analysis, taps into the reservoir of misgiving that Jasanoff and Martello (2004) identified, when they critiqued the global drive toward one size fits all policies that have insufficient regard for local context and local knowledge. It is also attuned to the fashionable notion that “polycentric governance systems” (see e.g. Ostrom, 2005) are inherently superior to what we could call “monocentric governance systems” – of which the existence of a single international climate agreement is perhaps an example.

Evidently, research on the “new” climate governance is advancing very rapidly, but some of the more apparently novel aspects (e.g. the transnational) are receiving disproportionate attention. Moreover, positive knowledge claims (governing is occurring outside the regime) and more normative ones (de-centered governance is an inherently *better* way to govern climate change) are often so subtly interwoven (Lilliestam et al., 2012; Pielke, 2010; Patt, 2010) that it is difficult for the reader to separate one from the other. The broad question that we want to explore is what is being lost in the rush to study new forms of governing “beyond”, “below” and “outside” the state-dominated climate regime? Our argument is that lack of agreement at the international level and/or dynamism in the transnational climate domain should not be equated with a complete disfunctioning or even disappearance of the nation state – for every state that drags its heels, there is another that wants to go further, and not every disagreement about means and responsibilities for climate change issues means a complete denial of the problems. Far from disappearing, national policies, encompassing national, regional and local government-led initiatives, have always been an important part of the landscape of climate governance (Compston and Bailey, 2008; Dubash et al., 2013). In Europe, some of these policies pre-date the UNFCCC (Harrison and Sundstrom, 2010; Jordan et al., 2010; Jordan et al., 2012). And finally, were the international regime suddenly to spring back into life, national policies would be needed to implement it. Indeed, the more that international policy morphs into a “pledge and review” form of governing, the more governing by the nation state at the national level will de facto become *the* international regime.

There are commentators who are not just expecting, but urging states to take on more (Victor, 2010). We sense that Working Group III of the IPCC (Stavins and Ji, 2014), realized this when, in Chapter 13, they painted three possible trajectories for future international policies: “centralized architectures and strong multilateralism”, “harmonized national policies”, and “decentralized approaches with coordinated policies”. Crucially, in all three, states are actively involved as policy innovators in their own right or as facilitators of action by other actors. So, although the state does not take center stage in the first scenario, it would actually be quite hard to imagine it unfolding without their active involvement as this is in effect a continuation of the current international regime. In the second scenario, states lead the way – perhaps organizing the catalytic experiments that many clamor for, and/or functioning as “orchestrators” (Abbott, 2013; Hale and Roger, 2014). The third scenario is closest to the polycentric ideal as the Ostroms imagined it; the emphasis would squarely be upon local jurisdictions taking action, but with an active involvement of nation states as the guarantors of legitimate decision making and diffusers of good practices to other (local) settings (see for instance Ostrom, 2005: 283). So one way or another, states seem destined to play some role in closing climate gaps. But what roles will these be?

The existing literature leads us to the following expectations. First of all – and as confirmed by events since 2008 – states have access to uniquely important steering capacities (Bell and Hindmoor, 2009). They are the only actors with the necessary legitimacy and resources (legal, financial) to develop and project long term visions, stimulate and oversee local approaches, and carry forward ambitious climate programs. Many scholars of transnational governance appreciate this – hence the commonplace finding that so much new governance is emerging in the shadow of state action (see Hale and Held, 2011; for climate change adaptation see for instance Bauer and Steurer, 2014), or that private actors often play a critical role in paving the way for state action – by pushing issues up the political agenda or critically evaluating the outcomes of previous policies (see also Auld et al., 2014). Yet, the focus often remains exclusively on non-state action.

Second, as well as triggering action in the non- or para-state sectors, new data confirm that states themselves are innovating by adopting policies at the national level. The data collected by Townsend et al. (2013) are highly instructive in this regard, and show a very rapid rise in the number of new national climate laws being introduced in the period 1998–2010 (a fivefold increase in the number of national climate laws adopted, from roughly 5 per annum in 1998 to about 25 in 2010). Dubash et al. (2013) find that as of 2012, 39% of all countries in the world have a national mitigation law or strategy, and that 67% of all emissions are covered by such instruments (up from 23 and 45% in 2007 respectively). This is certainly suggestive of new potential sources of international governance, because a coalition of the willing (i.e. relatively more active adopters of national policy) might be a more solid basis for moving together, if the adoptions can then be propagated – i.e. diffused – to other parts of the world (compare Lilliestam et al., 2012).

