

## Decarbonisation

### *The Politics of Transformation*

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#### 14.1 Introduction

Decarbonisation is a different framing of and approach to the climate change problem than concentrating on emissions reductions. They are related, to be sure, but decarbonisation is the process of disrupting carbon lock-in (Unruh, 2000; Seto *et al.*, 2016) and removing fossil fuels from our energy and economic systems. Decarbonisation thus implies attacking climate change at its fundamental core – global reliance on fossil energy – and it is a daunting task, as carbon lock-in arises from overlapping technical, political, social and economic dynamics that generate continuing and taken-for-granted use of fossil energy. While disrupting carbon lock-in and pursuing broad decarbonisation are immensely challenging, they are also necessary to avoid the worst consequences of climate change in the time frame suggested by climate change scientists (essentially by 2050; see Rockström *et al.*, 2017).

A polycentric governance system would appear to be an ideal approach for decarbonisation (Ostrom, 2009; Cole, 2011). Carbon lock-in is not only a multidimensional but also a multilevel phenomenon, existing simultaneously locally and globally. Indeed, whereas the world runs on fossil fuels, the worldwide nature of carbon lock-in arises because multiple, interdependent systems are also locked into the use of carbon-based energy and resources. The response to climate change also appears ripe for a polycentric governance approach to decarbonisation. It is now fairly well established that the world has thus far *not* responded effectively to the climate change challenge in a coordinated global fashion, but instead through an emerging response that has the appearance of polycentricity – in the sense of possessing many diverse locations of authority arranged largely non-hierarchically. The global response to climate change encompasses both multilateral governance (see Chapter 2), itself decentralised since the 2015 Paris Agreement (Falkner, 2016), and a broad array of activity outside the international negotiations

(Hoffmann, 2011; see also Chapter 4). The global response to climate change thus already includes diverse activities at multiple levels of politics, engaging a wide array of actors that are (ostensibly) seeking to disrupt<sup>1</sup> carbon lock-in by: taking action in and among cities, subnational governments and individual countries; seeking to alter market systems and corporate behaviour; and changing the range of technologies available to individuals and societies. There are now truly multiple centres of authoritative climate action.

However, what we have now is, at best, a weak or nascent polycentric governance system for decarbonisation. A 'truly polycentric *system* is one in which governmental units both compete and cooperate, interact and learn from one another, and responsibilities at different governmental levels are tailored to match the scale of the public services they provide' (Cole, 2011: 405). Such coordination, interaction and interdependence of decarbonisation initiatives are not yet in evidence. In part, the lack of a polycentric governance system arises from a mismatch between the problem structure of decarbonisation and polycentric governance approaches. Polycentric governance theory was developed to help explain novel responses to collective action dilemmas, mainly relatively small-scale common pool resources problems (Ostrom, Tiebout and Warren, 1961; Cole, 2011). As it has evolved, proponents have prescribed polycentric approaches for solving diverse collective action dilemmas – even global collective action problems like climate change (Ostrom, 2009; Cole, 2011). However, current decarbonisation efforts are not solutions to collective action problems in the same way. Many decarbonisation initiatives have more circumscribed goals; they do not seek to provide global public goods. Instead, they seek to act in a specific place: to decarbonise a specific jurisdiction, set of practices or market activity.<sup>2</sup>

Collectively, it is possible that decarbonisation initiatives will eventually provide a global public good (stable climate), but they emerged in specific places with specific goals and do not necessarily have common purpose (like managing a common-pool resource). For Ostrom (2009) and Cole (2011), the goal is to *build* a polycentric governance system from the diverse, multilevel initiatives that have emerged in the past two decades. We contend that this project, and analysis of decarbonisation, must begin not with the collective goal, but with an understanding of the politics of individual decarbonisation initiatives *and* the way that they are linking and self-organising (nascently) to better understand the possibilities for and potential of polycentric governance of decarbonisation. Extant decarbonisation initiatives may be the constitutive elements of an emerging polycentric governance system. There is evidence that nascent polycentric dynamics are at play. As more and more initiatives emerge, their interdependence is recognised, and linkage/orchestration (see Chapters 10 and 11) become more prominent dynamics, the hallmarks of polycentric governance like development of

trust, monitoring, learning and adaptation (see Chapter 1) may become more evident.

