

9

Diffusion

An Outcome of and an Opportunity for Polycentric Activity?

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9.1 Introduction

Climate change governance is in flux, and policy analysts have identified different sources of dynamism (Jordan and Huitema, 2014a, 2014b). Most importantly, recent research suggests that the national and subnational levels are much more dynamic sites of governing activity than is often thought, at least in comparison with the international regime, which has been described as gridlocked (Hoffmann, 2011: 16). These research findings have resulted in a better appreciation that climate governance has become much more multilevel and ‘polycentric’ (Jordan *et al.*, 2015; see also Chapter 1).

Polycentricity is chiefly about the emergence of and interaction between multiple governing authorities at different scales, which are mostly or completely independent when making norms and rules within a specific domain (Ostrom, Tiebout and Warren, 1961; Ostrom and Ostrom, 1977; Ostrom, 2010). In line with this concept, we observe a growing number of climate governance initiatives operating at the local level through processes of self-organisation, with cities striving to shape climate governance not only at the local level but also at the transnational level (see Chapter 5). To attain this goal, cities have formed networks that are bound by a set of overarching rules and that are committed to experimentation and learning (e.g. Castán Broto and Bulkeley, 2013). City networks and other types of local action develop collaborations with other governing units at the subnational, national, transnational or international levels, involving both public and private actors. With the formation of such public-public and public-private partnerships (e.g. Bäckstrand, 2008), climate governance initiatives become more ambitious over time. These developments are described and discussed by various contributions to this volume and the broader literature on climate governance.

Recognising that climate governance has become increasingly polycentric (Jordan *et al.*, 2015), two research questions are well worth posing. First, we can hardly expect that polycentricity emerged as a reaction to one specific event, but is it more likely to be the outcome of decisions taken by many different actors in response to a whole series of events over a longer period? An analytical concept that explicitly takes into account decision-making processes over time in different governing units is that of diffusion. Therefore, to what extent is the emergence of polycentric governance an *outcome* of a diffusion process?

Whilst one could reason that polycentric climate governance represents the outcome of a diffusion process, at the same time it can be asked to what extent greater polycentricity itself has facilitated diffusion (see also Chapter 7). One of the core propositions in polycentric governance theory (see Chapter 1) is that experimentation facilitates learning (see Chapter 6). Learning, however, also represents a core mechanism by which diffusion takes place. From this perspective, it is conceivable that polycentricity is related to diffusion processes in two ways: first, polycentricity could be the outcome of diffusion processes; and second, diffusion could be facilitated by the existence of polycentricity as an active opportunity structure. Consequently, the second research question that underlies this chapter is: to what extent does polycentric governance represents an *opportunity* for diffusion?

This chapter begins by giving an overview of the conceptual foundations of diffusion research, which involves both the diffusion of policies and institutions. Next, it discusses the extent to which polycentric climate governance is an outcome of diffusion processes, followed by an assessment of how polycentric governance can serve as an opportunity structure for further diffusion processes. With regard to the latter, the European Union (EU) is prominently discussed, as it has often been referred to as a leader in climate policy (see e.g. Oberthür and Roche Kelly, 2008). It closes with a summary of the main insights and suggestions for future research. While the focus of this chapter is on climate policy, the concluding section also discusses the applicability of diffusion research to other forms of governing.

9.2 Conceptual Foundations of Diffusion Research

A major research interest of policy studies has focused on the sources and patterns of policy change; that is, how policies, instruments or the calibration of instruments differ when examined at different points in time (Hall, 1993). At the policy level, for instance, policy change can entail the decision to adopt a legal act that establishes sustainable forest management. At the policy instrument level, policy change can refer to replacing regulatory instruments (e.g. maximum permissible levels of

pollution) with market-based instruments (e.g. levies, taxes or subsidies). In terms of the third level (the calibration of specific instruments), replacing existing maximum permissible levels of pollution with stricter standards represents an instance of policy change (Tosun, 2013). To explain the occurrence and patterns of policy change, scholars have relied on a set of theories that stress the importance of the policy process; that is, who participates in policy-making, what interests the individual actors have and which coalitions they form (Weible and Sabatier, 2017). Among these theories is the analytical perspective offered by diffusion research (Meseguer and Gilardi, 2009; Gilardi, 2012; Berry and Berry, 2018).