The idea that state-led action should be brought within the analytical focus of the new climate governance does beg some vitally important questions, which we shall address in this special issue. For example, what might explain the apparent difference between the level of policy productivity amongst states (see Lachapelle and Paterson, 2013)? Some states are more hesitant when it comes to accepting ambitious new climate goals, but others appear to be more enthusiastic adopters (think of European states such as Germany or the UK) (for a systematic test, see Schaffrin et al., 2014). Similarly, dynamics within national policy

systems are not fixed; states that are currently hesitant to sign up to more ambitious climate policies may eventually become proponents, and vice versa. Insights into how this occurs are still in development, with some pointing mainly to socio-economic factors when it comes to the preparedness to act, and institutional factors when it comes to the types of measures that are taken (see Lachapelle and Paterson, 2013); others are pointing to the influence of jurisdictions – including international organizations – upon one another (Matisoff and Edwards, 2014; Underdal, 2010). But more understanding is needed.

Therefore this special issue focuses on innovations in national climate policy. In this, our introductory article, we present the guiding ideas, introduce the various contributions, synthesize their findings and reflect on what they mean for the future of the climate regime. Section 2 begins by foregrounding the analysis by working towards a definition of policy innovation. This proves to be an important but non-trivial challenge, given how much has been written on policy and innovation in the past. We therefore develop a new conceptualization which seeks to draw out the inter-relationships between three crucial aspects: invention (and the sources it stems from), diffusion (and the policy-governance patterns it produces), and (the evaluation of) effects. In Sections 3–5 we elaborate on each of these three perspectives, suggest which questions and issues are relevant from each, and discuss what new insights the various contributions to this special issue have to offer on them. Section 6 concludes and teases out some important implications for future research and practice.

2. Policy innovation

If attention to the state requires us to examine national policies and changes in their goals, means and designs (Jordan and Matt, 2014; Howlett, 2014, this special issue), how do we recognize “innovation” when we see it? Countless volumes have been written on innovation (e.g. Rogers, 2003; Fagerberg, 2005). The fact that innovation is such a cross-disciplinary and normatively appealing concept has, however, contributed to a fair degree of intellectual fuzziness (Fagerberg, 2005). According to the Oxford Dictionary, innovation can be either a thing (a noun) or a process (a verb). Hence, innovation can be a product of innovating – “a thing newly introduced” – or it can relate to the act of innovating – “the introduction of a new thing; the alteration of something established”. However, as soon as we move beyond these basic distinctions, a number of large and mostly unresolved conceptual debates open up (here we borrow from Jordan and Huitema, 2014a). For instance, how big and how novel does a particular change have to be to count as an innovation? A distinction is commonly made between fairly minor improvements and adjustments, and much rarer and more fundamental changes “[that] represent clear departures from existing practice” (Dewar and Dutton, 1986, p. 1422). Rogers (2003) tries to sidestep this by arguing that an innovation is “an idea, practice or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. 12) (emphasis added); in other words, innovation is context-specific. But this begs the question of which context should be the referent, a point to which we will return. Also, how should innovation be assessed, if one wants to go beyond the overly simple view that it is inherently good (or bad)? In many studies, innovation is so heavily “laden with positive value” (Downs and Mohr, 1976, p. 700) that its underlying purposes and eventual effects are either left unexplored or assumed to be positive (Rogers, 2003, p. 106). In a complex problem area such as climate change, where many potential policy solutions vie for attention, this should not be uncritically accepted. In fact, the relative attractiveness of different processes and outputs is often at the very center of policy debate.

Rather than close down these issues by forcing the authors to subscribe to a particular view of innovation, we organize their

contributions by using the three perspectives outlined above: invention, diffusion, and effects (see Table 1). The term innovation can thus refer to the novelty of emerging policies, to the extensive diffusion of such policies, and to their effects.

