



Chapter 11



Policy Theory and Practice

Coordinating Lead Authors: Klaus Jacob (Freie universität Berlin), Peter King (Institute for Global Environmental Strategies)

Lead Authors: Pedro Fidelman (Centre for Policy Futures, University of Queensland), Leandra Regina Gonçalves (University of Campinas/Centre for Environmental Studies and Research [NEPAM]), James Hollway (Graduate Institute of International and Development Studies), Sebastian Sewerin (Swiss Federal Institute of Technology Zurich [ETH Zurich])

Fellow: He Chenmin (Peking University)



Executive summary

Environmental policy struggles with some conceptual and empirical challenges, so a good starting point for analysis is what constitutes 'good' policy design. Within the definition of 'good' policy design, ecosystem properties and problems, the performance of existing policies, practices and actors need to be considered common elements. Analysts and policymakers should better understand the temporal dynamics of policy change, how and why specific policies work (or not) and how policy choices interact in increasingly complex policy mixes. {11.2}

In the field of environmental policy research, diffusion across borders has featured prominently, especially in relation to renewable energy policies such as feed-in tariffs, renewable portfolio standards and emissions trading. Among four possible mechanisms of renewable energy policy diffusion (emulation, suasion, learning and competition), suasion and emulation were found to be more common than learning and competition. There has been little research on post-adoption dynamics of diffused policies, with a risk of undermining other sector policies and policy coherence. {11.2.1}

In relation to how policies change over time and what factors drive these changes, two approaches are dominant in the literature: policy stability—or lock-in—on the one hand and punctuated equilibrium on the other. Punctuations may be driven by external shocks that rock the otherwise stable policy environment until a new equilibrium is established. Such punctuations may open opportunities for new environmental policies (e.g. the impact of Japan's Fukushima nuclear disaster on Germany's policy decision to phase out nuclear power). Often, to avoid risks from taking decisions with unwanted side effects, policymakers tend to delay decisive action as long as possible and, confronted with external shocks, choose symbolic action rather than effective policymaking. {11.2.2}

Policy innovation can be regarded as a mix of invention (new or novel approaches), diffusion (transfer and adoption) and monitoring of effects (outcomes, impacts and possibly disruption). Good practice suggests that multiple innovative policies should be implemented as a form of quasi-experiment, with best practices emerging from the monitored effects. {11.2.2}

Evaluation of policy effectiveness often comes down to expert judgement, as there is no commonly agreed approach to assessing effectiveness. Ideally, a combination of quantitative and qualitative assessments will be most reliable in assessing policy effectiveness. Some policy design tools that can supplement expert judgement are: (i) cost–benefit analysis and cost-effectiveness analysis, both of which can be used *ex ante* (before implementation) or *ex post* (after implementation); (ii) regulatory impact analysis; (iii) benchmarking or distance to goal or target; and (iv) content analysis or pattern matching. {11.2.3}

A key lesson learned is to carefully craft a mix of policies that are well aligned with an overall policy objective followed by monitoring of the actual effects to determine best practice and likely contributions of different policies.

For example, climate change mitigation policy objectives will need a comprehensive mix of carbon pricing, support for energy efficiency and renewable energy, phasing out fossil fuel subsidies, innovation policies, preventing lock-in of certain technologies and changes in consumer behaviour, among others. {11.2.4}

Environmental objectives cannot be realized by environmental policies alone, but need to be incorporated in non-environmental policy sectors too. Environmental ambitions often clash with other sectoral goals, so environmental policy integration should be used to address conflicts between environmental and other policy objectives. A corollary to policy integration is policy coherence: the promotion of mutually reinforcing policy actions creating synergies towards achieving objectives in multiple sectors. {11.3}

An important argument in favour of environmental policy integration is the economic and social co-benefits that can be expected or demonstrated from implementing environmental policies. These may include additional economic growth from innovation, savings from more efficient use of natural resources and avoiding the costs of environmental damage. {11.3.3}

Involving alliances, clubs and non-State actors in policy design may provide opportunities for peer pressure to overcome institutional reluctance. Hybrid governance, combining different modes and instruments of governance, can help mutually strengthen institutional responses. There is no 'one size fits all' governance structure, however. As for policy effectiveness, different approaches have been proposed to gauge institutional effectiveness, involving both qualitative and quantitative methods. Increasingly important in international environmental policy discourse is the role of non-State actors such as local governments, cities and civil society organizations. As the 17 SDGs are intended to be fully integrated and universal, several countries are now grappling with the task of devising the most effective institutional arrangements to address the desired vertical and horizontal policy integration. {11.4.2}

Finally, the importance of good policy design cannot be overstressed. Some common elements are: (i) setting a long-term vision and avoiding crisis-mode policy decisions, through inclusive, participatory design processes; (ii) establishing a baseline, as well as quantified targets and milestones; (iii) conducting *ex ante* and *ex post* cost–benefit or cost-effectiveness analysis to ensure that public funds are being used most efficiently and effectively; (iv) building in policy monitoring regimes during implementation, preferably involving affected stakeholders; and (v) conducting post-intervention evaluation of the policy outcomes and impacts, to close the loop for future policy design improvements. {11.5}



11.1 Introduction

Academic and practical or policy advice-related research asks important questions about environmental policy. However, the literature still struggles with common conceptual and empirical challenges, including:

- i. diverse conceptualizations and measurements of policy, which frustrate generalization;
- ii. poorly understood dynamics of policy change and stability; and
- iii. complex effects of policy design choices.

Overall, these common challenges impede the comparability of findings across environmental policy fields, risking somewhat narrow approaches and perspectives.

One potential starting point for overcoming this narrow focus is a renewed interest in policy design. Are there common elements of 'good' policy design that are transferable across problem domains? How do policymakers search for effective policy precedents, and how does this search lead to policy diffusion across countries and across problem domains? How does the theoretical understanding of policy design contribute to policy practice?

This section examines the literature and teases out some lessons learned for validation by the policy domains/instruments and governance arrangements and associated case studies in Chapters 12–17 of Part B (Figure 11.1). Essentially, it addresses the top portion of Figure 11.1, while Chapters 12–17 explore the lower half. Figure 11.1 illustrates the importance of going beyond an analysis of individual policy instruments when trying to determine policy effectiveness. At the policy design stage, policymakers should examine how an environmental policy will either support or conflict with policies in other sectors, and vice versa. Various policy integration tools are available to contribute to this design requirement. Within the environmental policy mix, policymakers should ensure that any new policy is coherent with and supportive of the

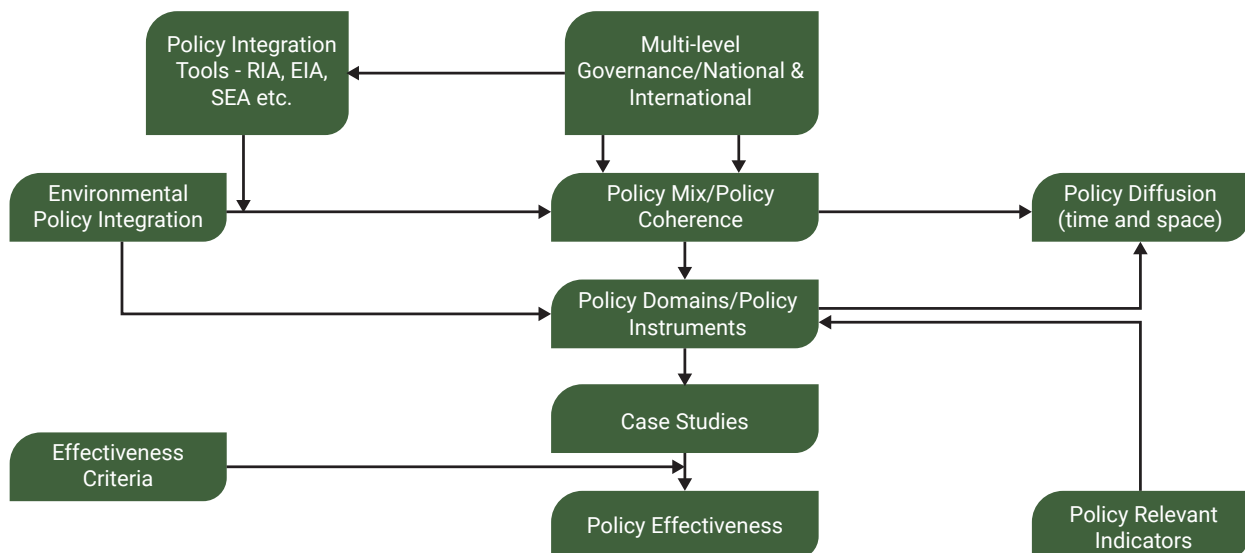
intended policy outcomes. Policymakers at multiple levels of governance may also examine experience from other countries, subnational areas or corporations, leading to policy diffusion across borders and over time. In subsequent chapters, this experience is examined from the perspective of multiple case studies, to tease out explanations of why particular policy approaches appear to have been more or less effective, as well as to analyse policy-sensitive indicators.

11.2 Policy design

The challenges described above, relate both to the spatial and temporal dynamics of policy change and to the complexity of how policy instruments interplay within a policy mix. These have led to a renewed interest in questions of policy design (Howlett and Lejano 2013). The literature acknowledges the complexities of design elements in dense policy mixes (Howlett and Cashore 2009; Howlett and del Rio 2015; Young 2017), and it also recognizes that the compliance system highly influences it (Grey and Shimshack 2011). However, as the research agenda develops, approaches for institutional diagnosis (Young 2008; Ostrom 2009), empirical assessment and analysis of policy change (Jabbour *et al.* 2012; Knill, Schulze and Tosun 2012; Schaffrin, Sewerin and Seubert 2015) have been increasingly applied to systematic, more quantitative analysis of policy (mix) dynamics (Voigt 2013). Young (2008) argues that ecosystem properties and problems, policies, practices and players need to be considered as elements for regime design under a diagnostic analytical approach that tries to match institutional arrangements to those properties and structures. Ostrom (2007) takes a similar approach and builds a framework that contains many types of resource properties across multiple scales, including local.

Regarding policymakers' decision-making, there is an emerging consensus that policy design is at least as important as policy instrument choice for both individual policy effectiveness and for the effectiveness of the overall policy mix (Mitchell 2002; Yin and Powers 2010; Flanagan *et al.* 2011; Kemp and Pontoglio 2011). For example, technology-specificity—i.e. where a policy

Figure 11.1: Conceptual outline of policy effectiveness analysis





explicitly differentiates between different available technologies that address a given policy problem—is increasingly applied in the analysis of low-carbon technology deployment policies (e.g. Schmidt *et al.* 2016). Yet, integrating the various perspectives on policy design (e.g. from implementation research or governance studies) remains challenging. Still, literature on policy dynamics and policy mixes, on policy design and policy effectiveness and on long-term intervention logics is increasingly available (Young 1999; Miles *et al.* 2002; Howlett and Rayner 2013; Mees *et al.* 2014).

When trying to tackle the various pressing environmental problems outlined in Part A, a policy design perspective would be very helpful. Analysts and policymakers alike need to better understand the temporal dynamics of policy change, how and why specific policies work (or not) and how policy choices interact in an increasingly complex mix of policies. Ideally, this would help to improve the design of policies that create positive feedback loops (including *ex post* impact assessment), eventually changing the underlying instrumental logic of a policy mix (Figure 11.2).