The main interest of diffusion research lies in how policy innovations spread from one entity to another (Dobbin, Simmons and Garrett, 2007), leading to policy change in the adopting entity. While straightforward at first glance, the definition of a policy innovation raises questions about what exactly characterises a policy innovation. According to Walker (1969), policy innovation is about a national government adopting a new policy, while 'new' means that it is new to the jurisdiction in question. Consequently, an important difference exists between policy *invention* and policy *innovation* (Jordan and Huitema, 2014a, 2014b). The first refers to the process of *developing* an original policy idea, whereas the latter is about the *spread* of that policy idea.

Policy scholars have conducted extensive inquiries into policy innovation, which can inform and guide scholarship on polycentric climate governance. Despite the vast corpus of research, Berry and Berry (2018) argue that most studies are similar as they all elaborate on two sets of explanations for the adoption of a new policy by a government. The first set of explanations refers to political, economic or social characteristics *internal* to the jurisdiction that innovate. Political characteristics include the partisan composition of national governments; we know, for example, that green parties are more supportive of climate policy than other political parties (e.g. Biesenbender and Tosun, 2014). Institutional veto players must also be taken into account when explaining why policy innovations are taken up by some countries but not others (e.g. Fleig, Schmidt and Tosun, 2017). Economic characteristics refer to the economic strength of countries, as well as the industries that dominate their economies and the degree to which the countries are integrated with regional and international markets (e.g. Tosun, 2013). Regarding the social characteristics, the existence and strength of civil society groups, for instance, have been shown to matter for policies addressing climate, energy and environmental concerns (e.g. Tosun and Schulze, 2015).

The second set of explanations refers to factors that are *external* to the jurisdictions that innovate. The main explanation offered by this group of factors relates to diffusion, which is about national governments emulating the policy decisions previously taken by other governments. The drive behind emulation is the search

for social acceptance by demonstrating conformity with the behaviour of other states (e.g. Meyer *et al.*, 1997). While emulation represents the classic diffusion mechanism, several alternative mechanisms have been identified (e.g. Dobbin *et al.*, 2007). These include learning, coercion and competitive pressure.

Learning – which is also an important feature of polycentric governance theory – is conceived as the process of changing preferences due to the availability of social knowledge. Put more directly, a government may adopt a policy in place elsewhere because it regards it as an appropriate solution to a given problem (Gilardi, 2012). Thus, instead of embarking on a costly search for appropriate solutions at the national level, governments can rely on the solutions adopted by other jurisdictions or international organisations. Such a scenario aligns with polycentric governance theory, in which local experiments lead to learning about what works and the upscaling of policy innovations.

The next mechanism is *coercion*, which can be defined as a situation in which policy choices of countries are constrained. Dobbin *et al.* (2007: 454–457) discuss coercion by referring to the concepts of conditionality, policy leadership and hegemonic ideas (see also Chapter 8). Powerful countries may require third states to adopt certain rules directly or indirectly by acting through international institutions (conditionality). In this context, Schneider and Urpelainen (2013: 14) argue that the United Nations, the Bretton Woods institutions, the General Agreement on Tariffs and Trade and the North Atlantic Treaty Organisation, among others, have been established and promoted by the United States in an effort to spread its liberal economic and political ideas. According to Gruber (2000), powerful states may influence decisions taken by weak ones even without an intention to do so (policy leadership). This is achieved by altering the nature of the status quo they face. The example given is the decision of the United States to pursue free trade with Canada, which stimulated the Mexican government to engage in free trade as well. Finally, hegemonic ideas are about the prevalence of certain policy notions. Powerful countries can influence the framing of policy discussions because they have a better research infrastructure (Dobbin *et al.*, 2007: 456).

The third mechanism highlights the importance of economic *competition* in the diffusion of policy innovations. The logic underlying this mechanism is that the competition for trade and investment affects the incentives of policy-makers regarding whether to adopt policy prescriptions. Several empirical studies point out the relevance of economic competition for policy diffusion. The findings generally suggest that countries are inclined to adapt their standards to those of their key export markets (e.g. Prakash and Potoski, 2006).