In the words of Duit and Galaz (2008), the *invention* perspective is about the ability of all actors to *explore* (experiment, play, discover). Various bodies of literature relate to this issue, often touching upon similar themes such as diversity and experimentation. The literature on polycentric governance for instance strongly warns against relying on one jurisdictional level or organization to provide the inventive thrust (see Ostrom, 2009). Scholars in this vein also suggest that in complex adaptive systems such as those related to climate change, the effects of a new policy can hardly be predicted and therefore it is better not to rely on a single approach (Ostrom, 2005). Instead, many actors should experiment with their own approaches, so that gradually a quasi-experimental system emerges, from which at some point best practices can be selected. In the policy sciences, the work of policy entrepreneurs (or related terms such as political entrepreneurs, policy champions, and policy constituencies) is receiving more attention (Kingdon, 1984; Huitema and Meijerink, 2009). They are potentially the missing link between experiments – that provide proof of principle – and catalytic impacts.

Various comments can be made about the study of inventions. The first is that invention and inventiveness has a very strong normative appeal but innovation scholars have become increasingly aware they should avoid a bias toward novelty as invention in itself does not always necessarily lead to improvement (Fagerberg, 2005). Secondly, policy invention typically tends to be studied on the basis of single case studies extending over a long time frame. Recent work that seeks to understand the invention of emissions trading (Voß and Simons, 2014) or feed in tariffs (Jacobs, 2014) fits into this categorization. And finally, in studies of invention (for instance from the perspective of transitions management), the state tends to be pushed into the analytical background and in some cases is ignored all together (see Huitema and Meijerink, 2009). Yet Ostrom (2009) confirms that nation states have an important role in ensuring that new policies satisfy democratic criteria, and in scaling up best practices, a point which is also found (but not fully developed) in the literature on transitions (see e.g. Geels, 2002).

The second row of Table 1 – *diffusion* – refers to an interpretation of policy innovation that emphasizes the spreading of novel approaches. In this understanding, new approaches are only innovative if and when they enter into widespread use i.e., are adopted by or diffused to many jurisdictions. This perspective does not attach much value to absolute (worldwide) novelty, but instead suggests that what matters most is how many extra jurisdictions adopt a policy for the first time, regardless of its absolute novelty (Walker, 1969; Downs and Mohr, 1979). This interpretation connects to the notion of *exploitation* as defined by Duit and Galaz (2008), which the associate with terms such as refinement, efficiency, selection, implementation, and execution.

Policy diffusion is a very mature field of academic enquiry, with many conceptual frameworks to choose from (see for a summary

Table 1
Three perspectives on innovation (own composition).

Perspective on innovation	Key terms
Invention	Exploration, novelty, experimentation, tinkering, discovery, recombination, new to the world
Diffusion	Learning, transfer, adoption, exploitation, new to a particular jurisdiction or agent
Effects	Impacts, outcomes, substantial or radical change, disruption

Jordan and Huitema, 2014a,b; Stadelmann and Castro, 2014). One question often driving the analysis is why countries adopt policies, which could be for reasons external to the state, but also for reasons that are internal to it, or a combination (see Jordan and Huitema, 2014a,b). Less fully investigated are, first of all, the attributes of the policies that diffuse, such as their complexity, the visibility of the issue they are addressing, etc. (see for instance Makse and Volden, 2009; Busch and Jörgens, 2012 – and compare Howlett, 2014). Until recently, policies and their internal elements were treated as invariant, treating instruments essentially as tools from a kit. More recently, greater attention has been paid to the fact that policies that diffuse might have a stable core (Jacobs, 2014), but also differ in many subtle ways from country to country (Voß and Simons, 2014), for instance because of post adoption dynamics – which can in some cases undo any real policy impact.

Finally, the final row of Table 1 refers to effects, i.e. what is actually achieved by the introduction of new policies? Although (or perhaps because) innovation is a term replete with positive connotations, it acknowledges the possibility that what is sold as innovative does not actually create much impact, or no lasting impact or possibly even deleterious impacts. In this perspective, the label “innovative” is reserved for those policies that actually cut emissions (mitigation) and/or make human communities safer from the effects of climate change (adaptation). In this vein, Polsby (1984, p. 8) suggested that the acid test of a policy innovation is one that alters (or promises to alter) the lives of people in “substantial and fairly permanent ways”. Policy evaluation is an important and growing field of study, but unlike the literature on diffusion, there is no dominant theory or approach (Christie, 2003). This because the core of any evaluation is judgment, that is the comparison of what is actually achieved (or will be achieved if the evaluation is done *ex ante*) with a certain norm. Evaluation criteria differ, but popular ones include goal achievement and effectiveness, cost effectiveness and efficiency, coordination, and fairness, legal acceptability and transparency (Huitema et al., 2011). In addition, there is a wide gap between the theoretical-conceptual consensus about the importance of *ex post* evaluation, real world practice: much evaluation activity is non-reflexive and non-participatory (Huitema et al., 2011). Finally, the climate policy evaluation literature is relatively silent on the extent to which policy makers actually use the outcomes of evaluations in their policy invention processes (for an exception see Hildén (2014)).