This chapter begins by introducing this different way of thinking about the challenge of decarbonisation and climate change – less as a collective action problem that requires solutions, whether in a monocentric or polycentric system, and more as a problem of catalysing action in a system likely to be polycentric in character, but which may or may not take on features of a polycentric governance *system*. We then discuss a framework for analysing the politics and trajectories of individual decarbonisation initiatives. This framework allows us to understand the potential for initiatives to disrupt carbon lock-in in particular places as they scale up and become entrenched. After briefly examining an example of this kind of analysis, we discuss the ways in which decarbonisation initiatives are self-organising and linked together, perhaps providing the foundations for the emergence of a polycentric governance system. We close with some thoughts on the normative implications and potential effectiveness of moving towards a more polycentric governance system.

## 14.2 The Challenge of Decarbonisation

Assessing the dynamics of decarbonisation must begin with an adequate understanding of the distinctive challenge that it poses. As asserted earlier, carbon lock-in is a multilevel phenomenon that operates simultaneously in multiple societal systems. Global energy, transportation and economic systems are locked into carbon because transportation, energy and economic systems at the municipal, subnational, state and regional levels are locked into carbon.

The challenge of decarbonisation lies in disrupting the interdependent, overlapping and reinforcing dynamics that lead to the continuing use of fossil fuels occurring across scales. Cities are locked into the use of fossil fuels because of (among other things) how they are physically planned, the expectations and practices of citizens around transportation and energy use, the political coalitions and institutional capacities that make cities run politically and the range of technological options that are available to city dwellers. The same could be said of nation states – they are locked into the use of fossil fuels because of similar (not the same) cultural, economic, political and technological dynamics on a larger scale (i.e. national energy and transportation policy, coalitions of interest groups, national culture, etc.). But it is more complicated than that, because the cities and nation states in this example are not independent. Carbon lock-in in cities reinforces the lock-in we find in nation states, just as nation state lock-in reinforces it at the municipal level.

This makes decarbonisation a very different kind of challenge than the standard global commons or common-pool resources problem usually addressed in the polycentricity literature (Ostrom, 2009, 2010a). The hallmark of a global commons problem is a group of actors sharing a resource. The traditional approach to climate change, which focuses on greenhouse gas (GHG) emissions, treats the problem in just this way. Nation states conceived of the problem as one of a shared atmospheric resource and negotiated over how far to reduce GHG emissions, how to distribute reduction commitments, how to achieve reductions and how to pay the costs of reductions (or adaptation when reductions fail to occur). Global commons is the wrong perspective for decarbonisation, however, as there is no global system to act upon or shared decarbonisation resource. The standard means of addressing global commons problems (such as large, centralised, multilateral treaty-making processes or global carbon pricing schemes) are unlikely to be achieved because of problems of political feasibility and, furthermore, they are of questionable utility in disrupting carbon lock-in and promoting decarbonisation because of the mismatch they represent with the underlying structure of the problem (Prins and Rayner, 2007). Instead, we need to think about how decentralised decarbonisation works and when it can produce transformative trajectories that could eventually cohere into a larger polycentric governance system. This entails, in part, examining the interaction between the local and international levels, but we must also recognise that decarbonisation initiatives consist of different locations of governance that are not necessarily nested or hierarchical, nor are they in a common system responding to a common-pool resource issue. Instead, they are weakly polycentric in the sense that there are multiple centres of governance working with a good deal of independence.

Ostrom herself recognised the limits of approaching the problem of climate change from a global collective action perspective in one of her last published articles (Ostrom, 2010a). However, even as she proposed a polycentric approach as an alternative for addressing climate change, she, along with many of the students and colleagues she influenced, continued to view polycentricity through the lens of a collective action approach (e.g. Cole, 2015a). As she put it, what was needed given the by then discredited view that ‘collective-action problems that have global effects must primarily be “solved” by legal actions of a global authority’ was to ‘update’ the theory of collective action. She and her colleagues ‘developed the concept of polycentric systems for the analysis of collective-action problems involved in the provision of diverse public goods and services’, which fit well with how she observed climate change governance evolving (Ostrom, 2010a: 551).

Their commitment to viewing the problem of governance through the lens of collective action problems, however, puts the cart before the horse. It assumes that

even as a large-scale problem like climate change might be best governed through diverse authorities arranged non-hierarchically at multiple levels, the fundamental nature of the political problem remains one of collective action, and thus there is a need to foster a truly polycentric governance *system* (Ostrom, 2009; Cole, 2011). In so doing, however, they leave out an important first step – examining the functioning, trajectories and impacts of the multiple, diverse initiatives that might constitute a polycentric governance system. Polycentricity may be a possible governance response over the longer term. However, the problem that decarbonisation initiatives are tackling is one of multiple interlocking systems, not, at least initially, of collective action over a shared resource. The key analytic move, then, is to first analyse multiple and diverse actions individually to assess their trajectories and functioning. This is necessary before assessments can be made as to whether they will evolve into a polycentric governance system.