11.2.1 Spatial dynamics: policy diffusion across borders

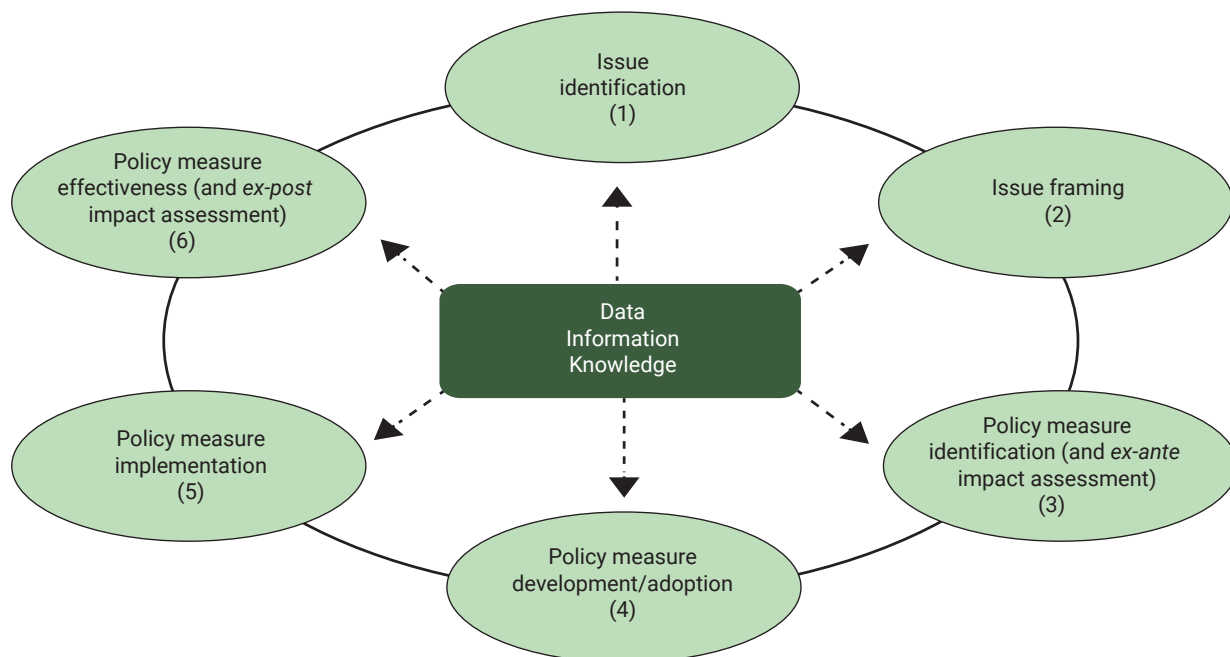
Policy diffusion research aims to understand how and why policies spread across borders and are adopted and designed by different jurisdictions. The academic literature, primarily from the field of political science, tends to focus on drivers of the spatial diffusion of policies (Tews, Busch and Jorgens 2003; Holzinger, Knill and Sommerer 2011; Graham, Shipan and Volden 2013; Matisoff and Edwards 2014), and much less so on what policies have actually diffused and when (Jordan and Huitema 2014a). In the environmental policy research literature, policy diffusion featured prominently in the 2000s

and early 2010s. The main focus of this research was on environmental regulations (Knill, Schulze and Tosun 2012) and renewable energy policy (Alizada 2017). The former was helped by the availability of a large data set of regulatory standards covering primarily emissions (Heichel *et al.* 2008), while the latter was driven by the debate about the effectiveness of feed-in tariffs and renewable portfolio standards as renewable energy deployment policy tools. Generally, these studies focused either on the macro-level characteristics of policies (e.g. policy instrument types), as in Stadelmann and Castro (2014), or on very specific regulatory standards (e.g. NOx or SO₂ emissions standards for large combustion plants) as in, for example, Liefferink *et al.* (2009); Holzinger, Knill and Sommerer (2011). In relation to renewable energy, four possible mechanisms of policy diffusion—emulation, suasion, learning and competition—were examined (Alizada 2017). Suasion and emulation were found to be more common than learning and competition.

More recently, there has been an explosion in climate change-related policies in both developed and developing countries. Over the period 1998–2010, there was a fivefold increase in national climate laws, and by 2012 these laws covered 67 per cent of all emissions (Jordan and Huitema 2014b).

There is little research, however, on the post-adoption dynamics of diffused policies. Only isolated studies (e.g. Biesenbender and Tosun 2014) analyse how these policies are adapted in new jurisdictions—i.e. how they are modified subsequent to the initial diffusion. The European Union's emissions trading scheme is a good example of the difficulties in adjusting policy from one jurisdiction to another (Cass 2005). Post-adoption dynamics may even undermine the intended policy impact and policy coherence (Jordan and Huitema 2014a).

Figure 11.2: The policy cycle



Source: European Environment Agency [EEA] (2006)



Some publicly available data sets aim to help chart the diffusion of environmental policies, particularly related to climate change and, more specifically, to renewable energy policy. The London School of Economics' Climate Change Laws of the World Database (Nachmany *et al.* 2017), for example, compiles information on national-level climate policies ranging from adaptation to mitigation to transport. Similarly, REN21's Global Status Report charts the use of renewable energy policies across a large sample of national and subnational jurisdictions. International organizations, such as the International Energy Agency (IEA), also collect information on renewable energy-related policies in use across a large sample of jurisdictions. The quality of all these data sets, though, varies, as does the method of collection, categorization of policies and the level of detailed policy information included. This problem relates to what has been coined the "dependent variable problem in the study of policy change" (Howlett and Cashore 2009)—i.e. the underlying challenge of how to assess policy output systematically across cases. While efforts have been made to develop a common methodology for measuring policy output in a comparable way (e.g. Knill, Schulze and Tosun 2012; Schaffrin, Sewerin and Seubert 2015), these approaches are only slowly being taken up, and most policy dynamics analysis continues to apply diverse or ad hoc concepts and measurements of policy output. Thus, despite prolonged interest in the topic and efforts to provide systematic policy information, knowledge of the spatial diffusion of environmental policies, especially outside the specific policy field of renewable energy, remains limited.

11.2.2 Temporal dynamics: policy change over time

If and how policies change over time and what factors drive these changes are important topics in the academic literature. The different approaches for understanding policy change can be categorized, on the one hand, in path-dependency literature, which stresses that early policy decisions lock in policy choices and that most policies only change incrementally after they are implemented (Pierson 2000). The main reason for such stability is thought to be positive feedback, through for example, policy learning that creates and sustains self-reinforcing processes around a policy. On the other hand, the punctuated equilibrium approach seeks to explain how otherwise stable policies can unravel in a sudden burst of abrupt, non-incremental change (Baumgartner and Jones 2009; Colgan, Keohane and Van de Graaf 2012). The main driver of these punctuations is thought to be external shocks that tilt the otherwise stable balance of positive and negative feedbacks towards a new equilibrium. One example of such a shock could be a legal case that challenges the legitimacy of the environmental policy. A punctuation could also create opportunities for environmental policies; for example, the Fukushima disaster in Japan may have led to Germany's policies to phase out nuclear energy (Wittneben 2012).

Both approaches have been applied in the analysis of environmental policy change (e.g. Daugbjerg 2003; Repetto 2006), although the applications have mostly concentrated on large programmes in particular policy areas, such as agriculture. Recent literature has argued that focusing exclusively on positive feedback or on the catalytic effect of external shocks is not very helpful for intentionally designing policies that can both create positive feedback and withstand sustained negative feedback and external shocks (Jordan and Matt 2014).

The complexity of environmental problems can also increase the risk of 'policy under-reaction' by decision-makers, since it is difficult for policymakers to accurately estimate risks (Maor 2014). To avoid risks from taking decisions with unwanted side effects, policymakers tend to delay decisive action as long as possible and, confronted with external shocks, choose symbolic action rather than effective policymaking (Howlett 2014). There are a number of suggestions for strengthening the importance of the environment within States to overcome such shortcomings (Kloepfer 1989; Calliess 2001; Eckersley 2005; Jänicke 2007); however, this has not happened so far: the importance of the environment is not institutionalized as a priority but competes with other goals of governments.

Against this background, research is increasingly turning to policy design (Howlett and Lejano 2013) and seeks to understand how policy design choices can create policy change—i.e. how steps of incremental policy change can, over time, build up to create transformational change. Policies that are 'sticky' (i.e. persistent) but not 'stuck' (i.e. unresponsive to changing conditions) and that create positive feedbacks are seen as a potential way to increase the effectiveness of environmental policies (Jordan and Matt 2014). The Paris Agreement on climate change and its ratcheting-up mechanism is a prominent example of this concept (Falkner 2016). The need for such a forward-looking approach to policy design can be seen in policy fields that are troubled with complexity, as is the case for most environmental problems (Levin *et al.* 2013). The design of international regimes heavily influences their effectiveness—even more importantly than the type of underlying problem. In other words: an easy problem is not solved if an international regime is poorly designed (Young 2011). Given the context dependency of policies and regimes, a careful diagnosis of the appropriateness of their design is essential (Young 2011).

Policy innovation can be regarded as a mix of invention (new or novel approaches), diffusion (transfer and adoption) and monitoring of their effects (outcomes, impacts and possibly disruption) (Jordan and Huitema 2014b). The literature on polycentric governance suggests that multiple innovative policies should be implemented as a form of quasi-experiment, with best practices emerging from the monitored effects. It has been argued that governance at the lowest possible level minimizes free-riding as a motivation, and that monitoring is easier in smaller entities, e.g. communities (Marshall 2009). However, on a global scale, polycentric governance could lead to free-riding by governments, for example in the absence of a global regime, governments could be tempted to avoid actions while benefiting from mitigation efforts by others (Ostrom 2010). However, the role of policy entrepreneurship, and the contribution of civil society, in motivating policy shifts should not be underestimated.

Policy innovation, however, is not necessarily the most effective pathway to policy packaging, as tried and true command and control and economic incentive policies may deliver most of the impact (Hildén, Jordan and Rayner 2014; Jordan and Huitema 2014a). Greater focus on policy coherence, successful implementation and compliance may prove that traditional policy approaches still work effectively. Innovative policies may bring new implementation and compliance challenges which existing institutions are not well equipped to handle.



11.2.3 Policy effectiveness through improved design

In the past, attempts to measure policy effectiveness assumed there was a one-to-one correlation between an environmental policy and its outcomes (Weber, Driessen and Runhaar 2013). In some cases, this may be warranted, such as a government command and control policy to remove lead from petrol or from paint (see the subsequent discussion of policy-sensitive indicators). However, in most of the case studies in Chapters 12-17, attributing environmental outcomes to specific policies is shown to be challenging. Counterfactual scenarios (i.e. without policy) cannot be implemented experimentally, for practical and ethical reasons among others, as it is not justifiable to expose one group to a policy against a harmful pollutant and not others (Niles and Lubell 2012).

For these reasons, evaluation of policy effectiveness often comes down to the use of expert judgement (Figure 11.3) (EEA 2001; Egger *et al.* 2015). Figure 11.3 shows that not all energy efficiency policies are ranked equally, and a significant proportion of experts believe some policies are not effective at all. Although there are some limitations to measuring policy effectiveness, some important insights have emerged, not only from the use of statistical procedures to separate the effects of individual variables but also from the application of alternative techniques, such as Qualitative Comparative Analysis (QCA), designed to identify combinations of factors that operate together, to determine the effectiveness of policies (Breitmeier, Underdal and Young 2011). Ideally, a combination of quantitative and qualitative assessments will be most reliable in assessing policy effectiveness (Egger *et al.* 2015).