Before moving to discuss the findings of the papers, it is important to note that Table 1 reveals that the criterion for what counts as innovative is different for each of these understandings. The term invention is normally restricted to the development of something that is entirely new – i.e. not used anywhere else in the world before (Rogers, 2003). The reference point or context in this case is global. Diffusion refers to the process through which these inventions circulate and possibly enter into common use, via processes of learning, transfer, and adoption. In this perspective, the reference point is the adopting unit or actor: “new” means new to the adopting agent, and not necessarily to the world in general (Downs and Mohr, 1979). Finally, to count as an innovation, some have argued that it should not only be new or widely adopted; it must also do something, namely substantively change the world, particularly in a radical and disruptive manner (Fagerberg, 2005).

3. Sources: the invention of new policies

The contributions to this special issue focus quite profoundly on the political aspect of policy invention – suggesting that innovation is often disruptive of established interests, therefore inherently risky for politicians to endorse. However, innovation can nonetheless be accomplished via complex processes where various types of

policy entrepreneurs collaborate with bureaucrats and politicians to push their solutions. Howlett’s contribution (2014) is deeply influenced by the North-American experience with climate policy. It is also extremely helpful in opening up the “black box” of the state to uncover some of the micro-foundations of political behavior that are glossed over in many current governance accounts. It points to the elements that are contained in the risk calculus that elected politicians make; these include issues such as the visibility of the problem (which may be obvious to experts but far less so the general public) and the avoidability of blame (for climate events that lead to damages). His conclusion is very sobering: climate policy innovations will remain not only rare, but mostly negative or symbolic. Politicians will either take only symbolic action, including initiating small scale experiments, or resort to denying the problem and denigrating opponents. On this basis, he predicts relatively few climate policy innovations for now (the political calculus may change in the future, when climate impacts become more evident). This prediction obviously clashes somewhat with the high numbers of newly adopted laws and plans reported in Section 1, but then again the data by Dubash et al. (2013) suggest that various parts of the world are innovating at different moments of time (with the current center of activity being in Asia), and North America may actually simply join the party later.

We should add that it also is quite clear that politicians are definitely not the only actors involved in policy invention. In fact their role comes relatively late in the invention process, whereas earlier stages are dominated by actors from outside the state (businesses, academics, NGOs, international organizations) and by the national bureaucracy (the other key actor within the state). In their contribution on the way the EU introduced a novel financing mechanism to support Carbon Capture and Storage (CCS) and renewable energy (the so called NER 300 fund), Boasson and Wettstad (2014) focus on precisely these actors. Their analysis suggests that policy invention emerges from both slow and fast processes – involving what they call “tortoise” and “carpe diem” types of policy entrepreneurs. The tortoises – mainly existing of bureaucrats, NGOs and industry actors in this case – do the preparatory work. The carpe diem entrepreneurs – mainly highly placed politicians – associate themselves with the initiatives in a much more ad hoc fashion – for instance because they want to leave their mark on decision making. The work of carpe diem entrepreneurs aims to find winning coalitions, and this inevitably requires a certain level of power play and horse-trading. The speed at which windows of opportunity and potential solutions draw the attention of politicians, who can subsequently move on again, is perhaps baffling, but it is also a hopeful dynamic as risk averseness – something which Howlett regard as being hard wired into politicians – may not always dominate in every situation, and may even be turned to positive use by policy entrepreneurs. The interesting finding by Biesenbender and Tosun (2014) that novel climate policies are usually introduced in the second half of political terms of office, lends some credibility to the importance of this dynamic. In addition, it would seem that politicians do like to engage in forms of political risk management, for example by emulating and learning from tried and tested foreign experiences. These are often sold to them as readymade solutions by what Voß and Simons (2014) have called “instrument constituencies”. The notion of carpe diem entrepreneurship on the other hand does seem to jar more forcefully with the predictions made by Howlett (2014), and thus warrants further work. One obvious issue to explore is the extent to which politicians operating at different levels (in this case in the European Parliament and nationally) and answering to different political constituencies, support and/or undermine one another (Jordan et al., 2012). Another is to study whether short term political commitment to particular policies ever translates into longer term involvement and support, or is only ever episodic.