The raw materials for the emergence of a polycentric governance system for decarbonisation are available. The past two decades have seen the emergence of multiple governance interventions – intentional efforts to steer actors and/or change the trajectories of different actors and systems in an authoritative way (Hoffmann, 2011; Bulkeley *et al.*, 2014). While the language of polycentric governance accurately *describes* the emergence of these multiple locations of authority designed to disrupt carbon lock-in, theories of polycentric governance cannot *explain* their emergence or trajectories, at least not initially, because their politics is not guided by the polycentric logic of collective action. Rather, they are widespread but discrete and multifaceted efforts to disrupt multiple systems' trajectories and induce transformation towards decarbonisation. These interventions include: cities enacting carbon action plans and participating in transnational networks; states and provinces in North America developing linked emissions trading systems, carbon tax policies and renewable energy targets; corporations and non-governmental organisations joining forces to promote smart grids, carbon accounting and clean technology deployment across national borders; and nation states developing targets for carbon neutrality and renewable energy industries in decentralised pursuit of the overarching collective goals set out in the Paris Agreement.

Elinor Ostrom (2009: 38) envisioned a polycentric approach that brought these kinds of initiatives together in common purpose, but realised that 'one cannot expect that an effective polycentric system will be constructed in the near future.' Yet they may be the precursors or constitutive elements of such a polycentric system. Decarbonisation efforts are certainly interdependent, not least because carbon lock-in arises from dynamics in interdependent domains. In addition, individual interventions are often linked to other interventions in other systems either consciously or unconsciously (see Chapter 10). These characteristics imply

the need to consider links between the specific/local and the general/global – how actions and outcomes in specific places can catalyse broader transformation (or stymie it) – to account for change and to show how changes at different scales do or do not catalyse broader changes (Geels, 2010).

Our analytic framework, to which we now turn, is designed to uncover and make sense of the political trajectories of individual and linked interventions as they seek to disrupt carbon lock-in and usher in decarbonisation in specific places. In so doing, we provide a window on the potential precursors to a truly polycentric governance system, whereby decarbonisation interventions come to be a collective, though still multifaceted, decarbonisation governance effort, whether consciously through orchestration (Chan *et al.*, 2015; see Chapter 11) or through what Ostrom expected to be processes of self-organisation.

### 14.3 The Politics of Decarbonisation<sup>3</sup>

We focus on the *political* aspects of carbon lock-in and the decentralised efforts to disrupt it because no matter where one looks – markets, cities, subnational jurisdictions or nation states – there are institutional and normative processes and structures (political factors) contributing to carbon lock-in. The substance and functioning of the political factors differs across levels – municipal politics and national politics are not the same – but they similarly serve to reinforce carbon lock-in in all parts of the system.<sup>4</sup>

Our approach explores what political forces are unleashed once decarbonisation interventions are initiated in specific places and whether/how they disrupt carbon lock-in and generate pathways to decarbonisation. Once an intervention is initiated, the target of the intervention – be it a city, corporation, province, nation state or market practice – will move along one of three (ideal-type) trajectories: (1) continued reinforcement of carbon lock-in if the intervention has no effect or is counterproductive; (2) improvement in carbon lock-in if the intervention improves the efficiency of using carbon-based energy and reduces emissions but does not fundamentally challenge the central place of carbon-based energy; or (3) decarbonisation if the intervention spurs the target away from the use of carbon-based energy.