Some policy design tools that can supplement expert judgement are:

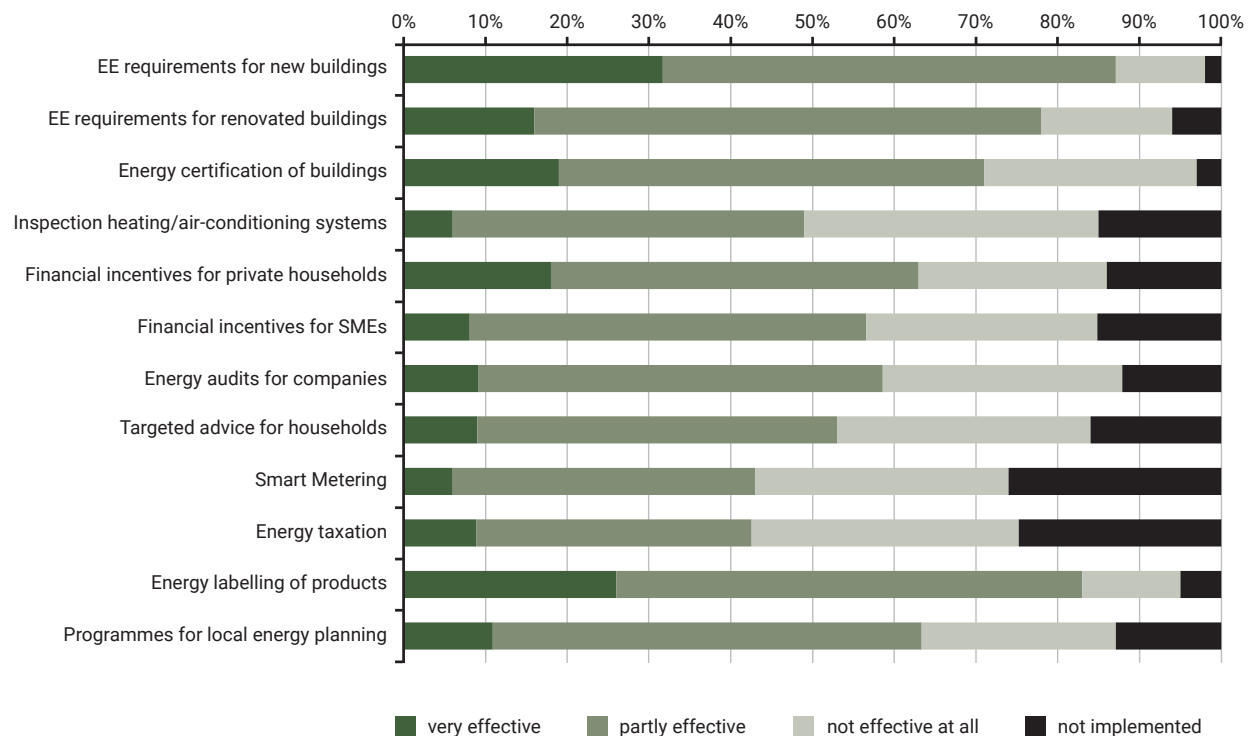
- i. cost-benefit analysis and cost-effectiveness analysis, both of which can be used *ex ante* or *ex post* (Interwies, Gorlach and Newcombe 2007);
- ii. regulatory impact analysis (Organisation for Economic Co-operation and Development [OECD] 2008);
- iii. benchmarking or distance to target (Uslu, Mozzaffarian and Stralen 2016); and
- iv. content analysis or pattern matching (Di Gregorio *et al.* 2017).

Of course, environmental problems are essentially social constructs, and what appears as an environmental problem to one group may not be seen as a problem by another group with different interests. Therefore, in designing effective policies, framing of the 'problem' is extremely important. For example, framing climate change as an issue involving employment and security, as exercised in Europe, may be more effective than simply discussing it as a technical or scientific issue. Changing the approach to economic development from 'grow now, clean up later' may be an important shift in environmental policy design in several developing countries.

11.2.4 Policy mixes

As indicated in Chapter 10, within the environmental domain a key lesson learned is to carefully craft a mix of policies that are well aligned with the overall policy objective (OECD, IEA, Nuclear Energy Agency [NEA] and International Transport Forum

Figure 11.3: Results of expert perspectives on European energy efficiency policies



Source: Egger *et al.* (2015)



[ITF] 2015) and then monitor the actual effects to determine best practice. For example, climate change mitigation policy objectives will need a comprehensive mix of carbon pricing, support for energy efficiency and renewable energy, phasing out fossil fuel subsidies, innovation policies, preventing locked-in technology and changes in consumer behaviour, among others (Hood 2011). Too often policies are not well aligned and may even be in conflict, so solving misalignment and ensuring that policies are mutually reinforcing may be one of the best ways of achieving environmental improvement (OECD *et al.* 2015).

Policy analysis literature increasingly recognizes the need to view policies not in isolation but to consider each policy in its wider context among a mix of other policies. Policy mixes are generally thought of in relation to specific policy fields (e.g. the renewable energy policy mix). Their quality is traditionally assessed in qualitative terms and draws on a set of concepts, such as

- i. consistency of multiple policy instruments (i.e. instruments' ability to reinforce rather than undermine each other),
- ii. coherence of multiple policy goals (i.e. goals not contradicting each other) and
- iii. congruence of multiple policy goals and instruments (i.e. their ability to work together in a unidirectional fashion) (Howlett and Rayner 2013; Kern, Kivimaa and Martiskainen 2017).

While these concepts are widely used, they are neither consistently defined nor is there an accepted common practice of assessment, leading to a lack of empirical analysis of patterns of policy mixes (Howlett and del Rio 2015). Other than a rather broad understanding that some types of policy instruments do not necessarily work well together, the interplay of policy instruments in a mix is not well understood. One main reason for this is the persistent challenge to adequately and systematically assess and evaluate individual policies (Capano and Howlett 2009; Howlett and Cashore 2009)—i.e. the building blocks of complex policy mixes—let alone how they mix with other policies. Only recently has research begun to tackle these important challenges, either by conducting policy mix analysis based on comprehensive data sets (Schmidt and Sewerin 2018), or by modelling the interplay of policy instruments. These models, however, are generally limited to the interplay of two or three policies, whereas the real-world mix, consisting of many more policies, is usually more complex.

11.3 Policy integration

Environmental objectives cannot be realized by implementing a mix of environmental policies alone; they need to be integrated in non-environmental policy sectors too. This is underpinned in the integrated approach of Agenda 2030 and the Sustainable Development Goals (SDGs). However, environmental ambitions often clash with other sectoral goals—for example, when the utilization of natural resources by the energy sector, agriculture industries or for building infrastructures clashes with efforts to conserve those natural resources. A concept that promotes the environment in other policy sectors, and recognized in previous GEO assessments, is 'environmental policy integration' (EPI) (Lay *et al.* 2017). EPI aims to settle such conflicts between environmental and other policy objectives and has been discussed in the scientific literature (Nilsson

et al. 2012; Runhaar, Driessen and Uittenbroek 2014) and debated in policy contexts from early on (Mullally and Dunphy 2015). It led to the introduction of a wide range of institutions, processes and instruments for its implementation (Jacob *et al.* 2008). The principle of EPI also contributed to change in policy discussions which again affected policy outcomes (Scarse and Ockwell 2010; Espinosa *et al.* 2017). Others suggest that EPI needs to go further and demand the "incorporation of environmental objectives into all stages of policy-making in non-environmental policy sectors, with a specific recognition of its role as a guiding principle for the planning and execution of policy" (Lafferty 2004, p. 201). This level of ambition is not achieved in reality, as policy incoherence and competition typically prevail, pointing to the limitation of the institutions, instruments and processes that have been introduced to promote EPI.

It is not always clear how institutional and socio-economic conditions associated with other policy domains degrade the environment, making it difficult to understand which EPI strategies would work to mitigate this degradation (Runhaar, Driessen and Uittenbroek 2014). Systematic evidence is lacking on how sectors such as agriculture, transport, urban planning or water management incorporate environmental concerns and standards to prevent, reduce or mitigate any harmful environmental effects. Nonetheless, one necessary but insufficient condition for policy integration is political leadership and the acknowledgement of co-benefits across multiple policy domains (Persson 2007; Jordan and Lenschow 2010).

Policy coherence

A closely related concept to policy integration is policy coherence: the promotion of mutually reinforcing policy actions creating synergies towards achieving objectives in multiple sectors. Attempts at better coherence include the development of national sustainable development strategies and various road maps, such as those developed by the European Commission or the 'better regulation' agenda pursued by both the European Union (EU) and the OECD (European Commission 2010). Here too, policy leadership and co-benefits are necessary but insufficient. In 2016, the OECD elaborated a framework of policy coherence for sustainable development based on eight building blocks:

- i. political commitment and leadership at the highest level;
- ii. integrated approaches to implementation;
- iii. an intergenerational time frame;
- iv. analysis and assessments of potential transboundary effects;
- v. policy and institutional coordination;
- vi. local and regional involvement;
- vii. stakeholder participation; and
- viii. monitoring and reporting (OECD 2017).

A major example of an attempt at environmental integration and coherence within the United Nations environmental umbrella are the SDGs (United Nations General Assembly [UNGA] 2015). The SDGs encompass major environmental areas such as climate change, chemical pollution, waste, and marine and terrestrial ecosystems, but they also include social, economic and institutional development objectives applicable to both low-income and high-income countries, such as access to food, water, sanitation, energy, health,



education and justice, and the development of infrastructure, cities, employment and growth (Nilsson and Persson 2017). The SDGs mark a historic shift for the United Nations towards a unique 'sustainable' development agenda after a long history of trying to integrate economic and social development with environmental sustainability. Before the SDGs, international agreements were more fragmented and sectoral, and while environmental integration was regularly mentioned on paper, it was rarely translated into practice. Of course, the effectiveness of the holistic, indivisible approach recommended for the SDGs remains to be seen.

Chapters 12-17 identify examples of regulatory and other policy instruments that have demonstrated some utility for policy integration and coherence. Regulatory policies have emerged in most countries over the last two decades under the umbrella of so-called 'better regulation policies' (Turnpenny *et al.* 2009; De Francesco 2012; Adelle *et al.* 2015). In many countries these have led to the establishment of institutions and the adoption of instruments and processes, such as regulatory impact assessments, participatory approaches and *ex post* evaluation. Initially, this was motivated by concerns to cut the costs of regulation and deregulation. However, in some countries these instruments were broadened in their scope and used to promote the integration of concerns about sustainable development into policymaking (Bäcklund 2009; Adelle and Weiland 2012; Renda 2017).

The SDGs (e.g. target 17.4) emphasize the need to "enhance policy coherence for sustainable development" (OECD 2016). A key lesson learned is to ensure policy coherence between different levels of governance and across economic, social and environmental domains. Accordingly, it is not sufficient to consider environmental policies as separate from macroeconomic or sectoral policies, which often act as drivers of environmental degradation, or from social policies that attempt to address the human impacts of environmental damage. It is possible to see in the case studies in Chapters 12-17 that these other policies often act as enabling or constraining factors in achieving environmental policy effectiveness. When analysing policy coherence, policymakers also need to consider long-term as well as short-term impacts (OECD 2016).

11.3.1 Integration of environmental aspects in regulatory policies

Integrating environmental concerns and policy objectives into different policy domains comprises the cornerstone of EPI (Runhaar, Driessen and Uittenbroek 2014). Ensuring that such concerns and policy objectives are incorporated in the development of legislation may prove critical in promoting EPI (Jacob *et al.* 2011). Many countries have adopted approaches/instruments to assess the potential impacts of proposed legislation on stakeholders, economic sectors and the environment (Radaelli 2009; Jacob *et al.* 2011; Adelle and Weiland 2012; Adelle *et al.* 2016). In OECD countries, *ex ante* assessment of regulatory policies has become a standard administrative procedure. For example, the Netherlands demands such an assessment for all new laws, orders in councils and proposed amendments; in Canada, a key part of the regulatory process is describing how government actions

affect citizens; and in Australia, it is mandatory for proposed legislation and tax-related reforms to include regulatory impact statements and assessment (Jacob *et al.* 2011).

To effectively address climate change, Di Gregorio *et al.* (2017) suggest that climate policy integration needs:

- i. policy coherence between mitigation and adaptation;
- ii. policy coherence between climate change and development objectives;
- iii. vertical policy integration by mainstreaming climate change into sector policies; and
- iv. horizontal policy integration through cross-sectoral coordination.

These multiple dimensions and governance arrangements make effective policy design particularly difficult.