The second point that needs further clarification concerns the patterns we can observe when policy innovations spread. Studies of policy diffusion often focus on the horizontal spread of policy innovations from one state to another (*horizontal*

diffusion). An alternative diffusion pattern involves studying whether the adoption of policy innovations by subnational units makes national-level action more likely (*vertical diffusion*) (Shipan and Volden, 2006). The fact that diffusion research recognises both horizontal and vertical diffusion makes the diffusion perspective, in principle, compatible with polycentric governance and promises some valuable insights. However, in reality, the literatures on polycentric climate governance and policy diffusion do not speak to one another, which hampers the seizing of this opportunity for conceptual advancement.

Studies of policy diffusion are not only remarkably similar in that they all test a relatively stable set of explanatory factors (Berry and Berry, 2018), but they predominantly focus on one or a few specific policy instruments per analysis and adopt a relatively simple measurement that only gauges whether that specific instrument (e.g. carbon taxes) exists in the individual jurisdictions (Howlett and Rayner, 2008). This choice of measurement is often motivated by limitations in data availability and other challenges to measurement. In this context, Meseguer and Gilardi (2009) further note that existing studies tend to concentrate on instances of ‘explosive’ diffusion (i.e. the adoption of a policy innovation by numerous or all observation units at fast rates), which correspond to a selection bias and may potentially lead to overestimating the likelihood that policy diffusion takes place. The selection bias results from the fact that ‘explosive’ events are easier and possibly also more exciting to observe, which stems from two sources. First, such diffusion events are usually triggered by actors such as international organisations that offer empirical data on the characteristics of the policy innovation concerned and the corresponding diffusion patterns. Second, ‘explosive’ diffusion is rare compared to ‘regular’ diffusion, which makes it easy for researchers to identify these events themselves and make them the subject of analysis.

9.3 The Diffusion of Climate-related Policies and Institutions

A vibrant research landscape exists that examines the diffusion of climate-related policies and institutions. For example, studies by Dubash *et al.* (2013), Lachapelle and Paterson (2013) and Fankhauser, Gennaioli and Collins (2015, 2016) demonstrate the spread of policy tools designed to tackle climate change, which especially took place from the 1990s onwards. The climate policies that have diffused transnationally include regulation, taxes and subsidies (Hughes and Urpelainen, 2015; see also Chapter 3).

Regulation can target the mitigation of climate change as well as the adaptation to it. Mitigation policies predominantly include measures aiming to lower emissions of greenhouse gases, for example, by means of protecting natural carbon

dioxide sinks such as forests and oceans, or creating new sinks through afforestation or reforestation (Fleig *et al.*, 2017: 104). Adaptation policies are about developing responses to climate change impacts (see also Chapter 17) such as strategies for managing drought periods or flood management (Brouwer, Rayner and Huitema, 2013). Fleig *et al.* (2017) show that there is a basic interdependence between the adoption of mitigation and adaptation policies: governments that adopt mitigation policies are also more likely to adopt adaptation policies, and vice versa.

Carbon taxes are directly connected with the level of carbon dioxide emissions and put a price on the volume of these emissions with a view to creating an incentive for users to reduce their consumption of fossil-fuel energy sources. Carbon taxes typically apply to diffuse sources of carbon dioxide emissions such as the road transport, residential and commercial sectors. Finland was the first country to adopt an explicit carbon tax in 1990. The introduction of the carbon tax in Finland represented an ad hoc reaction to the international discourse on sustainable development and climate change (Vehmas, 2005). The other Nordic and European countries followed the Finnish example in the 1990s and also introduced some type of carbon tax (Daughjerg and Pedersen, 2004).

Regarding subsidies, Schaffer and Bernauer (2014) concentrate on the diffusion of feed-in tariffs for renewable energy and the adoption of green certificate systems in advanced democracies over the past 20 years. Their empirical findings show that higher shares of fossil and nuclear energy increase the likelihood of a national government adopting these two policy instruments for promoting renewable energy. A climate policy innovation that has only recently started to diffuse is subsidies for electric cars, which was introduced in Norway in the 1990s (Holtmark and Skonhoft, 2014). In 2009, China adopted a similar subsidy policy for electric cars, and Germany followed in 2016.