The impact of the intervention on the trajectory of the target is a matter of political dynamics that the intervention entails. We track three mechanisms to understand the politics of decarbonisation interventions: *normalisation*, *capacity building* and *coalition building* (discussed in more detail in what follows). These mechanisms help to determine if the changes the intervention promotes will *scale up* and become *entrenched* in the target, thus having an expanding and lasting impact on the target as well as more generally in the wider system through linkage

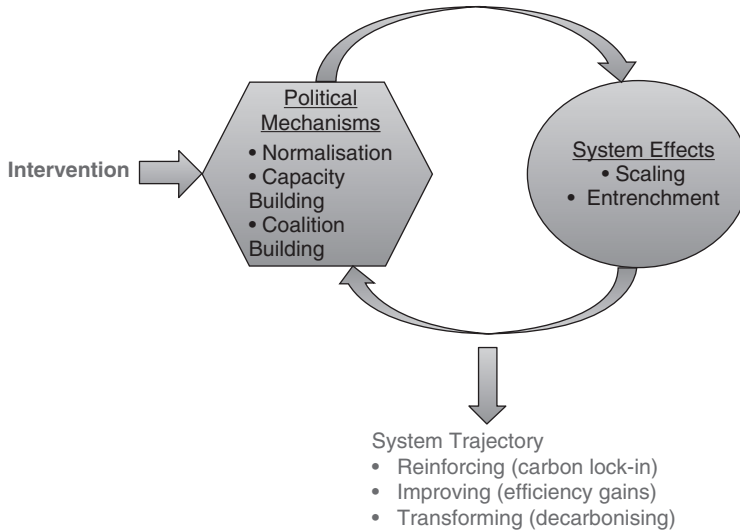


Figure 14.1 Decarbonisation pathway in a targeted part of the system.

and interdependence. Figure 14.1 provides a visual representation of this dynamic for a single target. Crucially, the potential for altering the system trajectory is found in the feedback between the intervention and the political mechanisms that it catalyses.

### 14.3.1 Political Mechanisms

*Normalisation* as a mechanism is about shifting social expectations about appropriate behaviour (e.g. Finnemore and Sikkink, 1998); thus, ‘[i]f policy advocates succeed in generating a political and public expectation that [GHG] emissions should decline over time then policies and behaviours that further reduce GHGs may be judged “better” and more appropriate than those that engender increases’ (Selin and VanDeveer, 2005: 371–372). For example, the CDP (formerly, the Carbon Disclosure Project) advocates for companies to account for and disclose their carbon emissions and exposure to climate risk. In response, many large corporations – including General Electric, Google, Microsoft and even ExxonMobil – have changed their practices and now engage in shadow pricing: they assume there will be a carbon price in the future and include the cost of carbon in their business planning (CDP, 2013). The practice of treating carbon pricing as inevitable contributes to normalising potential moves towards decarbonisation in the corporate community and generates political support for public moves towards carbon pricing (Clark, 2015).

*Capacity building* alters the material, institutional and cognitive capacities to act on decarbonisation (e.g. Pierre and Peters, 2000; Selin and VanDeveer, 2005; Bernstein and Cashore, 2012; Weible and Sabatier, 2014). Direct means through which interventions can increase capacity include ‘direct funding, education, training, [technical] assistance, and . . . co-governance via partnerships between public and private actors and authorities’ (Bernstein and Cashore, 2012: 593). Similarly, capacity can be built via demonstration effects that act as policy learning vehicles (Selin and VanDeveer, 2005; Rabe, 2008). Interventions generate institutional capacity when they alter how governments make decisions and implement programmes.

Finally, *coalition building* is about how interventions can spur the emergence and strengthening of economic and political coalitions that back decarbonisation. They can catalyse these coalitions by identifying and linking ‘winners’ in the move towards decarbonisation and neutralising losers. This entails empowering actors who have an interest in climate change, building constituencies either through creating or altering incentives or by active social movement building and utilising larger market forces.

For example, efforts to promote renewable energy portfolio standards and feed-in tariffs are designed to create winners (renewable energy companies, consumers) that can become a political force for sustained and/or broadened action (though these coalitions often face counter coalitions) (Rabe, 2007; Aklin and Urpelainen, 2013; Stokes, 2013). Even more overtly, carbon pricing initiatives commonly build in revenue distribution or compensation to build support or fend off counter coalitions, as Australia did by including subsidies to impacted sectors and flexibility mechanisms in its 2008 carbon pricing scheme (Gordon, 2015).

### 14.3.2 System Effects

When interventions successfully contribute to normalisation, capacity building and/or coalition building, the policies and practices they support have the potential to scale up. *Scaling* can take multiple forms. Most basically, climate governance interventions may start small and then grow. Growth can be in terms of size and/or range of activities; interventions attract more members and resources, expand their geographic scope or begin to undertake different types of activities. For example, the C40 Cities Climate Leadership Group began as the C20, an ironic reference to the Group of 20 (G20). The C40 Cities Climate Leadership Group has grown not only larger but also stronger – learning and demonstration effects within the network have enabled C40 cities to take the lead on climate change in a number of ways (Gordon, 2013; see also Chapter 5). Interventions might also be copied consciously in other places. This modular scaling looks like some classic versions



of diffusion (e.g. Busch and Jörgens, 2005; Graham, Shipan and Volden, 2012; see also Chapter 9), or what DiMaggio and Powell (1983) call ‘mimetic scaling’. A key example of this is the proliferation of similar forms of transnational city networks over the past two decades that bring municipalities together to work on climate change at the local level (Betsill and Bulkeley, 2004).