Assessment requirements and practices vary across countries, as do the extent to which environmental aspects are considered (Jacob, Volkery and Lenschow 2008; Jacob *et al.* 2011). However, among OECD countries, assessments of regulatory policy share four key aspects or objectives:

- i. assessment of impacts;
- ii. integration of policies;
- iii. promotion of transparency; and
- iv. the improvement of accountability (Ritzka 2016).

Further, regulatory impact assessment is believed to improve policy coherence and minimize policy conflicts, ultimately contributing to regulatory quality and good governance (Hertin *et al.* 2009).

Usually, regulatory impact assessment involves several stages, with environmental aspects being relevant to all of them (**Table 11.1**). Integrating environmental aspects in assessments of regulatory policies involves tools for gathering and analysing data about the likely outcomes and impacts of policy options. These tools are used to generate and analyse data on specific impact areas (e.g. socio-economic, biophysical models and integrated models), to integrate and aggregate data, such as scenario tools and cost-benefit analysis, and to involve stakeholders in policy development (Jacob *et al.* 2011).

Table 11.1: Typical stages of regulatory impact assessment

❖ Selection of policy proposals to be subject to assessment
❖ Description of the problem and the objective of the proposed regulation
❖ Description of the baseline scenario
❖ Identification of policy options to be assessed
❖ Assessment of options, including the anticipated impacts in the different areas as well as the weighting and aggregation of different impacts
❖ Consultation of stakeholders and other interested parties on the assessment results
❖ Review of the quality of the assessment

Source: Jacob *et al.* (2011)



Box 11.1: Carbon valuation as part of United Kingdom of Great Britain and Northern Ireland's policy assessment



In 2002, the United Kingdom of Great Britain and Northern Ireland Ministry of Economics and Finance (HM Treasury) and the Department of Environment, Food and Rural Affairs (DEFRA) jointly published a report on how to integrate the social costs of carbon emissions into policy decisions. Since 2003 the Greenhouse Gas (GHG) Impact Assessment has been mandatory as part of the broader policy assessment process (United Kingdom, Department for Business Innovation and Skills [BIS] 2010, p. 73). It uses cost–benefit analysis and requires assessment of all policy initiatives.

The rationale for estimating GHG emissions that arise from potential government policies is “to inform key climate change policy decisions”. Policies shall be developed to meet United Kingdom of Great Britain and Northern Ireland short and long-term CO₂ reduction targets, which establish choices between competing objectives (BIS 2010.). GHG tests are applied within the overall cost–benefit analysis to assess whether a policy is cost-effective in comparison with other alternatives (*ibid.*, p. 91).

The approach of estimating the social cost of carbon was reviewed in 2007. As a result, it was replaced by the shadow price of carbon to allow for consideration of then more recent evidence drawn from the Stern Review. In 2009, the shadow price of carbon was in turn revised and replaced by a target-consistent approach (United Kingdom, Department of Energy and Climate Change [DECC] 2009, p. 5).

Source: Jacob *et al.* (2011).

The assessment of the social costs of carbon in the United Kingdom illustrates the approach and the associated tools described above (**Box 11.1**). The United Kingdom of Great Britain and Northern Ireland is considered to be the country with the longest experience with climate impact assessment, featuring one of the most elaborate approaches to policy assessment, as well as specific legislation to support this work (the United Kingdom of Great Britain and Northern Ireland Climate Change Act) (Jacob *et al.* 2011).

Considering the variety of approaches and tools for assessing regulatory policies, Adelle *et al.* (2011) suggest that there is no ‘one way’ or ‘best way’ of conducting these assessments. However, some jurisdictions may be regarded as exemplars, such as the EU, for the high level of integration of its approach and consideration of social, economic and environmental dimensions (Adelle *et al.* 2016). Based on a review of regulatory policy assessments in selected OECD countries, Jacob *et al.* (2011) suggest how to better consider environmental aspects in assessments of regulatory policies, including:

- ❖ taking into consideration environmental costs and benefits when regulating economic activities;
- ❖ undertaking early assessment, notification and participatory approaches to minimize conflicts between departments and with stakeholders and increase the social robustness of proposals;
- ❖ using well-established models, such as those available for climate change, emission of harmful substances, and land use;
- ❖ introducing institutional requirements, including mechanisms for quality control, transparency and consultation; and
- ❖ building capacity of environmental departments and agencies to perform or support regulatory impact assessment.

11.3.2 Other policy integration tools

There are other tools for policy integration besides the tools of regulatory policies such as regulatory impact assessments. Environmental impact assessments (EIAs) are used around the world, especially on major projects such as dams and other infrastructure (Morgan 2012). EIA has been used steadily over the last two decades and is recognized in a large number of

international agreements (for example, the Espoo Convention, Ramsar Convention, Aarhus Convention, UNFCCC, UNCLOS and the Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol)).

Strategic environmental assessment (SEA) was elaborated as an extension of EIA's principles, procedures and methods to higher levels of decision-making (Lee and Walsh 1992). SEA is seen as a tool able to evaluate a set of policies with broader lenses and within a more systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or programme and its alternatives. SEA is the process by which environmental considerations are fully integrated into the preparation of plans and programmes prior to their final adoption. The objectives of the SEA process are to “provide for a high level of protection of the environment and to promote sustainable development by contributing to the integration of environmental considerations into the preparation and adoption of specified Plans and Programmes” (United Kingdom Environmental Protection Agency [UK EPA] 2018).

For the European Commission, the SEA procedure can be summarized as follows: “an environmental report is prepared in which the likely significant effects on the environment and the reasonable alternatives of the proposed plan or programme are identified. The public and the environmental authorities are informed and consulted on the draft plan or programme and the environmental report prepared.” The EU ratified the Protocol on Strategic Environmental Assessment in November 2008. The SEA Directive (Directive 2001/42/EC) transposes the Protocol in EU legislation (European Commission 2001).

There is little evidence on the actual outcomes of applying the various tools of policy integration and attempts to measure the level of policy integration, and most examples of evaluations were undertaken in the context of Europe. For example, in countries where environmental liability is weakly developed, EIA/SEA tools may have limited effectiveness (United Nations Economic Commission for Africa 2005; Kotze and Plessis 2006; Gitari *et al.* 2016).

Among the few exceptions is the Publishing and the Ecology of European Research (PEER) project (Mickwitz *et al.* 2009). The study assessed the extent of climate policy integration in different European countries, policy sectors and, in some



cases, regions and municipalities. The assessment is based on five criteria: inclusion, consistency, weighting, reporting and resources. The report also analyses measures and means for enhancing climate policy integration and improving policy coherence in each country of many policies, but mostly centred on one or two, and on some regions and municipalities. With this work it was possible to draw some conclusions, such as the fact that reducing emissions has become a key political issue, and climate change is widely integrated into government programmes. The selected countries recognized the need for climate policy integration if the more ambitious climate change mitigation commitments are to be achieved.

In terms of policy integration, one lesson from PEER is that cities and municipalities have also integrated climate aims in their strategies and in specific measures, and their goals are sometimes more ambitious than those of their respective countries. The study also highlights that effective climate policy integration will require sufficient resources in the form of knowledge and money. Without these resources, there will be no realistic possibility of truly recognizing the links between general or sectoral policies and climate change or of finding alternatives and implementing them. According to the PEER project, given the great complexity of the socio-economic processes that result in GHG emissions, as well as those of adapting to a changing climate, policies need to be based on learning.

The increasing role of non-State actors (e.g. cities, civil society groups, etc.) in global climate governance is contributing considerably to the advancement of mitigation efforts. The example of the announcement of the United States pulling out of the Paris Agreement demonstrates that climate policy integration is not a one-way path but is reversible. Although the announcement possibly had no adverse impacts on the activities of US communities and firms to reduce GHG emissions, it still points to the need for more robust institutionalization.



Another example of a policy integration tool is the EU evaluation of its Common Agricultural Policy (CAP) compared to its energy policies. The CAP dates back to 1962 and is one of the oldest policies with the aim of providing price support and food security. In 2013, CAP reforms placed sustainable development as a core objective of the programme. Policy integration thus evolved from a traditional position that assumed agricultural and environmental objectives were intrinsically aligned, to a broader recognition that explicit environmental policy integration is necessary. Still, climate change considerations are conspicuously absent from the agricultural sector policy efforts.

By contrast, energy policy development efforts have introduced environmental considerations because of explicit environmental concerns, and more recently, the growing awareness of climate change has intensified efforts to integrate environment and energy policies. The policy integration approach for energy has notably shifted from one of sustainable development in the late 1990s to one where the climate change agenda has all but captured the environmental dimension of the sector, leading to such apparent anomalies as the promotion of 'sustainable nuclear energy' and a possible overemphasis on the need for biofuels. This lack of consistency across policy boundaries makes successful environmental policy integration more difficult and may lead to conflicting policy instruments where the domains intersect— for example, biofuels in the case of energy and agriculture (Mullally and Dunphy 2015).

Another notable example is the Nepal initiative to include climate change not only in environmental matters but as a major consideration in all development planning. The Climate Public Expenditure and Institutional Review (Government of Nepal *et al.* 2011) reviews the financial management systems as well as the institutional arrangements and policy directives for allocating and spending climate change-related finance. This study examined the early emphasis being given to climate change programming within Nepal and acknowledges the role played by communities in the entire process, including civil society, the private sector and international support. The main findings include the lack of institutional collaboration and capacity-building to integrate policies across the different ministries. In addition, the fragmentation of budget implementation frustrates the coordination of expenditures to facilitate and promote the best outputs and outcomes, leading to an attempt to build climate change expenditures into the national chart of accounts.

A final example of EPI relates to the global trade regime. The EU attempted to explicitly integrate environmental concerns into its trade agreement strategy in 2010, with the Communication on Trade, Growth and World Affairs, a part of the EU's 'Europe 2020' strategy. The EU also tried again in 2012, with the Communication on Trade, Growth and Development (Morin, Pauwelyn and Hollway 2017). As the controversies on the recent negotiations on trade agreements with Canada, the United States of America and Japan demonstrate, their effectiveness is under dispute.

At the multilateral level, the EU is actively involved in advancing the mandate of paragraph 31 of the Doha Declaration on the liberalization of environmental goods and services in the



regular and special sessions of the World Trade Organization (WTO) Committee on Trade and Environment, albeit with little progress so far. In 2014, 14 WTO members (including the EU), representing more than 80 per cent of world trade in environmental goods, launched the Green Goods Initiative which, as a first step, aims to eliminate tariffs on a broad list of green goods. The objective of the ongoing Environmental Goods Agreement (EGA) negotiations is to make high-quality environmental goods and technologies available at cheaper cost.

The EU, for example, also incorporates environmental provisions into bilateral and regional preferential trade agreements in the form of Trade and Sustainable Development (TSD) chapters. These provisions *inter alia* commit EU trade partners to ratify and implement key multilateral environmental agreements (MEAs) domestically and enforce them effectively. They are integrated into the agreement negotiation process through sustainability impact assessments (SIAs). SIAs are independent assessments carried out by external consultants but rely on input from stakeholders. Both the EU and civil society then closely monitor partners' implementation of TSD environmental provisions. Since such provisions may represent a costly commitment, partners may then demand that similar environmental provisions are included in their subsequent trade agreements with third parties (Milewicz *et al.* 2016). The EU has unilaterally established the Generalized Scheme of Preferences (GSP) to allow developing-country exporters to pay lower duties on exports to the EU. The GSP+ arrangement is intended to build the capacity of vulnerable countries to integrate environmental concerns into their sustainable development plans by offering them additional trade preferences.

This relationship between trade and the environment is apparent in other ways. For example, environmental policies may impede some undesirable forms of trade, and trade policies may water down potentially stronger international environmental policies. Trade policy measures appear in a range of environmental instruments, such as the restrictions on trade in endangered animal and plant species, illegal timber, illegal, unreported and unregulated (IUU) fishing, chemicals of regional or global concern and ozone-depleting substances. Generally, the influence of environmental non-governmental organizations (NGOs) and their concerns over trade policies remains limited (Dür and De Bièvre 2007).