4. Patterns: the diffusion of policy innovations

The three contributions to this special issue that focus on policy diffusion all take a large *n*, quantitative approach, and help us to make much greater sense of the underlying reasons why so many countries from the Global South and North, have adopted new climate policies in recent years. Massey et al. (2014) for instance find a 635% increase in the adoption rate of novel adaptation policies in Europe in the period 2005–2010. Stadelmann and Castro (2014), on the basis of their analysis of renewable energy policies in the global South, suggest that *internal* drivers are of greater influence in the diffusion process – and that especially a lack of energy security, lower levels of GDP, and the democratic nature of national government are correlated with policy diffusion. Massey et al. (2014) however find that *external* drivers are more prominent in the diffusion of adaptation policies across Europe. The dominant pattern is that the occurrence of extreme weather events coupled with research predicting that these are likely to increase in frequency, severity and cost in the future, motivate states – and especially the richer ones – to adopt adaptation policies. For the lower and middle income countries, however, the role played by scientific research is less important; for these countries pressure from EU bodies are more important, much more so than for the higher income countries. A lack of resources, state capacity, and political awareness rank (in order) as the top three barriers across all countries, but especially the lower income states. The findings of Massey et al. (2014) are consistent with those of Biesenbender and Tosun (2014), who suggest that the adoption of climate policies in the OECD countries is influenced by learning from international organizations, which is an external driver. Their findings also suggest that countries that depend on inward investment are far more careful in adopting climate policies than countries that do not (ibid.).

Regarding the learning process that take place within states, a consistent finding across all the papers is that something that has worked in a jurisdiction that policy makers feel culturally close to has a much higher chance of being adopted. This “dynamic of affinity” between jurisdictions is alluded to by both Biesenbender and Tosun (2014) and Stadelmann and Castro (2014). Matisoff and Edwards (2014), in their analysis of renewable energy policy diffusion amongst US states, find the same phenomenon. Furthermore they add that each “cultural block” of states tends to have a leading state that the others look to for guidance (these include Texas, California and New York). These leader states have higher levels of resources and tend to be more inventive in introducing novel policies. Other jurisdictions tend to follow leader states that have similar preferences in terms of instruments and the types of technology favored (e.g. solar versus wind power, ibid.). In a similar vein, Stadelmann and Castro (2014) point to the fact that countries may indeed adopt new policies, but that these might not be the same. They find that GDP influences the *types of instrument* chosen with higher levels of GDP positively correlated with the adoption of feed-in tariffs and financial instruments.

The contributions also shed light on the patterns of policy adoption and diffusion and their subsequent consequences. Biesenbender and Tosun (2014) suggest that more attention should be paid to the fact that after adoption, countries tend to modify policies again, a point consistent with observations made by Jacobs (2014). Their interesting observation is that the adoption of policies is dominated by learning (from international organizations), whereas the later modification is affected more by emulation from policy practices adopted by (again) culturally and politically similar peer countries. Moreover, this post adoption modification process – they argue – tends to be dominated by

national interest groups exerting *downward* pressure on standards. In addition, they argue that countries try to avoid moving beyond internationally agreed standards (i.e. a post adoption version of the classic race to the top); rather, they respond to domestic pressure from national interest groups by pulling back from an international norm after it has been adopted, thereby confirming the need for ex post evaluation. The priorities of political parties matter as well, as the propensity to adopt climate policies is greater when green parties have a stronger representation.