Processes of *entrenchment*, like scaling, can take multiple forms. While others have noted the disruptive potential of policy innovation and experimentation to policies that lock in carbon (Jordan, Wurzel and Zito, 2003), entrenchment is the mirror image of that dynamic – processes that make new initiatives and/or the policies or practices they promote ‘sticky’ or difficult to reverse (Levin *et al.*, 2012; see also Mahoney, 2000; Hacker, 2002; Pierson, 2004; Thelen, 2004; Page, 2006). Lock-in can occur in various ways, but the key for entrenchment is that an intervention becomes increasingly difficult to undo because the costs and benefits associated with it engender a shift towards valuing the intervention over the status quo.

The political mechanisms and scaling/entrenchment combine to shape the trajectories of actors or processes that interventions target. The feedback between them over time, along with the substance of the intervention itself, helps to determine whether an intervention will disrupt carbon lock-in and generate pathways that are truly transformational.

### ***14.3.3 Decarbonisation through Carbon Labelling?***<sup>5</sup>

To demonstrate how this framework can be used to examine the trajectories of diverse decarbonisation initiatives and therefore provide insight into functioning of the elements of a potential polycentric governance system, this section briefly outlines the case of the Carbon Trust’s carbon labelling initiative. The United Kingdom’s Tony Blair government created the Carbon Trust in 2001 as an arms-length, not-for-profit organisation designed to support decarbonisation initiatives for businesses. Perhaps its most ambitious initiative was to create a standard for reporting the carbon footprint of products to facilitate carbon labelling and stimulate consumer demand for low-carbon products. The initiative aimed to alter market dynamics in the United Kingdom, its target jurisdiction (The Economist, 2011). In its theory of change, consumer demand for low-carbon products would lead companies to mitigate GHG emissions throughout their supply chains. This logic augurs towards a system-improving pathway because incentives for decarbonisation are indirect through the assumed economic advantages that would accrue to products with lower carbon footprints rather than directly addressing lock-in.

Our analysis begins with capacity building because this intervention's theory of change first required companies to build the capacity to measure individual products' footprints. In 2006, the Carbon Trust pioneered such a methodology and by 2008, in partnership with UK government agencies, developed Publicly Available Specification (PAS) 2050, a measurement method of product life cycle GHG emissions (Carbon Trust, 2008: 2). Accompanying PAS 2050, the Carbon Trust also developed a series of rules for communicating product carbon footprints and reductions and established a subsidiary (the Carbon Label Company) to help companies display their products' carbon footprint consistently and credibly (Carbon Trust, 2008: 7).

The business community initially reacted favourably. The Carbon Trust recruited a number of high-profile corporate partners, including Cadbury, Coca-Cola and Coors, to pilot carbon labels. Supermarket chain Tesco was an early adopter and vowed to put carbon labels on every one of its 70,000 products (The Economist, 2011). However, enthusiasm for carbon labelling in the United Kingdom quickly waned. Participating companies complained about the cost of calculating a carbon footprint. In 2012, Tesco abandoned its pledge to label all products, citing insufficient take-up from other retailers and costs of life cycle analysis for each product (Vaughn, 2012). By 2012, scaling and entrenchment seemed unlikely because even if capacity was in place to produce carbon labels, the idea of product-level labelling failed to normalise among consumers and corporations.

Despite the failure to generate norms around labelling in the UK market, corporations were normalising carbon management of their supply chains because of the capacity enhancements Carbon Trust provided. It turned out that the Carbon Trust methodology helped companies identify the true drivers of GHG emissions (Carbon Trust, 2008: 20). Normalisation of managing carbon in supply chains and production also spread beyond the corporations that initially agreed to participate in labelling pilot projects. Tesco's carbon labelling intervention led its suppliers to implement their own carbon reduction and energy efficiency programmes, as did other UK-based companies (Carbon Trust, 2008: 4). The Carbon Trust intervention thus did contribute to normalisation, but not as intended. Instead of normalising carbon-conscious consuming, its methodology helped normalise carbon-conscious production and supply chain management.