The literature has also addressed the diffusion of institutions. In this regard, one strand of the literature has examined the diffusion of ministries responsible for drafting climate policies. For example, Busch and Jörgens (2005) and Aklin and Urpelainen (2014) study the global spread of environmental ministries that tend to push for the adoption of national climate policies. Some countries such as Pakistan even created specific ministries for climate change, but such ministries have seen less diffusion. In most cases, climate change is a subdivision within either the environmental or energy ministry (see Tosun, 2018).

Research on climate policy and institutions has shown that climate policies in particular are prone to diffusion, since climate change requires coordinated action by many or ideally even all jurisdictions. The diffusion of climate policy innovation is driven by both external and internal factors. With regard to the external drivers, all four diffusion mechanisms (i.e. emulation, learning, coercion and competition)

discussed earlier can be found in the relevant literature (e.g. Biesenbender and Tosun 2014). What is perhaps even more interesting is that internal considerations seem to matter as much as external drivers (e.g. Gilardi 2012). For example, Marcinkiewicz and Tosun (2015) show that lack of support for climate policies by political parties has hampered the adoption of innovations by the Polish government. Climate governance-related institutions are less well explored in the literature, especially those that specifically govern climate change. What we can observe is that many energy and/or environmental ministries have been reorganised to include a subdivision on climate change (e.g. Bauer *et al.*, 2012).

9.4 Polycentric Climate Governance as an Outcome of Diffusion

Through its annual Conference of the Parties (COP), parties to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) meet regularly to negotiate collective climate actions and to monitor progress made by their implementation. A milestone in the development of the international climate regime was the adoption of the Kyoto Protocol in 1997 (see Chapter 2). As highlighted by Oberthür and Tänzler (2007), the adoption of the Protocol represented an important stimulus for the diffusion of climate policies. Initially, the UNFCCC aimed to reach agreement on climate policies at the international level, ideally involving all state parties. However, it quickly became apparent that the international community lacked the willingness to agree on a set of harmonised measures to protect the climate.

The failure to agree on binding commitments at the international level can be considered one of the reasons for the EU's climate leadership aspirations (Wettestad and Boasson, 2013). This first became visible in the negotiations of the Kyoto Protocol when the EU proposed the most ambitious emission cuts among the major industrialised countries (Oberthür and Roche Kelly, 2008: 36). Another important symptom of the EU's leadership in global climate governance was the adoption of its emissions trading system in 2003, which set limits on the carbon dioxide emissions that large polluting installations can emit, together accounting for about 40 per cent of the EU's total carbon dioxide emissions.

The EU's push to become an international climate leader has resulted in two important processes. First, *within* the EU a diffusion process has started, which in some cases (e.g. the promotion of renewable energy) has resulted in the adoption of harmonised policy measures, whereas in other cases the policy innovations have been adopted by only some EU member states (e.g. carbon taxes). The diffusion of climate policies within the EU has helped to establish the EU as a domain in which polycentric climate governance takes place.

Second, the EU has tried – and to some extent succeeded – to diffuse its climate policies *beyond* its own jurisdiction, which has resulted in forming another level at which polycentric climate governance occurs. A case in point is the Energy Community, which is an international organisation that brings together the EU and its neighbours to create an integrated pan-European energy market by extending the EU's energy policies to countries in South-East Europe, the Black Sea region and beyond. The energy policies it has diffused include measures to increase the security of supply as well as measures that aim to decarbonise energy systems and reduce carbon dioxide emissions (e.g. Tosun and Schulze, 2015). As a result, the EU cooperates with the member states of the Energy Community on climate governance. The Energy Community members introduce new ideas to the EU and help to diffuse EU policies further to regions such as Central Asia.

The Energy Community is not the only means by which climate-related policies have diffused beyond the EU and have contributed to the emergence of a new governance domain. When the German government proposed the idea of forming a Renewables Club in 2013, the governments of China, India, Morocco, South Africa, Tonga and the United Arab Emirates as non-EU members declared their interest in joining (Hovi *et al.*, 2016). In the case of China, India and South Africa, the decision to join the Renewables Club can be ascribed to their recognition of the EU's market power and the potential risk to their economic development stemming from carbon-dioxide-intense industrialisation. Before joining the Renewables Club, these three countries had already adopted climate policies that were similar to those in place within EU member states (Dubash *et al.*, 2013).