5. Effects: the evaluation of policy innovations

In this special issue, the paper by Auld et al. (2014) bears the most directly on the issue of evaluation (but compare Hildén et al., 2014). They performed a systematic review of 165 ex post evaluation studies that assessed policies aimed at the development and use of low carbon technologies. These studies together evaluated a total of 292 climate policies worldwide – instigated, it should be said, both by public and by private actors (i.e. spanning the worlds of state led and transnational governance). An interesting finding is that the process of *agenda setting* appears to make little difference in terms of positive or negative evaluation outcomes, although there are certain indications that some factors are more significant predictors of favorable policy evaluations, notably a favorable public opinion (mentioned for 11 policies), the presence of policy entrepreneurs (for 19 policies – c.f. the paper by Boasson and Wettestad, 2014), supportive international processes (15 policies – c.f. Biesenbender and Tosun, 2014), and the occurrence of focusing events (mentioned for 13 policies – c.f. Massey et al., 2014). Their article also contains strong evidence that the importance of flexibility matters in policy design. This refers to the need to set goals, but to leave target groups the choice of the means and technologies to achieve such goals; such flexibility is achieved by certain forms of regulation and by economic instruments that work on the basis of financial incentives. This observation bodes well for rapidly spreading policy instruments such as emissions trading and environmental taxation (but not necessarily for all jurisdictions though – see above), but also calls attention to the fact that regulation need not always be “command and control” and can actually be associated with quite a few positive evaluations. Auld et al. uncover a dilemma in the sense that policies also need to be timed correctly – their settings should not be fixed for too long, but they should also not be changed continuously – which brings us back to the balance between rigidity and flexibility that we started this paper with. More dilemmas are posed by hybrid instruments (where public and private authorities are both used) and by voluntary reporting mechanisms (which are efficient but associated with less positive evaluations for effectiveness and legitimacy). And to these Haug et al. (2010) add that these dilemmas associated with the use of economic instruments (tradable permit schemes, taxes) has regressive effects, which means that effectiveness and equity concerns also might need to be balanced.

The paper by Massey et al. (2014) assesses the “depth” and longevity of policy activity that emerges from innovation processes. They do so by relying upon measuring the extent to which ongoing policy innovation produces a new “policy field”. Their assumption is that this may provide a better measure of deeper institutionalization on the grounds that policy fields are more difficult to dismantle once they have been formed than single policies (thereby creating greater rigidity it seems). They measure inter alia the number of sectors addressed by the policy and the number of oversight bodies. They conclude that an emerging policy field is only apparent in five of the 29 European countries that they have analyzed; a finding which suggests that policy innovation has not yet produced enduring policy effects.

6. Implications and future directions for research and policy

We have argued that climate policy activity by nation states is currently not sufficiently accounted for in practices and analyses of the “new” climate governance. In fact, many analysts appear to have either forgotten about or quietly given up on the nation state, having pinned their hopes on other actors (civil society, companies, NGOs) to fill the glaring governance gaps that have become even more apparent since the 2009 Copenhagen conference. These gaps require a significant alteration of the status quo and history teaches us that one means of achieving this is through the introduction of new and more effective policies, i.e. policy innovation. And contrary to the popular image of states as unwilling and inactive actors, states are in fact stepping up to meet this challenge. The data presented by [Townsend et al. \(2013\)](#) and others show a very rapid rise in national policy activity in the realm of mitigation; if we compare these with the numbers mentioned by [Massey et al. \(2014\)](#), it would seem that the activity levels in relation to adaptation policy might even be greater.

Even if this policy activity is not divided evenly over the various parts of the world (see [Dubash et al., 2013](#)), it does suggest that there might be genuine prospects for diffusion of effective policies to other places. To judge the prospects for this we obviously need to understand the dynamics underpinning the arrival of new policy approaches (invention), the factors that influence the spread of such policies (diffusion) and garner insights from the evaluation literature on what works in particular settings (effects). Reflecting upon the approach we have taken in this special issue, we suggest that the combination of three different perspectives on innovation is a fertile way of examining current developments in climate governance. Without invention there is little to diffuse, without diffusion any improvement by a sufficient number of countries will remain elusive, and without evaluation one cannot know what kinds of policy innovations to aim for. Therefore deeper understanding of each of these aspects is needed before we can fully appreciate the current dynamic of the “new” climate governance. In the remainder of this section we discuss the implications of the findings of the papers for the future of climate governance, and present suggestions for fresh research.