In summary, EPI and associated tools have been used by governments trying to include environmental concerns in other sectoral policies of interest. However, there is a lack of evaluation of actual outcomes and impacts of EPI and major challenges persist: institutional fragmentation, lack of capacity-building, the difficulty of stakeholder participation and even integration with other environmental issues beyond climate change.

11.3.3 Co-benefits: findings on the impacts of environmental policies on economic growth, innovation and employment

An important argument in favour of EPI is the economic and social co-benefits that can be expected or demonstrated as a result of implementing environmental policies. These may include additional economic growth from innovation, savings from more efficient use of natural resources and avoiding

the costs of environmental damage. However, the concept of co-benefits is contested because it mostly ignores political and 'North-South' aspects (Mayrhofer and Gupta 2016).

More specifically, policies that integrate environmental aspects in key economic sectors benefit from synergies and promote long-term growth by mitigating scarcities. In this regard, it is estimated that a green investment of 2 per cent of global gross domestic product (GDP) would deliver long-term growth over 2011–2050 that could be at least as high as an optimistic business-as-usual scenario, while minimizing the adverse impacts of climate change, water scarcity and the loss of ecosystem services (United Nations Environment Programme [UNEP] 2011).

Well-crafted policies that integrate environmental concerns can in many cases promote innovation (especially technological innovation, but also policy and institutional innovation) (Ambec and Barla 2002; Ambec *et al.* 2013). This is based on the following premises (Porter and van der Linde 1995, pp. 99–100, cited in Ambec *et al.* 2013):

- ❖ "...[R]egulation signals companies about likely resource inefficiencies and potential technological improvements."
- ❖ "... [R]egulation focused on information gathering can achieve major benefits by raising corporate awareness."
- ❖ "... [R]egulation reduces the uncertainty that investments to address the environment will be valuable."
- ❖ "... [R]egulation creates pressure that motivates innovation and progress."
- ❖ "... [R]egulation levels the transitional playing field. During the transition period to innovation-based solutions, regulation ensures that one company cannot opportunistically gain position by avoiding environmental investments."

In this context, market-based and flexible instruments such as environmental taxes and tradable emissions are believed to be more conducive to innovation by allowing business to determine the best ways to achieve compliance (Ambec *et al.* 2013). Further, there is an increasing tendency for over-compliance by businesses seeking to gain competitive advantage and/or maintain their social licence to operate (Ford, Steen and Verreyne 2014). Market-based instruments are, therefore, essential for triggering the efficiency-based green economy process (EEA 2014). Nevertheless, a green economy approach and market-based instruments focusing on efficiency are frequently criticized on the grounds of poor consideration of social equity—for example, by having distributional effects that disadvantage poor people.

Environmental policies can also have a positive impact on employment, particularly in the context of economic activities integrating the environmental dimension; these include renewable energy, construction, transport, agriculture, forestry and recycling and waste management (UNEP 2011; OECD 2017). Renewable energy is a critical source of employment growth; in 2016, it was estimated that this sector was responsible for 8.1 million jobs globally. Projections indicate that this figure may reach up to 20 million jobs by 2030: 2.1 million jobs in wind energy production, 6.3 million in solar photovoltaics and 12 million in biofuels-related agriculture and industry (OECD 2017). Other sectors, such as agriculture, buildings, forestry and transport are predicted to see job growth in the short, medium and long term exceeding their comparable



business-as-usual scenarios, as a result of a more resource-efficient and low-carbon economy (UNEP 2011). For example, China, which leads global employment in renewable energy, is predicted to generate at least 4.5 million jobs as a result of greening in sectors such as transport and forestry (Pan, Ma and Zhang 2011). Other studies, which take into account possible losses in other sectors and calculate the net effects of jobs created from environmental policies, are less optimistic, but overall evidence suggests that the net effects are at least not negative (Telli *et al.* 2008; Lin and Jiang 2011; Willenbockel 2011; Jacob, Quitzow and Bär 2015).

11.4 Effectiveness of international and multilevel governance

11.4.1 Enduring conceptual challenges of institutional effectiveness

Of course, proper framing of an environmental problem and good policy design form only part of the policy effectiveness analysis (as shown in the policy cycle Figure 11.2). Effective institutions are needed for designing, integrating and implementing successful environmental policy. There are several key challenges when conceiving of institutional effectiveness. One is to disentangle effectiveness from adjacent concepts such as compliance and enforcement (Chayes and Chayes 1993). This is important because an institution may see regular compliance from participants without being effective at all. Formal compliance with a regulatory instrument is an example of first-order effectiveness, addressing the identified problem but not necessarily addressing second- and third-order issues (other impacts and side effects).

If an institution relies on voluntary participation to solve an environmental problem (as is often the case internationally), then participants may be predisposed to comply with (or without) the institution because they are driven by the same reasons to join the institution in the first place. Thus, some institutions may not change behaviour so much as screen those that are not willing to comply in the first place (Downs, Rocke and Barsom 1996; Von Stein 2005; Simmons 2010). Alliances and clubs may provide opportunities for peer pressure to overcome institutional reluctance. Hybrid governance—i.e. combining different modes and instruments of governance—can help in mutual strengthening (e.g. information bases and regulatory approaches), as shown for the European chemical regulation REACH (Hey *et al.* 2007).

Another issue is to disentangle effectiveness from performance (Gutner and Thompson 2010). In relation to biodiversity, Le Prestre (2002) distinguishes between uses of effectiveness in problem-solving (see also Young 2011), goal attainment, implementation, compliance, behaviour change, cooperation and normative gains (justice).

Different approaches have been proposed to gauge institutional effectiveness, involving both qualitative and quantitative methods. For example, the Oslo-Potsdam solution (Hovi, Sprinz and Underdal 2003) proposes an analytical approach in which institutional effectiveness is measured against both a no-regime counterfactual (i.e. what would happen if there were no responsible institution) and an analytically derived collective optimum. The approach has been challenged—for example,

on the grounds of failing to propose a consistent baseline (Young 2003). A common alternative is an approach that relies on a well-specified statistical model to capture the no-regime counterfactual by offering an estimate of an ‘institutions effect’, controlling for other plausible effects on the behavioural variable of interest (Bernauer 1995).

11.4.2 Determinants of institutional effectiveness

What is important for strengthening existing international environmental institutions and/or creating new ones is the understanding of the effectiveness of these institutions (Young 2011). Increasingly important in international environmental policy discussions is the role of non-State actors such as local governments, cities and civil society organizations (Nasiritousi *et al.* 2016). In the absence of national government support for internationally agreed environmental goals, individual states and cities may carve out their own implementation agendas, such as in the Paris Agreement.

A major determinant of institutional effectiveness is the structure of the problem that the institution is trying to tackle (Mitchell and Keilbach 2001). These contextual factors include the distribution and enforcement problems faced, as well as various types of uncertainty (Koremenos, Lipson and Snidal 2001). It is also important that actors recognize that there is a problem (Mitchell 2009; Breitmeier, Underdal and Young 2011) and provide the necessary environmental leadership (Sprinz and Vaahoranta 1994).

Next are the specific actors involved in the policy problem. In some cases, the support of a powerful actor can be important for institutional success; however, this is not a necessary condition (Young 2011). Some institutions rely on a powerful coalition of willing actors to establish and run an effective institution (Sebenius 1991). These ‘pushers’ can be frustrated by ‘laggards’, however (Sprinz and Vaahoranta 1994; Haas, Keohane and Levy 1993). Often in complex negotiations, the lowest level of ambition that can be accepted by all becomes a significant barrier to progress (Underdal 1983).

One important mechanism for the efficacy of international institutions is domestic leverage. By providing the information resources, international institutions can induce change in national policies via domestic constituents that are empowered through that information provided by these resources (Dai 2005).

Another key determinant is institutional design. Young (2011) argues that design is often more significant than problem structure in determining an institution’s effectiveness. The depth and density of regime rules is important (Breitmeier, Underdal and Young 2011). Moreover, the ‘deepest’ institutions do not necessarily scare off potential participants (Bernauer *et al.* 2013). Many actors are attracted to institutions that promise results (Hollway and Koskinen 2016).

However, the effects of an institution’s design reach beyond what is strictly regulatory (Young 2011), especially where international organizations are established. An organization’s design can foster certain institutional cultures and enable that organization to play a role in orchestrating various governance actors active in an issue area, such as private governance or public–private governance (Abbott and Snidal 2010; Andonova 2017).



Additional considerations of 'cutting-edge' concern, may hold significant interest for policymakers. These include: (i) the deep structure of international society in which environmental institutions are embedded, and the need to align the regime to this structure, most notably the power structure and norms; and (ii) the non-linear nature of human interactions with the environment (Young 2011).

11.4.3 Vertical and horizontal interplay in multilevel governance

International environmental institutions interact among themselves and with institutions from other policy areas such as trade, energy and finance (Stokke 2001; Gehring and Oberthür 2008; Oberthür 2009; Oberthür and Stokke 2011). In general, MEAs support environmental decision-making at the national level; however, coherence and interaction remain a challenge. Institutional interaction may be distinguished in terms of horizontal (i.e. across agencies at the same level) and vertical (i.e. from international down to local government levels) interplay (Young 2002; Young 2006). It can also be distinguished in terms of functional interactions, when problems addressed by two or more institutions are linked in spatial, bio-geophysical or socio-economic terms. In this case, the operation of one institution directly influences the effectiveness of another (Adger, Brown and Tompkins 2005; Young 2002; Young 2006). Interplay can also be influenced by political linkages, when actors create links between institutions to advance individual or collective goals (Young 2002; Young 2006). It also opens options for forum shopping (i.e. trying to find an institutional arrangement that gives maximum benefit to an individual or collective) (Gehring and Oberthür 2009).

Interplay is likely to produce tensions between and among institutions. However, it is equally likely to result in positive or synergistic interaction. In case of tensions, these may be resolved through negotiation entailing compromises ensuring, however, that the institutions involved can operate without disproportionately affecting each other's ability to address the problems they were designed to address (Young 2011). The notion of interplay may provide relevant entry points to efforts aiming to improve horizontal and vertical integration.

As the 17 SDGs are intended to be fully integrated and universal, several countries are now grappling with the task of devising the most effective institutional arrangements to address the desired vertical and horizontal integration. The 2017 synthesis of the Voluntary National Reports submitted to date found that only about one third of countries were addressing all the SDGs (United Nations 2017), but almost all had put in place some relevant institutional arrangements.

Some examples of institutional approaches for horizontal integration include the following:

- ❖ Mongolia initially created a Ministry of Environment and Green Development, recently amended to Ministry of Environment and Tourism. The Ministry chairs a coordination committee for green development.
- ❖ Sri Lanka placed responsibility for the SDGs under the Office of the President, who chairs the National Council on Sustainable Development.

- ❖ Afghanistan has an existing High Council of Ministers which now supervises the nationalization of the SDGs and allocation of budgets against the targets and indicators.
- ❖ Costa Rica established a High-level SDG Council, jointly chaired by the President and three key ministers.
- ❖ Nigeria established a Presidential Committee on the SDGs and created the post of Senior Special Assistant to the President on the SDGs.
- ❖ Bangladesh formed an inter-ministerial SDG monitoring and implementation committee, involving 21 ministries.
- ❖ Belarus has a National Coordinator for the Achievement of the SDGs, chairing the National Council for Sustainable Development, comprising 30 agencies.
- ❖ Botswana has a National Steering Committee that includes the United Nations and all stakeholder groups.
- ❖ The Czech Republic has a Government Council for Sustainable Development, which includes nine thematic committees.
- ❖ Japan established the SDG Promotion Headquarters as a cabinet-level body headed by the Prime Minister.
- ❖ Denmark has an inter-ministerial SDG working group coordinated by the Ministry of Finance.