Diffusion is also the main driving force behind the development of subnational networks that become important venues of climate governance. Examining the motivations of Spanish cities and municipalities to join the Covenant of Mayors, Pablo-Romero, Sánchez Braza and González Limón (2015) show that an important driving force is the membership of neighbouring municipalities, which supports the very basic logic of diffusion (through emulation and/or learning). Conversely, the more cities and municipalities join subnational networks such as the Covenant of Mayors, the more relevant they become as domains of polycentric governance.

Altogether, the literature supports the view that diffusion processes (rather than other processes such as a deliberate creation of this system in a top-down fashion through international organisations) have led to the emergence of polycentric climate governance as it can be observed today. The starting point for this was frustration with a gridlocked international regime. Influential actors such as the EU have helped fill this void and have sought to spread climate policies by employing different diffusion mechanisms. As discussed, the EU is not the only venue that has formed as an outcome of diffusion processes: we can observe very different venues,

all of which emerged as a response to diffusion processes. The examples discussed concentrated on the transnational, national and subnational levels. However, it should be noted that the creation of the International Renewable Energy Agency was also preceded by diffusion processes related to the promotion of renewable energy (see Schaffer and Bernauer, 2014). From this, it follows that diffusion can help to establish institutional forums at all governance levels.

9.5 Polycentric Climate Governance as an Opportunity for Diffusion

Polycentric climate governance is about the emergence of an institutional system, which is theorised to lead to more efficient policy outcomes (Ostrom, 2010: 550). This section presumes that such efficient policy outcomes can come about by means of diffusion processes that are facilitated by the multitude of governing authorities at different scales. Policy diffusion entails an efficiency gain since national governments are spared the costs stemming from gathering information about what works to solve a policy problem.

As discussed in the previous section, the EU has sought to claim leadership in global climate governance. Did the EU's leadership aspirations result in the spreading of climate policies that otherwise would not have happened? Evidence exists within the literature demonstrating that the EU has succeeded in bringing about several developments with regard to climate policy. A well-documented example is Russia's ratification of the Kyoto Protocol. The primary reason for inducing the country to ratify the Protocol – and to trigger a process of formulating national policies to attain the carbon dioxide reduction goals – was pressure imposed on the Russian government by European leaders. The EU representatives maintained that they would only support Russia's membership in the World Trade Organization if the government ratified the Kyoto Protocol (Henry and Sundstrom, 2007). The polycentric climate governance regime and the role the EU claims for itself therein gave the EU the coercive power to change the Russian government's stand on climate policy and to exercise international leadership. Put more generally, polycentric governance can potentially allow for international leadership that can attract followers. In the aftermath of ratifying the Kyoto Protocol, the Russian government has also adopted policies to promote the production of renewable energy (see Zhang *et al.*, 2011). While Russia cannot be regarded as a frontrunner in promoting renewable energy, the country has joined the International Renewable Energy Agency (see Van de Graaf, 2013) and has supported corresponding policies at different instances at the international level, such as the Group of 8 (G8) Summit held in Saint Petersburg in 2006.

The literature suggests that the EU is most likely to facilitate the diffusion of climate policy innovations when it speaks with one voice or when it has adopted

a harmonised policy that can help guide non-EU countries when deciding on whether to adopt a climate policy innovation. For example, carbon taxes have been subject to a slow diffusion process, despite the fact that they have been in place in some countries (e.g. Finland) since 1990 (see Busch and Jörgens, 2005; Baranzini and Carattini, 2014). One explanation for this observation is that the EU has not adopted a common stance on carbon taxes. Instead, the (limited) diffusion of carbon taxes can be attributed to the international image and economic importance of individual EU member states.

An important takeaway message from this example is that the mere existence of governing authorities at different levels is not a sufficient condition for diffusion processes to take place. Another point worth making is that diffusion processes – even if they take place in the EU context – do not have to result in the upscaling of policy innovations. In the case of carbon taxes, horizontal diffusion took place to a limited degree (see Andersen and Elkins, 2009), but this policy innovation failed to become the subject of vertical diffusion.