In our framework, political mechanisms can spur the system effects that drive trajectories. In this case, because of the failure to normalise the idea of carbon labelling in the United Kingdom, little simple scaling occurred. Indeed, initial uptake by retailers reversed when consumer behaviour failed to provide the expected economic incentive. However, capacity building for and normalisation of carbon management amongst corporations led to significant modular scaling of the intervention. Following the launch of the Carbon Trust's standard in 2008,

a range of carbon footprinting methodologies emerged in countries around the world (France, Japan, Korea, Québec, Thailand) that drew on PAS 2050 methodologies (Sharp and Terada, 2008; Vergez, 2011: 1; KEITI, n.d.). PAS 2050 also became the basis for a number of transnational carbon labelling standards like the World Business Council for Sustainable Development and the World Resources Institute's Product Life Cycle standard. Further, ISO 14067, a newly developed international standard for the quantification and communication of the carbon footprint of products, draws heavily on PAS 2050, and the Carbon Trust participated actively in its development (Carbon Trust, 2008: 5). Although unintentionally, the labelling intervention, through capacity building, catalysed the emergence of multiple labelling interventions in other places that draw on the Carbon Trust methodology.

Similarly, while carbon labelling failed to entrench in the UK retail market, footprinting in supply chains shows evidence of durability, exhibiting self-reinforcing and increasing returns logics. Once companies saw benefits from supply chain management of carbon footprints, those changes, and the search for ongoing improvement, became self-reinforcing. For example, one UK-based manufacturer who participated in the Carbon Trust's footprinting pilot began to hold 'supplier summits' to foster cooperation and drive innovation amongst suppliers (Carbon Trust, 2008: 4).

The substance of the Carbon Trust intervention suggested that it would catalyse a system-improving trajectory. The initial failure of the intervention to scale or become entrenched through its intended theory of change would lead to a revision of that initial hypothesis and consider a system reinforcing trajectory to be the likely outcome. However, running this case through our framework highlights the importance of recursive evaluation to see what pathway it is on (i.e. improving as opposed to reinforcing or transformative), consideration of multiple forms of scaling and entrenchment and the importance of unintended consequences. Specifically, the combination of capacity building and normalisation catalysed scaling and entrenchment, but in unintended ways. Evidence suggests that carbon labelling has changed how companies mitigate their carbon emissions and interact with suppliers, helping to build coalitions of support and collaboration with suppliers, but entrenchment appears to be of management practices that saved costs, not the goal of reducing carbon footprints. In this case moving towards system improvement rather than transformation.

#### **14.4 Nascent Polycentricity**

Examining an individual intervention through this framework provides a window on how diverse decarbonisation initiatives might function and catalyse change in

specific places. This analysis is a necessary step in assessing prospects for a polycentric governance system to emerge. While decarbonisation interventions are mostly independent at this point, they are not operating in isolation – they cannot. Because of the interdependent nature of carbon lock-in, decarbonisation in specific places has the potential to catalyse broader moves to decarbonisation. If a city decarbonises, this must have an impact on the province that city is located within and other cities with which that city has economic relations. Beyond this natural interdependence, we also observe the emergence of linkages among interventions – conscious and direct as well as self-organised. The potential for a polycentric governance system is becoming evident.

#### ***14.4.1 Direct Linkages***

Most directly, a decarbonisation intervention in one place can alter the politics in other places or domains – see Figure 14.2. This crossover impact emerges in two ways. First, an intervention in one place can catalyse the emergence of new interventions targeting other places – what Ostrom would regard as mutual adjustment. The C40 network emerged, in part, in response to what was seen as lacuna in the main existing transnational city network at the time (ICLEI’s Cities for Climate Protection). Second, an intervention in one place can contribute to the political mechanisms at play in other systems or domains that already have a decarbonisation initiative. For example, subnational emissions trading systems like California and Québec reinforced one another (by contributing to capacity building and normalisation across these interventions) and eventually became linked, and a new system in Ontario has joined them. It is just this kind of crossover impact that has the potential to generate the reciprocity, trust and self-organisation that are hallmarks of truly polycentric governance systems.