Regarding the implications for the future prospects of the global climate regime, here we followed the IPCC report (specifically [Stavins and Ji, 2014](#)), which has suggested that three alternative scenarios could help us explore the various options: centralized architectures and strong multilateralism, harmonized national policies, and decentralized approaches with coordinated policies. We confirmed that the state is a key actor in all of these scenarios; it therefore matters greatly whether, how and in what directions states innovate their policies. It is of course easy to be skeptical about the role and activities of nation states on the basis of the contributions to this special issue. What if politicians continue to be so risk averse that they only act if they really must? And what if the diffusion of policies mainly hinges on external drivers, especially active global negotiations which are clearly faltering? There are quite a few signs that global gatherings provide windows of opportunity for countries who want to influence others; but what if that were to fall away completely because of the current disappointment with what is being achieved? And what if countries persist with instruments that are apparently associated with less positive evaluations – such as voluntary reporting mechanisms, which are relatively efficient, but less effective? Without some form of binding agreement at a higher jurisdictional level it would probably be a lot easier to revert back to policy making that is relatively symbolic.

But a much more optimistic reading of the findings presented in this special issue is also possible. We encountered evidence that:

1. Politicians may be risk averse in general, but can be quickly motivated by inventive constituencies and entrepreneurs to change position and thus seize the opportunities offered by proposals of more persistent and possibly;
2. Internal drivers are actually important in adopting climate policies – including higher levels of GDP, greater levels of democracy, and a more frequent occurrence of focusing events – factors that are materializing in many countries;
3. The selection of policy instruments will be in line with the insights offered by evaluation studies – notably that they should offer more flexibility (rules that set goals and not instrument; taxes and tradable permit schemes that incentivize technological progress). Here too, current practice seems to be moving in this direction.
4. International cooperation is still possible, even if the global regime completely collapses. The prominence of the factor of affinity between certain states, that is, states that have a similar cultural or policy tradition, in explaining policy diffusion is a very interesting finding that has not been given much thought yet in debates on climate policy. Obviously, not much is known about what could be the determinants of such affinity (except apparently a shared colonial past – see [Stadelmann and Castro, 2014](#)), and which countries would have affinity with whom, but it could lead to novel collaborations between blocs of states (see [Matisoff and Edwards, 2014](#)). This scenario would offer a means to engage in natural policy experiments to test different ways of responding to climate change.

In terms of new research questions that have emerged, we first of all like to refer to [Howlett's \(2014\)](#) argument that innovation can occur both in terms of policy goals and means. As climate policy is a domain that is suffused with good intentions, the fact that the papers were largely concerned with the rather technical aspects of the means (policy means) as opposed to lofty goals and strategies should be welcomed. At the same time, we started out with the suggestion that global social-ecological systems related to climate are complex and unpredictable (the changing climate in our title). This means that flexibility in terms of goal setting is required too. However, because of the orientation of the contributions to our special issue, we gained little in terms of understanding the intricacies involved in that. Can we assume that setting more stringent climate goals is also politically risky and that therefore the same dynamics apply as for the introduction of new instruments? Or should we assume that the setting of goals is a process that is somehow disconnected from actual implementation, and that therefore innovations in goal setting are more easily achieved? The contributions contain some interesting observations that could serve as a starting point for further research here. [Auld et al. \(2014\)](#) for instance observe that a certain level of rigidity in the goals of policy is necessary because otherwise societal actors lack a stable point of reference. How to combine the obvious needs for both rigidity and flexibility is a very important research question, which certainly also has a legal dimension. Under many current government policies permissions (in the form of licenses to emit, etc.) are often interpreted as eternal rights which cannot be revoked without compensation.

A second issue is the relative importance of the various jurisdictional levels implied in climate policy processes. The articles in this special all engaged with public policy at the *national level* centering on states and their emanations) and therefore did not explicitly focus on other levels (the subnational, the international), except in the role of drivers or barriers to novel national policies. It is remarkable, however, how little subnational