Policy measures adopted to promote the electric car in Germany offer an example of the successful vertical diffusion of a policy innovation in a polycentric system. German cities and municipalities have been experimenting with electric cars for a couple of years and communicated the lessons they drew with means of Germany-wide and transnational city networks. In 2016, the German Federal Council (*Bundesrat*), composed of the governments of the German states (*Länder*), adopted a resolution in which they demanded that from 2030 onwards cars that do not produce carbon dioxide emissions are to be authorised for road traffic, which can effectively be attained only by replacing fuel-powered cars by electric ones. This resolution appears even more extraordinary when considering that Germany has a very powerful car industry that has in the past been spared from policy measures that would have imposed regulatory burdens on it (e.g. Tosun, 2017). When comparing the transition for electric mobility in Germany and the United Kingdom, for instance, it becomes apparent that the German government pursues a ‘careful transformation and conservation of its automotive industry’ (Mazur *et al.*, 2015: 84), which mostly consists of support for research and development for major German-based car manufacturers and suppliers. In the same year, the German federal government decided to put in place a financial incentive for buying electric cars.

In their resolution, the members of the Federal Council called on the European Commission to adopt a new policy approach that would support cars that do not produce carbon dioxide emissions (Khan, 2016). Whether the European Commission will act upon this call remains an open question, but what is important is that a climate policy innovation has diffused vertically from the local level to the regional and then national level, and may eventually even reach the European level.

Yet there is an indicator that the topic of electric cars has entered the agenda of the European Commission: the draft proposal for the Energy Performance in Buildings Directive calls for a fixed share of parking spaces in all new buildings in the EU to be equipped with electric car recharging facilities. The EU's policy agenda has also been influenced by discussions taking place in other venues of the polycentric climate governance system. In this case, the EU has formed a partnership with China (EU-China Urban Partnership) that brings together not only political and administrative elites, but also representatives of business and industry. One of the areas of collaboration of this transnational public-private partnership concerns electric mobility. Therefore, the EU's policy approach to electric mobility is also determined by its embeddedness in transnational networks, which may facilitate policy diffusion through learning.

A variable that appears particularly important here is how well the policy innovation in question works in the jurisdiction from which it originates and/or in the other jurisdictions that adopted it. With regard to that question, the case of Germany is problematic since motorists seem unwilling to buy electric cars, at least at this point in time. Among the factors preventing German motorists from buying an electric car are cost considerations (e.g. Barth, Jugert and Fritsche, 2016). Thus, though political actors support the promotion of electric cars, the demand for them has been limited until recently (e.g. Meckling and Nahm, 2017). However, with political actors at different governing levels in Germany all adopting the same stance on electric cars, it is conceivable that the public will eventually become supportive of them, replacing fuel-powered cars with electric ones.

What the example of electric mobility in Germany shows is that polycentric governance can facilitate upscaling in some circumstances, but that it is likely to develop over long periods of time. A necessary precondition for vertical diffusion is horizontal diffusion, which is accelerated by the existence of polycentric governance. Then, vertical diffusion relies on the convergence of policy preferences across the different governing units, which may or may not be attained. Finally, it should be noted that upscaling does not necessarily mean that the policy innovation adopted by the upper governing units is identical to the policy innovation as it has emerged and diffused (horizontally) among the lower governing units. As exemplified by the EU's draft directive, the reduction of carbon dioxide emissions by means of promoting electric cars can be pursued by targeting the installation of recharging facilities, but the initial idea for this measure could have come from a national policy that aims to foster the purchase of electric cars (e.g. financial incentives adopted by the German government).

Another facet of the relationship between diffusion and polycentric governance is that the latter can accelerate diffusion processes (Busch and Jörgens, 2005). Diffusion studies are interested in both the patterns and the time it takes for a given

policy innovation to diffuse. From that perspective, the timing of a diffusion process could be explained by the development of a system of polycentric governance and the multiplication of domains in which communication, cooperation and learning takes place.

This argument is based on the reasoning that polycentric governance empowers different governing units and therefore motivates them to write their own success stories. From this, it follows that lower-level governing units in countries that are not known to be climate policy pioneers may take advantage of the new opportunity structure and adopt policy innovations that are not feasible at the higher governing levels. A prominent example is the case of California and the strict air pollution standards in place there (Tosun, 2013). The state is keen to maintain, tighten and export these standards. To this end, the government of California has drafted a global pact to reduce carbon dioxide emissions, which it seeks to get signed by a broad alliance of countries, including Canada, China and Mexico (Davenport and Nagourney, 2017). With California striving to act as a pace-setter in global climate politics (Bang, Victor and Andresen, 2017), the slow diffusion of climate policies at the international level may receive a stimulus and lead to better results.