#### ***14.4.2 Self-organisation<sup>6</sup>***

Even without direct links, ecosystems of interventions can also emerge and expand because decarbonisation initiatives open up political and economic space for further activity. Intervention begets intervention in important ways. This kind of clustering effect facilitates self-organised scaling and has the potential to engender increasing returns to interventions – a dynamic whereby adding interventions reduces the barriers to further innovations and encourages the expansion of complementary activity. Clustering produces new niches that additional interventions can fill and opens up opportunities for cooperation and competition that produces more interventions (Hoffmann, 2011). The voluntary carbon market is a quintessential example. Once carbon offsets producers emerged, this opened up

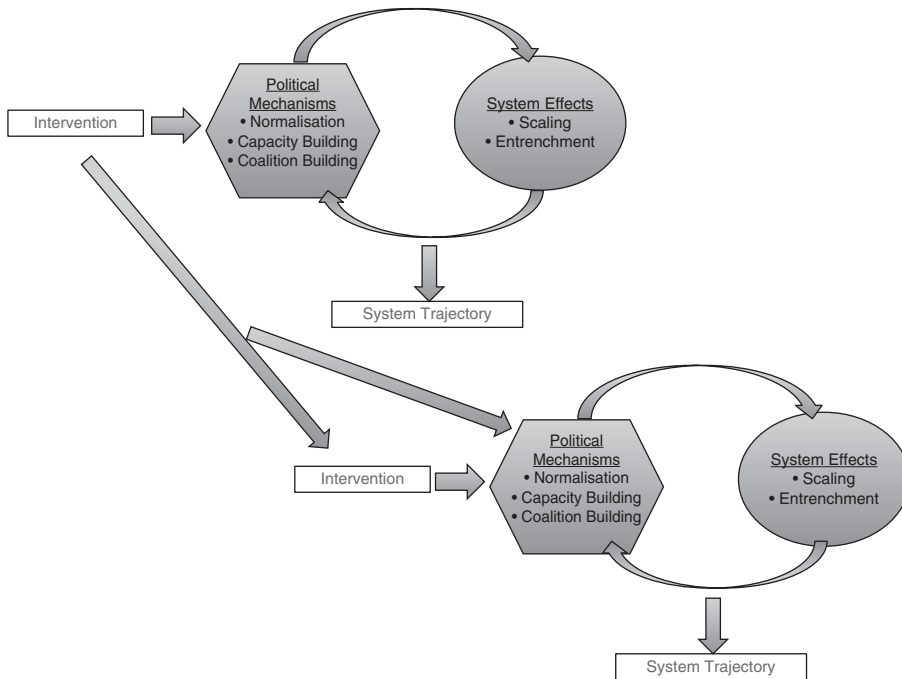


Figure 14.2 Decarbonisation pathways across subsystems.

room for additional interventions to make the market work – offset and carbon credit registries, carbon standard-setters and carbon accounting (compare Chapter 6). The entire voluntary carbon market is an ecosystem of interventions; each of its functions is made relevant by the functioning of others.

#### 14.4.3 Meta Initiatives and Orchestration

Finally, more self-conscious efforts to build what Ostrom would recognise as a polycentric governance system are beginning to occur, with the trust-building, experimentation and monitoring that goes with it. One example of this is something we call ‘meta-initiatives’ – decarbonisation initiatives that are designed from the outset to consist of multiple projects in different places. For instance, the Renewable Energy and Energy Efficiency Partnership, founded in 2002 at the World Summit on Sustainable Development, promotes clean energy by providing funding, mentorship and investor matchmaking services for projects in the global South (REEEP, 2016a). The Renewable Energy and Energy Efficiency Partnership is really a facilitator of multiple decarbonisation initiatives in multiple places, providing resources and parameters for projects to follow. It seeks to catalyse innovation and experimentation in the projects that it funds, as well as to monitor

and evaluate the projects with an eye towards knowledge creation, sharing and collaboration across projects (REEEP, 2016b).

As discussed in Chapters 2 and 11, we are also seeing active orchestration of diverse climate and decarbonisation initiatives. At the multilateral level, there is the Non-state Actor Zone for Climate Action (NAZCA) platform being run by the UNFCCC secretariat that ‘aims to track the mobilization and action that are helping countries achieve and exceed their national commitments to address climate change’ (UNFCCC, n.d.). Transnationally, we have the Galvanizing the Groundswell of Climate Action project that consists of ‘open dialogues that aims to bring the groundswell of climate actions from cities, regions, companies, and other groups to a higher level of scale and ambition’ (Galvanizing the Groundswell, n.d.). These orchestration platforms (van der Ven, Bernstein and Hoffmann, 2017) are working out ways to assess and account for the climate activities going on outside the multilateral negotiations (Chan *et al.*, 2015). They may produce a medium for the kind of trust building and mutual adjustment amongst decarbonisation initiatives that are necessary components of a fully polycentric governance system.