Examples of vertical integration include the following:

- ❖ Brazil's National Commission for the SDGs comprises 27 representatives from federal, state, district and municipal governments and civil society.
- ❖ Belgium's Inter-Ministerial Conference for Sustainable Development comprises federal, regional and community ministers responsible for sustainable development.
- ❖ India has created a National Institution for Transforming India, chaired by the Prime Minister.
- ❖ The Local Government Authority of the Maldives has aligned its five-year development plan, implemented by island councils, with the SDGs.
- ❖ Ethiopia has a Growth and Transformation Plan for implementation of the SDGs, with annual reports to a Standing Committee of Parliament.

Among others, Afghanistan, Argentina, Bangladesh, Belize, Benin, Botswana, Brazil, Chile, Costa Rica, the Czech Republic, Honduras, Kenya, Malaysia, Maldives, Nepal, Peru, Thailand and Zimbabwe have explicitly incorporated stakeholder engagement in their SDG institutional arrangements.

A pertinent question, given this wide range of institutional arrangements, is whether the lessons learned from previous attempts at institutional integration arrangements have been learned and incorporated into the current approaches. This should become more evident as more countries submit their Voluntary National Reviews to the High-level Political Forum on sustainable development.

An earlier form of horizontal integration, National Councils for Sustainable Development (NCSDs), came into vogue following the 1992 United Nations Conference on Environment and Development and were strengthened by the Johannesburg Summit on Sustainable Development in 2002. Their forms, functions and effectiveness vary considerably across countries (Osborn, Cornforth and Ullah 2014). Following some progress in implementation of the Johannesburg Plan



of Implementation, the 2012 United Nations Conference on Sustainable Development (Rio+20) launched the process that led to the SDGs (also called the post-2015 development agenda).

To feed into this process, the Global Network of National Councils for Sustainable Development and similar bodies reviewed 25 years of attempts at integration, to draw out good practice and success factors (Osborn, Cornforth and Ullah 2014). The Global Network and local governments responsible for Local Agenda 21 plans also illustrate the importance of vertical integration.

As with many Environment ministries, many NCSDs found it difficult to get their recommendations accepted, so they often resorted to disseminating key recommendations through non-traditional media channels. A sufficient arms-length relationship from the normal silo-like government bureaucracy may facilitate such non-traditional communication mechanisms and an ability to reach out to a wider group of stakeholders.

The composition of the NCSDs has usually reflected the national political context, and no clear preference has emerged. With only government agencies as members, there is a higher risk of being influenced by political interests and possibly create lower levels of ambition. Mixed memberships had difficulty in avoiding the dominance of government views and keeping track of the larger picture. Councils dominated by NGOs and other members outside government had difficulty in influencing decision-makers and often had long-term funding issues. A key factor in the success of NCSDs, however, has been the status and engagement of the Chair, with an independent Chair or co-Chair appearing to offer the best results.

Despite the drawbacks listed above, the following conclusion has emerged: "Where NCSDs exist, they should be nourished. Where they do not yet exist, careful consideration should be given to establishing them. Where they have been discontinued

for essentially short-term reasons, consideration should be given to re-establishing them, possibly in a new format" (Osborn, Cornforth and Ullah 2014).

11.5 Conclusions

The importance of good policy design cannot be overstressed. Some common elements are:

- i. setting a long-term vision and avoiding crisis-mode policy decisions, through inclusive, participatory design processes;
- ii. establishing a baseline, quantified targets and milestones;
- iii. conducting *ex ante* and *ex post* cost-benefit or cost-effectiveness analysis to ensure that public funds are being used most efficiently and effectively;
- iv. building in monitoring regimes during implementation, preferably involving affected stakeholders; and
- v. conducting post-intervention evaluation of the policy outcomes and impacts to close the loop for future policy design improvements (Mickwitz *et al.* 2009, p.12).

Focus also needs to be on ensuring that regulatory arrangements and policy instruments and tools take local conditions into account. The need for appropriate design applies also to international regimes (Young 2011). Policy design complexity increases when an effective mix of policies is required, often in areas under the control of different sectoral priorities. Policy coherence and environmental policy integration are critical considerations to ensure that policies are synergistic and do not undermine each other. Institutional effectiveness often springs from collaborative and participatory arrangements, involving both horizontal and vertical integration.

Policy diffusion is generally positive but can be misused if: (i) the policy adopted is not truly effective in the new context; and (ii) the transferability of the policy is merely assumed and not tested under different conditions. While it is human nature to want to copy, there is no substitute for evidence-based policy.

References



- Abbott, K.W. and Snidal, D. (2010). International regulation without international government: Improving IO performance through orchestration. *The Review of International Organizations* 5(3), 315-344. <https://doi.org/10.1007/s11558-010-9092-3>.
- Adelle, C., Jordan, A., Turmpenny, J., Bartke, S., Bournaris, T., Kuitinen, H. et al. (2011). *Impact Assessment Practices in Europe*. Berlin: LIAISE Innovation. https://refubium.fu-berlin.de/bitstream/handle/fub188/18658/LIAISE_innovation_report_n02.pdf?sequence=1&isAllowed=y.
- Adelle, C., Macrae, D., Marusic, A. and Naru, F. (2015). New development: Regulatory impact assessment in developing countries – tales from the road to good governance. *Public Money & Management* 35(3), 233-238. <https://doi.org/10.1080/09540962.2015.1027500>.
- Adelle, C. and Weiland, S. (2012). Policy assessment: the state of the art. *Impact Assessment and Project Appraisal* 30(1), 25-33. <https://doi.org/10.1080/14615517.2012.663256>.
- Adelle, C., Weiland, S., Dick, J., Olivo, D.G., Marquardt, J., Rots, G. et al. (2016). Regulatory impact assessment: A survey of selected developing and emerging economies. *Public Money & Management* 36(2), 89-96. <https://doi.org/10.1080/09540962.2016.1118930>.
- Adger, W.N., Brown, K. and Tompkins, E.L. (2005). The political economy of cross-scale networks in resource co-management. *Ecology and Society* 10(2). <https://doi.org/10.5751/ES-01465-100209>.
- Alizada, K. (2017). *Diffusion of Renewable Energy Policies*. Doctor of Philosophy (PhD), Old Dominion University. https://digitalcommons.odu.edu/cgi/viewcontent.cgi?article=1015&context=opis_etds.
- Ambec, S. and Barla, P. (2002). A theoretical foundation of the Porter hypothesis. *Economics Letters* 75(3), 355-360. [https://doi.org/10.1016/s0165-1765\(02\)00005-8](https://doi.org/10.1016/s0165-1765(02)00005-8).
- Ambec, S., Cohen, M.A., Elgie, S. and Lanoie, P. (2013). The Porter Hypothesis at 20: Can environmental regulation enhance innovation and competitiveness? *Review of Environmental Economics and Policy* 7(1), 2-22. <https://doi.org/10.1093/resp/res016>.
- Andonova, L.B. (2017). *Governance Entrepreneurs: International Organizations and the Rise of Global Public-Private Partnerships*. New York, NY: Cambridge University Press. <https://www.cambridge.org/core/books/governance-entrepreneurs/70BC8C8857B11FB1593A6767993AC62B>.
- Bäcklund, A.-K. (2009). Impact assessment in the European Commission- a system with multiple objectives. *Environmental Science & Policy* 12(8), 1077-1087. <https://doi.org/10.1016/j.envsci.2009.04.003>.
- Baumgartner, F.R. and Jones, B.D. (2009). *Agendas and Instability in American Politics*. 2nd edn. American Politics and Political Economy Series. Chicago, IL: The University of Chicago Press. <http://press.uchicago.edu/ucnp/books/book/chicago/A/b06763995.html>.
- Bernauer, T. (1995). The effect of international environmental institutions: How we might learn more. *International Organization* 49(2), 351-377. <https://doi.org/10.1017/s0020818300028423>.
- Bernauer, T., Kalbhenn, A., Koubi, V. and Spilker, G. (2013). Is there a "Depth versus Participation" dilemma in international cooperation? *The Review of International Organizations* 8(4), 477-497. <https://doi.org/10.1007/s11558-013-9165-1>.
- Biesenbender, S. and Tosun, J. (2014). Domestic politics and the diffusion of international policy innovations: How does accommodation happen? *Global Environmental Change-Human and Policy Dimensions* 29, 424-433. <https://doi.org/10.1016/j.gloenvcha.2014.04.001>.
- Breitmeier, H., Underdal, A. and Young, O.R. (2011). The effectiveness of international environmental regimes: Comparing and contrasting findings from quantitative research. *International Studies Review* 13(4), 579-605. <https://doi.org/10.1111/j.1468-2486.2011.01045.x>.
- Callies, C. (2001). *Rechtsstaat und Umweltstaat: Zugleich ein Beitrag zur Grundrechtsdogmatik im Rahmen mehrpoliger Verfassungsverhältnisse*. Tübingen: Mohr Siebeck. <https://www.mohr.de/buch/rechtsstaat-und-umweltstaat-9783161475788>.