governments came to the forefront in any of the analyses included here, certainly when one compares this with the prominent influence of the international level – as a provider of models, as a creator of windows of opportunity. Although this observation is in line with the suggestion made in this journal by [Howlett and Joshi-Koop \(2011\)](#), based on their analysis of Canadian environmental policy, that subnational policy makers are hardly connected to international fora or on their colleagues in other countries, it is certainly not in line with a central tenet of the transnational climate policy literature which points to the role of international networks of progressive local governments and cities in agenda setting and mutual policy learning (see for instance Kern and Bulkeley, 2009). One question to ask is whether this dynamic is significant but was simply missed by our contributing authors, or whether it is actually not as significant as is often claimed. And if it is significant, does this mean that nation states and their subnational emanations all have their own discrete networks, each tightly organized around their task portfolios, without much regard for exchange and lesson drawing between them? But if this is true can the greatly hyped catalytic effects of climate policy innovation by subnational state actors ever really materialize in such circumstances? A different but somewhat different question, moving back the focus to the nation state: if inter-state diffusion is needed to get things moving in the absence of global agreement, how much time is it likely to require? The behavioral model invoked by diffusion research is one of the slow learning and gradual mimicking, not non-incremental bursts of policy innovation. In view of this, should we assume it will be faster and more productive than negotiating common standards through often agonizingly slow international processes? Here knowledge on the effect of policy characteristics on the speed of their diffusion might be worth pursuing further (see [Busch and Jörgens, 2012](#)), with the oft claimed differences between adaptation and mitigation carefully tested for.

Third and related to that, except the impact of the oil and gas industry on the EU's NER 300 fund ([Boasson and Wettstad, 2014](#)) and a moderate proportion of (apparently less effective) measures covered by the systematic review of [Auld et al. \(2014\)](#) there is little in this special issue that points to an important constructive role of market parties in stimulating climate policy innovations at the national level. Instead, there are several indications, especially by [Biesenbender and Tosun \(2014\)](#) that over time a heavy reliance on inward investment (and hence a threat from economic actors of an investment strike), exerts a strong downward pressure on policies that have been agreed upon internationally. And on the basis of [Auld et al. \(2014\)](#) we should also add that policy instruments which are popular in the private sector such as voluntary reporting requirements, are not associated with high degrees of effectiveness. Interesting questions on how state measures interact with private initiatives such certification schemes and carbon labeling have largely remained unaddressed in this special issue although we suspect that they do have a bearing upon each other. More research is needed on whether these complement one another or not. For those who are aware of the legitimacy challenges that private initiatives face ([Bulkeley and Jordan, 2012](#)), an interesting question could be whether state involvement in such initiatives would address them or not.

Fourth, what is the effect of policy diffusion and of newly introduced policies? Post adoption dynamics have, for the first time, received serious attention in this special issue, but certainly not enough. [Boasson and Wettstad \(2014\)](#) gave us a hopeful message about the existence of “carpe diem” entrepreneurs, mainly politicians who help to adopt new policy initiatives. But do such innovations have any real lasting meaning, or can they quickly be amended and could eventually be totally dismantled

(see for a discussion of symbolic, or “frame based innovations”, [Upham et al., 2014](#))? [Massey et al. \(2014\)](#) assume that the emergence of a new policy field (which apparently is occurring in several European countries in relation to climate adaptation) would make such reversals more difficult, but is that really true? And probably the most important question of all is what do new policies actually accomplish in terms of addressing the problems they purport to address? Here, additional questions can be asked at the intersection between invention and evaluation: are more innovative policy systems also necessarily better performers in an ecological sense?

We finish this introduction by reiterating that all actors in the new climate governance (civil society, business, subnational actors, nation states, UNFCCC) need to be studied and understood, before we leap to conclusions, and certainly before we write off any single actor such as the nation state. In fact, in all scenarios discussed by the IPCC, the state matters greatly. If states – acting through national policy arenas – decide to step into the governance gap, the contributors to this collection identify a number of tasks that they might come under political pressure to discharge. These include the challenge of setting more ambitious goals and choosing means that are novel in the national context ([Howlett, 2014](#)), stimulating and supporting the work of policy entrepreneurs ([Boasson and Wettstad, 2014](#)), supporting other jurisdictions with less resources in adopting effective new approaches to adaptation ([Massey et al., 2014](#)), managing downward pressure on policy goals that were accepted in an international setting ([Biesenbender and Tosun, 2014](#)), maintaining links and an exchange of ideas between countries with similar governance traditions ([Stadelmann and Castro, 2014](#)), and encouraging policy learning by building up new evaluation capacities ([Auld et al., 2014](#)). Even if such tasks are daunting and are certainly not always picked up by states with the fervor we would hope for, ignoring the nation state altogether does not help the debate move forward, hence our call for great attention to national policy innovation.

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