## 14.5 Conclusions

Decarbonisation governance can be *described* as polycentric; there are now multiple domains of authority *governing* decarbonisation attempts in specific places. One of the main messages of this chapter has been the importance of analysing this decentralised politics in a way that simultaneously takes seriously the fact of polycentric authority but remains open-minded as to whether that politics can yet be *explained or analysed* as a polycentric governance system. Observing the polycentric responses to climate change has generated many important insights touched upon in this chapter and covered extensively in the rest of this volume, including the benefits of experimentation, the importance of learning and diffusion and, specifically here, the focus on scaling and entrenchment. At the same time, the decarbonisation initiatives that are currently at work in the world do not follow a polycentric logic of collective action yet. The problem of carbon lock-in (and the goal of decarbonisation in response) rests at least initially on a very different *problématique* – one of interlocking social, economic, technological and political systems. Acting on the system of carbon lock-in requires multiple interventions, and the problem of collective action may or may not arise secondarily to this *problématique*. Our framework can be used to analyse the politics of these myriad interventions both individually and in their developing linkages as a precursor to the emergence of a polycentric governance system.

A challenge in studying decarbonisation is that it is necessarily analytically speculative. We do not have completed ‘cases’ of decarbonisation to study, because moves towards decarbonisation are nascent at best, even amongst the most aggressive actors on climate change. Therefore, we focus on the study of trajectories and the political mechanisms that may produce decarbonisation pathways. This also explains our caution in jumping from the politics of decarbonisation among and between the polycentric array of governance interventions and the particular prescriptions derived from a *theory* of polycentricity that seeks to foster polycentric collective action (e.g. Ostrom, 2010b; Cole, 2015b). The prior step is to understand the politics of scaling and entrenchment, which may tell us something about the possibilities of these initiatives emerging into a truly polycentric system that can begin to transform the existing system of carbon lock-in.

A next step could be to combine the insights generated from this kind of analysis with those generated by other chapters in this book. Such a combination at least has the potential to analyse ways in which emergent properties of polycentricity can be leveraged to support both the scaling and entrenchment of governance arrangements with transformative potential and linkages, learning, further diffusion and coordination within a system where these myriad initiatives collectively can better achieve their ultimate goals. Indeed, if Jordan *et al.* (2015) are correct, such a polycentric climate governance system is already emerging.

In tandem, these approaches may be useful not only for studying decarbonisation trajectories but also for developing and nurturing them – a more normative endeavour which Ostrom herself was keen to encourage (Ostrom, 2009). Although we have not addressed normative implications of this approach in this chapter (see Chapter 1), studying the politics of trajectories also opens up space to address crucial questions of contestation over the meaning and purpose of decarbonisation. In addition, it raises questions about the values that would permeate a polycentric governance system. Which kind of initiatives would be valued? How would linkages, mutual adjustment and monitoring be agreed to? Because both decarbonisation and polycentric governance are nascent, we have the opportunity to reflect now on the ways in which pursuing decarbonisation may empower certain groups over others, or even the possibility that decarbonisation might be forced in undemocratic ways, exacerbate inequalities or pre-existing power dynamics, or be applied inappropriately in particular development contexts (Scoones, Leach and Newell, 2015). Further decarbonisation research should thus concentrate on understanding and imagining pathways that avoid the worst impacts of climate change and that are compatible with other social, political and economic values.

### Notes

1. Whether these activities are actually disruptive is an empirical question. We know from existing research that many of them are not, even though their stated purpose is to address climate change (Hoffmann, 2011).
2. Of course, there may be collective action problems in launching individual initiatives.
3. This section draws extensively from Bernstein and Hoffmann 2018.
4. This perspective can complement approaches to decarbonisation that focus more on the economic and technical aspects of disrupting carbon lock-in and pursuing a low-carbon future like the Deep Decarbonisation project (SDSN, 2014) and the sociotechnical transitions literature (e.g. Jordan, 2009; Geels, 2010, 2014; Meadowcroft, 2009, 2011).
5. This section draws from van der Ven, Bernstein and Hoffmann (2017).
6. This section draws from Bernstein and Hoffmann 2018.

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