- Capano, G. and Howlett, M. (2009). Introduction: The determinants of policy change: Advancing the debate. *Journal of Comparative Policy Analysis: Research and Practice* 11(1), 1-5. <https://doi.org/10.1080/13876980802648227>.
- Cass, L. (2005). Norm entrapment and preference change: The evolution of the European Union position on international emissions trading. *Global Environmental Politics* 5(2), 38-60. <https://doi.org/10.1162/1526380054127736>.
- Chayes, A. and Chayes, A.H. (1993). On compliance. *International Organization* 47(2), 175-205. <https://doi.org/10.1017/s0020818300027910>.
- Colgan, J.D., Keohane, R.O. and Van de Graaf, T. (2012). Punctuated equilibrium in the energy regime complex. *Review of International Organizations* 7(2), 117-143. <https://doi.org/10.1007/s11558-011-9130-9>.
- Dai, X. (2005). Why comply? The domestic constituency mechanism. *International Organization* 59(2), 363-398. <https://doi.org/10.1017/s0020818305050125>.
- Daugbjerg, C. (2003). Policy feedback and paradigm shift in EU agricultural policy: The effects of the MacSharry reform on future reform. *Journal of European Public Policy* 10(3), 421-437. <https://doi.org/10.1080/1350176032000085388>.
- De Francesco, F. (2012). Diffusion of regulatory impact analysis among OECD and EU member states. *Comparative Political Studies* 45(10), 1277-1305. <https://doi.org/10.1177/0010414011434297>.
- Di Gregorio, M., Nurrochmat, D.R., Paavola, J., Sari, I.M., Fatorelli, L., Pramova, E. et al. (2017). Climate policy integration in the land use sector: Mitigation, adaptation and sustainable development linkages. *Environmental Science & Policy* 67, 35-43. <https://doi.org/10.1016/j.envsci.2016.11.004>.
- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment. 2001. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0042&from=EN>.
- Downs, G.W., Rocke, D.M. and Barsoom, P.N. (1996). Is the good news about compliance good news about cooperation? *International Organization* 50(3), 379-406. <https://doi.org/10.1017/s0020818300033427>.
- Dür, A. and De Bièvre, D. (2007). Inclusion without influence? NGOs in European trade policy. *Journal of Public Policy* 27(1), 79-101. <https://doi.org/10.1017/S0143814X0700061X>.
- Eckersley, R. (2005). *The Green State: Rethinking Democracy and Sovereignty*. Cambridge, MA: MIT Press. <https://mitpress.mit.edu/books/green-state>.
- egger, C., Prieu, R., Rumpel, J., Gignac, M., European Federation of Agencies and Regions for Energy and the Environment, European Council for an Energy Efficient Economy and Energy Cities (2015). *Survey Report 2015: Progress in Energy Efficiency Policies in the EU Member States - The Experts Perspective: Findings from the Energy Efficiency Watch Project*. Linz: OÖ Energiesparverband. http://www.energy-efficiency-watch.org/fileadmin/eeew_documents/EEW3/Survey_Summary_EEW3/EEW3-Survey-Report-fin.pdf.
- Espinosa, C., Pregarig, M. and Fischer, C. (2017). *Narrative und Diskurse in der Umweltpolitik: Möglichkeiten und Grenzen ihrer strategischen Nutzung*. Umweltbundesamt. https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2017-09-27_texte_86-2017_narrative_0.pdf.
- European Commission (2010). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Smart Regulation in the European Union* Brussels. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC0543&from=EN>.
- European Environment Agency (2001). *Reporting on Environmental Measures: Are we Being Effective?* Environmental Issue Report. Copenhagen: European Environment Agency. <https://www.eea.europa.eu/publications/rem/issue25.pdf>.
- European Environment Agency (2006). *Policy Effectiveness Evaluation: The Effectiveness of Urban Wastewater Treatment and Packaging Waste Management Systems*. Copenhagen K, Denmark. <https://publications.europa.eu/en/publication-detail/-/publication/7c46337b-cfd7-4a13-8c83-082bcd5f2d13>.
- European Environment Agency (2014). *Resource-Efficient Green Economy and EU Policies*. Copenhagen. https://www.eea.europa.eu/publications/resourceefficient-green-economy-and-eu-at_download/file.
- Falkner, R. (2016). The Paris Agreement and the new logic of international climate politics. *International Affairs* 92(5), 1107-1125. <https://doi.org/10.1111/1468-2346.12708>.
- Flanagan, K., Uyarra, E. and Laranja, M. (2011). Reconceptualising the 'policy mix' for innovation. *Research Policy* 40(5), 702-713. <https://doi.org/10.1016/j.respol.2011.02.005>.
- Ford, J.A., Steen, J. and Verreyne, M.-L. (2014). How environmental regulations affect innovation in the Australian oil and gas industry: Going beyond the Porter Hypothesis. *Journal of Cleaner Production* 84, 204-213. <https://doi.org/10.1016/j.jclepro.2013.12.062>.
- Gehring, T. and Oberthür, S. (2009). The causal mechanisms of interaction between international institutions. *European Journal of International Relations* 15(1), 125-156. <https://doi.org/10.1177/1354066108100055>.
- Gitari, E., Kahumbu, P., Jayanathan, S., Karani, J., Maranga, W., Muliro, N. et al. (2016). *Outcome of Court Trials in the First Two Years of Implementation of the Wildlife Conservation and Management Act, 2013: Courtroom Monitoring Report, 2014 and 2015*. Nairobi, Kenya: Wildlife Direct. <https://wildlifedirect.org/wp-content/uploads/2017/03/WildlifeDirect-Courtroom-Monitoring-Report1.pdf>.
- Government of Nepal, National Planning Commission, United Nations Development Programme, United Nations Environment Programme and Capacity Development for Development Effectiveness Facility for Asia Pacific (2011). *Nepal Climate Public Expenditure and Institutional Review*. Kathmandu: National Planning Commission, Government of Nepal. https://www.climatefinance-developmenteffectiveness.org/sites/default/files/documents/05_02_15/Nepal_CPEIR_Report_2011.pdf.
- Graham, E.R., Shipan, C.R. and Volden, C. (2013). The diffusion of policy diffusion research in political science. *British Journal of Political Science* 43(3), 673-701. <https://doi.org/10.1017/S0007123412000415>.
- Gray, W.B. and Shimshack, J.P. (2011). The effectiveness of environmental monitoring and enforcement: A review of the empirical evidence. *Review of Environmental Economics and Policy* 5(1), 3-24. <https://doi.org/10.1093/resp/req017>.
- Gutner, T. and Thompson, A. (2010). The politics of IO performance: A framework. *The Review of International Organizations* 5(3), 227-248. <https://doi.org/10.1007/s11558-010-9096-z>.
- Haas, P.M., Keohane, R.O. and Levy, M.A. (eds.) (1993). *Institutions for the Earth: Sources of Effective International Environmental Protection*. Cambridge, MA: MIT Press. <https://mitpress.mit.edu/books/institutions-earth>.
- Heichel, S., Holzinger, K., Sommerer, T., Lieferrink, D., Pape, J. and Veenman, S. (2008). Research design, variables and data. In *Environmental Policy Convergence in Europe: The Impact of International Institutions and Trade*. Holzinger, K., Knill, C. and Arts, B. (eds.). Cambridge, MA: Cambridge University Press. chapter 4. 64-97. <https://www.cambridge.org/core/books/environmental-policy-convergence-in-europe/research-design-variables-and-data/F6DB3BAD6226FC81481C102CD4CE471>.
- Hertin, J., Jacob, K., Pesch, U. and Paolucci, C. (2009). The production and use of knowledge in regulatory impact assessment – An empirical analysis. *Forest Policy and Economics* 11(5-6), 413-421. <https://doi.org/10.1016/j.forpol.2009.01.004>.
- Hey, C., Jacob, K. and Volkery, A. (2007). Better regulation by new governance hybrids? Governance models and the reform of European chemicals policy. *Journal of Cleaner Production* 15(18), 1859-1874. <https://doi.org/10.1016/j.jclepro.2006.11.001>.
- Hildén, M., Jordan, A. and Rayner, T. (2014). Climate policy innovation: Developing an evaluation perspective. *Environmental Politics* 23(5), 884-905. <https://doi.org/10.1080/09644016.2014.924205>.
- Hollway, J. and Koskinen, J. (2016). Multilevel bilateralism and multilateralism: States' bilateral and multilateral fisheries treaties and their secretariats. In *Multilevel Network Analysis for the Social Sciences*. Lazega, E. and Snijders, T.A.B. (eds.). Cham: Springer. 315-332. https://link.springer.com/chapter/10.1007/978-3-319-24520-1_13.
- Holzinger, K., Knill, C. and Sommerer, T. (2011). Is there convergence of national environmental policies? An analysis of policy outputs in 24 OECD countries. *Environmental Politics* 20(1), 20-41. <https://doi.org/10.1080/09644016.2011.538163>.
- Hood, C. (2011). *Summing Up the Parts: Combining Policy Instruments for Least-Cost Climate Mitigation Strategies*. International Energy Agency Information Paper. Paris: International Energy Agency. www.iea.org/publications/freepublications/publication/Summing_Up.pdf.
- Hovi, J., Sprinz, D.F. and Underdal, A. (2003). The Oslo-Potsdam solution to measuring regime effectiveness: Critique, response, and the road ahead. *Global Environmental Politics* 3(3), 74-96. <https://doi.org/10.1162/152638003322469286>.
- Howlett, M. (2014). Why are policy innovations rare and so often negative? Blame avoidance and problem denial in climate change policy-making. *Global Environmental Change* 29, 395-403. <https://doi.org/10.1016/j.gloenvcha.2013.12.009>.
- Howlett, M. and Cashore, B. (2009). The dependent variable problem in the study of policy change: Understanding policy change as a methodological problem. *Journal of Comparative Policy Analysis: Research and Practice* 11(1), 33-46. <https://doi.org/10.1080/13876980802648144>.
- Howlett, M. and del Rio, P. (2015). The parameters of policy portfolios: Verticality and horizontality in design spaces and their consequences for policy mix formulation. *Environment and Planning C: Government and Policy* 33(5), 1233-1245. <https://doi.org/10.1177/0263774x15610059>.
- Howlett, M. and Lejano, R.P. (2013). Tales from the crypt: The rise and fall (and rebirth?) of policy design. *Administration & Society* 45(3), 357-381. <https://doi.org/10.1177/0095399712459725>.