9.6 Conclusions

This chapter has attempted to trigger a debate about the linkages between two different bodies of literature that have been discussed in isolation so far: one on diffusion and the other on polycentric governance. Diffusion research has been used to study how climate change policies come about (e.g. Fleig *et al.*, 2017), but in doing so, this literature has not paid attention to the existence of polycentric governance and has also not reasoned to what extent – if any – its existence may affect the patterns of diffusion processes. Likewise, the small but growing literature on polycentric climate governance tends to describe the empirical characteristics of the emerging system and, insofar as it explains the empirical phenomena observed, tends to emphasise the effectiveness of policy learning and the role of policy entrepreneurs (e.g. Jordan *et al.*, 2015). The current literature does not explain how domains of polycentric climate governance emerge and how innovations in one domain diffuse to others, which is, however, addressed by the research on policy diffusion. Despite the seemingly different interests of these two strands of research, it is analytically possible and – as argued here – rewarding to abstract from the research perspectives adopted in the respective literatures and attempt to synthesise them.

This chapter argues that polycentric governance is an outcome of diffusion processes and that it offers an opportunity structure for climate policy diffusion. The international climate governance system is polycentric as it involves multiple

scales, mechanisms and actors. This structure is the outcome of multiple and simultaneous diffusion processes. While polycentric climate governance can be seen as an outcome of diffusion processes, it also offers an opportunity structure for the subsequent diffusion of particular initiatives by means of different diffusion mechanisms, which include but are not limited to learning. These diffusion processes are sometimes supported and sometimes hindered by domestic characteristics such as the nature of national political systems, the economy and society (e.g. Fankhauser *et al.*, 2015, 2016).

The Paris Agreement introduced a global climate governance system that rests on the individual states offering nationally determined contributions (NDCs) (see Tobin *et al.*, 2018). As the NDCs are subject to a five-year evaluation cycle in which every country needs to submit its efforts regarding climate change (see Chapters 2 and 12), it is likely that diffusion processes will continue to take place at different governance levels. The regular evaluation of the NDCs can result in both horizontal and vertical diffusion, which can potentially lead to a coherent climate regime at the international level. It could also lead to the preservation of the current regime, which is characterised by polycentricity. The assessment of the consequences of diffusion processes for polycentric climate governance is something that future research should address.

With the polycentric regime as it has emerged, horizontal diffusion can take place between cities, regions and nation states. While vertical diffusion in both directions – that is, downscaling and upscaling – is feasible, existing research on climate experiments and the role of learning processes suggests that in the future upscaling is the more likely outcome (e.g. Hoffmann, 2011). However, it is up to future research to validate this expectation.

More importantly and in line with the concept of polycentric governance, policy learning appears to be the diffusion mechanism that is preferred by political actors and that is also most likely to produce an upscaling of policy innovations. At the climate conference in Marrakech in November 2016, countries discussed the setting up of new initiatives such as the NDC Partnership, with a view towards supporting the formulation and implementation of NDCs in developing countries by means of facilitating policy learning (Fleig *et al.*, 2017).

Considering that the Paris Agreement acknowledges both mitigation and adaptation policies, a consequence to be expected is that diffusion processes can be observed for both types of climate policy. The question that results from this perspective, then, is whether diffusion is more successful (i.e. more countries adopt policy innovations) in the case of mitigation or adaptation. At any rate, it appears analytically worthwhile to include both mitigation and adaptation policies in the study of diffusion in polycentric climate regimes – an aspect that was not addressed by Ostrom (2010). It is plausible to hypothesise that the upscaling of adaptation

policies is most likely to occur in cities and subnational units as they have more experience with this type of policy, whereas we could expect mitigation policies to be subject to downscaling. Regarding the latter, it is possible that mitigation policies that have trickled down to lower governance levels become modified and then become the subject of a new horizontal and/or vertical diffusion process. However, again this expectation warrants a systematic analysis by future research.

In short, plenty of promising and relevant research questions related to the theme of this chapter remain unanswered, which should stimulate theoretically grounded empirical research on a wide range of governance units in developed and developing countries.

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