- Howlett, M. and Rayner, J. (2013). Patching vs packaging in policy formulation: Assessing policy portfolio design. *Politics and Governance* 1(2), 170. <https://doi.org/10.17645/pag.v1i2.95>.
- Interwies, E., Görlich, B. and Newcombe, J. (2007). Evaluating the effectiveness of environmental policies: Theoretical aspirations and lessons from European practice for global governance. *Amsterdam Conference on the Human Dimensions of Global Environmental Change*. Amsterdam, 24-26 May 2007. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.664.6369&rep=rep1&type=pdf>
- Jabbour, J., Keita-Ouane, F., Hunsberger, C., Sánchez-Rodríguez, R., Gilruth, P., Patel, N. et al. (2012). Internationally agreed environmental goals: A critical evaluation of progress. *Environmental Development* 3, 5-24. <https://doi.org/10.1016/j.envdev.2012.05.002>
- Jacob, K., Quitzow, R. and Bär, H. (2015). *Green Jobs: Impacts of a Green Economy on Employment*. Berlin: Deutsche Gesellschaft für Internationale Zusammenarbeit. http://www.greengrowthknowledge.org/sites/default/files/downloads/resource/Jacob%20Quitow%20B%C3%A4r%202014%20Green%20Jobs_ENGLISH.pdf
- Jacob, K., Volkery, A. and Lenschow, A. (2008). Instruments for environmental policy integration in 30 OECD countries. In *Innovation in Environmental Policy? Integrating the Environment for Sustainability*. A. Jordan and A. Lenschow (eds.). Cheltenham: Edward Elgar Publishing. chapter 2. 24-46. <https://www.elgaronline.com/view/9781847204905.00013.xml>
- Jacob, K., Weiland, S., Ferretti, J., Wascher, D. and Chodorowska, D. (2011). *Integrating the Environment in Regulatory Impact Assessments*. Paris: Organization for Economic Co-operation and Development. <https://www.oecd.org/gov/regulatory-policy/integrating%20RIA%20in%20Decision%20Making.pdf>
- Jänicke, M. (2007). Umweltstaat – eine neue Basisfunktion des Regierens. Umweltintegration am Beispiel Deutschlands. In *Politik und Umwelt*. Jacob, K., Biermann, F., Busch, P.-O. and Feindt, P.H. (eds.). 342-259. http://www.polsoz.fu-berlin.de/polwiss/forschung/systeme/ffu/aktuelle/publikationen/martin_jaenicke_2007_d/index.html
- Jordan, A. and Huitema, D. (2014a). Innovations in climate policy: The politics of invention, diffusion, and evaluation. *Environmental Politics* 23(5), 715-734. <https://doi.org/10.1080/09644016.2014.923614>
- Jordan, A. and Huitema, D. (2014b). Policy innovation in a changing climate: Sources, patterns and effects. *Global Environmental Change* 29, 387-394. <https://doi.org/10.1016/j.gloenvcha.2014.09.005>
- Jordan, A. and Lenschow, A. (2010). Environmental policy integration: A state of the art review. *Environmental Policy and Governance* 20(3), 147-158. <https://doi.org/10.1002/et.539>
- Jordan, A. and Matt, E. (2014). Designing policies that intentionally stick: Policy feedback in a changing climate. *Policy Sciences* 47(3), 227-247. <https://doi.org/10.1007/s11077-014-9201-x>
- Kemp, R. and Pontoglio, S. (2011). The innovation effects of environmental policy instruments – A typical case of the blind men and the elephant? *Ecological Economics* 72, 28-36. <https://doi.org/10.1016/j.ecolecon.2011.09.014>
- Kern, F., Kivimaa, P. and Martiskainen, M. (2017). Policy packaging or policy patching? The development of complex energy efficiency policy mixes. *Energy Research & Social Science* 23, 11-25. <https://doi.org/10.1016/j.erss.2016.11.002>
- Kloepfer, M. (1989). *Der begriff umweltstaat*. In *Umweltstaat*. Kloepfer, M. (ed.). Berlin: Springer. 43-44. https://link.springer.com/chapter/10.1007/978-3-642-95596-9_6
- Knill, C., Schulze, K. and Tosun, J. (2012). Regulatory policy outputs and impacts: Exploring a complex relationship. *Regulation & Governance* 6(4), 427-444. <https://doi.org/10.1111/j.1748-5991.2012.01150.x>
- Koremenos, B., Lipson, C. and Snidal, D. (2001). The rational design of international institutions. *International Organization* 55(4), 761-799. <https://doi.org/10.1162/002081801317193592>
- Kotze, L.J. and Plessis, A.D. (2006). The inception and role of international environmental law in domestic biodiversity conservation efforts: The South African experience. *Queensland University of Technology Law and Justice Journal* 6(1), 30-53. <https://doi.org/10.5204/quitir.v6i1.191>
- Lafferty, W.M. (ed.) (2004). *Governance for Sustainable Development: The Challenge of Adapting Form to Function*. Cheltenham: Edward Elgar. <https://www.e-elgar.com/shop/governance-for-sustainable-development>
- Lay, J., Brandt, C., Das, R.U., Klein, R., Thiele, R., Alexander, N. et al. (2017). *Coherent G20 Policies Towards the 2030 Agenda for Sustainable Development*. G20 Insights. http://www.g20-insights.org/wp-content/uploads/2017/03/TF_2030_Agenda_PolicyCoherence.pdf
- Le Prestre, P.G. (2002). Studying the effectiveness of the CBD. In *Governing global biodiversity: The evolution and implementation of the convention on biological diversity*. Le Prestre, P.G. (ed.). London: Routledge. chapter 3. <https://www.taylorfrancis.com/books/e/9781351932547>
- Lee, N. and Walsh, F. (1992). Strategic environmental assessment: An overview. *Project Appraisal* 7(3), 126-136. <https://doi.org/10.1080/02688867.1992.9726853>
- Levin, S., Xepapadeas, T., Crepin, A.S., Norberg, J., De Zeeuw, A., Folke, C. et al. (2013). Social-ecological systems as complex adaptive systems: Modeling and policy implications. *Environment and Development Economics* 18(2), 111-132. <https://doi.org/10.1017/S1355770x12000460>
- Liefferink, D., Arts, B., Kamstra, J. and Ooijevaar, J. (2009). Leaders and laggards in environmental policy: A quantitative analysis of domestic policy outputs. *Journal of European Public Policy* 16(5), 677-700. <https://doi.org/10.1080/13501760902983283>
- Lin, B. and Jiang, Z. (2011). Estimates of energy subsidies in China and impact of energy subsidy reform. *Energy Economics* 33(2), 273-283. <https://doi.org/10.1016/j.eneco.2010.07.005>
- Maor, M. (2014). Policy bubbles: Policy overreaction and positive feedback. *Governance* 27(3), 469-487. <https://doi.org/10.1111/gove.12048>
- Marshall, G.R. (2009). Polycentricity, reciprocity, and farmer adoption of conservation practices under community-based governance. *Ecological Economics* 68(5), 1507-1520. <https://doi.org/10.1016/j.ecolecon.2008.10.008>
- Matisoff, D.C. and Edwards, J. (2014). Kindred spirits or intergovernmental competition? The innovation and diffusion of energy policies in the American states (1990-2008). *Environmental Politics* 23(5), 795-817. <https://doi.org/10.1080/09644016.2014.923639>
- Mayrhofer, J.P. and Gupta, J. (2016). The science and politics of co-benefits in climate policy. *Environmental Science & Policy* 57, 22-30. <https://doi.org/10.1016/j.envsci.2015.11.005>
- Mees, H.L.P., Dijk, J., van Soest, D., Driessen, P.P.J., van Rijswijk, M.H.F.M.W. and Runhaar, H. (2014). A method for the deliberate and deliberative selection of policy instrument mixes for climate change adaptation. *Ecology and Society* 19(2). <https://doi.org/10.5751/ES-06639-190258>
- Mickwitz, F.A., Beck, S., Carrs, D., Ferrand, N., Görg, C., Jensen, A. et al. (2009). *Climate Policy Integration, Coherence and Governance*. Leipzig: Partnership for European Environmental Research. <http://www.peer.eu/publications/climate-policy-integration-coherence-and-governance/>
- Miles, E.L., Underdal, A., Andresen, S., Wettestad, J., Skjærseth, J.B. and Carlin, E.M. (2002). *Environmental Regime Effectiveness: Confronting Theory with Evidence*. Cambridge: The MIT Press. <https://mitpress.mit.edu/books/environmental-regime-effectiveness>
- Milewicz, K., Hollway, J., Peacock, C. and Snidal, D. (2016). Beyond trade: The expanding scope of the nontrade agenda in trade agreements. *Journal of Conflict Resolution* 62(4), 743-773. <https://doi.org/10.1177/0022002716662687>
- Mitchell, R.B. (2002). Of course international institutions matter: But when and how? In *How Institutions Change: Perspectives on Social Learning in Global and Local Environmental Contexts*. Breit, H., Engels, A., Moss, T. and Troja, M. (eds.). Potsdam: VS Verlag für Sozialwissenschaften. 35-52. https://link.springer.com/chapter/10.1007/978-3-322-80936-0_5
- Mitchell, R.B. (2009). *International Politics and the Environment*. Carlsnaes, W. and Checkel, J.T. (eds.). London: SAGE Publications. <http://uk.sagepub.com/en-gb/eur/international-politics-and-the-environment/book228800>
- Mitchell, R.B. and Keilbach, P.M. (2001). Situation structure and institutional design: Reciprocity, coercion, and exchange. *International Organization* 55(4), 891-917. <https://doi.org/10.1162/002081801317193637>
- Morgan, R.K. (2012). Environmental impact assessment: The state of the art. *Impact Assessment and Project Appraisal* 30(1), 5-14. <https://doi.org/10.1080/14615517.2012.661557>
- Morin, J.-F., Pauwelyn, J. and Hollway, J. (2017). The trade regime as a complex adaptive system: Exploration and exploitation of environmental norms in trade agreements. *Journal of International Economic Law* 20(2), 365-390. <https://doi.org/10.2139/ssrn.3008543>
- Mullally, G. and Dunphy, N.P. (2015). *State of Play: Review of Environmental Policy Integration Literature*. National Economic and Social Council (NESO). http://files.neso.ie/nesc_research_series/Research_Series_Paper_7_UCC.pdf
- Nachmany, M., Fankhauser, S., Setzer, J. and Averkhenkova, A. (2017). *Global Trends in Climate Change Legislation and Litigation: 2017 Update*. London: Grantham Research Institute on Climate Change and the Environment. <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2017/04/Global-trends-in-climate-change-legislation-and-litigation-WEB.pdf>
- Nasrītousi, N., Hjerpe, M. and Linnér, B.O. (2016). The roles of non-state actors in climate change governance: Understanding agency through governance profiles. *International Environmental Agreements: Politics, Law and Economics* 16(1), 109-126. <https://doi.org/10.1007/s10784-014-9243-8>
- Niles, M.T. and Lubell, M. (2012). Integrative frontiers in environmental policy theory and research. *Policy Studies Journal* 40(s1), 41-64. <https://doi.org/10.1111/j.1541-0072.2012.00445.x>
- Nilsson, M. and Persson, Å. (2017). Policy note: Lessons from environmental policy integration for the implementation of the 2030 Agenda. *Environmental Science & Policy* 78, 36-39. <https://doi.org/10.1016/j.envsci.2017.09.003>
- Nilsson, M., Zamparutti, T., Petersen, J.E., Nykvist, B., Rudberg, P. and McGuinn, J. (2012). Understanding policy coherence: Analytical framework and examples of sector-environment policy interactions in the EU. *Environmental Policy and Governance* 22(6), 395-423. <https://doi.org/10.1002/et.1589>
- Oberthür, S. (2009). Interplay management: Enhancing environmental policy integration among international institutions. *International Environmental Agreements: Politics, Law and Economics* 9(4), 371-391. <https://doi.org/10.1007/s10784-009-9109-7>
- Oberthür, S. and Stokke, O.S. (eds.) (2011). *Managing Institutional Complexity: Regime Interplay and Global Environmental Change*. Cambridge, MA: MIT Press. <https://mitpress.mit.edu/books/managing-institutional-complexity>
- Organization for Economic Co-operation and Development (2008). *Introductory Handbook for Undertaking Regulatory Impact Analysis (RIA)*. Paris: Organization for Economic Co-operation and Development. <https://www.oecd.org/gov/regulatory-policy/44789472.pdf>
- Organization for Economic Co-operation and Development (2016). *Better Policies for Sustainable Development 2016: A New Framework for Policy Coherence*. Paris. https://sustainabledevelopment.un.org/content/documents/commitments/493_12066_commitment_Better%20Policies%20for%20Sustainable%20Development%202016.pdf
- Organization for Economic Co-operation and Development (2017). *Policy Coherence for Sustainable Development 2017: Eradicating Poverty and Promoting Prosperity*. Paris: Organization for Economic Co-operation and Development. https://www.oecd-ilibrary.org/policy-coherence-for-sustainable-development-2017_5jg03xm8f9w.pdf?itemId=%2Fcontent%2Fpublication%2F9789264232756-en&mime>Type=pdf
- Organization for Economic Co-operation and Development, International Energy Agency, International Transport Forum and Nuclear Energy Agency (2015). *Aligning Policies for a Low-carbon Economy*. Paris: Organization for Economic Co-operation and Development. https://www.oecd-ilibrary.org/environment/aligning-policies-for-a-low-carbon-economy_978926423294-en
- Osborn, D., Cornforth, J. and Ullah, F. (2014). *National Councils for Sustainable Development: Lessons from the Past and Present*. Ottawa: SDplanNet. https://www.iisd.org/sites/default/files/publications/sdplanet_lessons_from_the_past.pdf
- Ostrom, E. (2007). A diagnostic approach for going beyond panaceas. *Proceedings of the National Academy of Sciences* 104(39), 15181-15187. <https://doi.org/10.1073/pnas.0702288104>
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science* 325(5939), 419-422. <https://doi.org/10.1126/science.1172133>
- Ostrom, E. (2010). Polycentric systems for coping with collective action and global environmental change. *Global Environmental Change* 20(4), 550-557. <https://doi.org/10.1016/j.gloenvcha.2010.07.004>
- Pan, J., Ma, H. and Zhang, Y. (2011). *Green Economy and Green Jobs in China: Current Status and Potentials for 2020*. Mastny, L. (ed.). Washington, D.C.: Worldwatch Institute. <http://www.worldwatch.org/system/files/185%20Green%20China.pdf>
- Persson, Å. (2007). Different perspectives on EPI. In *Environmental Policy Integration in Practice: Shaping Institutions for Learning*. Nilsson, M. and Eckerberg, K. (eds.). London: Routledge. chapter 2. 25-48. <https://www.taylorfrancis.com/books/e/9781136548185/chapters/10.4324%2F97811849773843-10>
- Pierson, P. (2000). Increasing returns, path dependence, and the study of politics. *American Political Science Review* 94(2), 251-267. <https://doi.org/10.2307/2586011>
- Porter, M.E. and van der Linde, C. (1995). Toward a new conception of the environment-competitiveness relationship. *The Journal of Economic Perspectives* 9(4), 97-118. <https://doi.org/10.1257/jep.9.4.97>
- Radaelli, C.M. (2009). Measuring policy learning: Regulatory impact assessment in Europe. *Journal of European Public Policy* 16(8), 1145-1164. <https://doi.org/10.1080/13501760903332647>
- Renda, A. (2017). *How can Sustainable Development Goals be 'mainstreamed' in the EU's Better Regulation Agenda?* CEPS Policy Insights. Brussels: Centre for European Policy Studies. https://www.ceps.eu/system/files/Better%20regulation%20and%20sustainable%20development-CEPS%20Policy%20Insights_%20A_Renda.pdf
- Repetto, R. (ed.) (2006). *Punctuated Equilibrium and the Dynamics of US Environmental Policy*. New Haven, CT: Yale University Press. <https://yalebooks.yale.edu/book/9780300110760/punctuated-equilibrium-and-dynamics-us-environmental-policy>



- Ritzka, M.S. (2016). *Incorporation of Sustainable Development Concerns in Regulatory Impact Assessments*. Masters in Sustainable Development, Uppsala University <http://www.diva-portal.se/smash/get/diva2:945065/FULLTEXT01.pdf>
- Runhaar, H., Driessen, P. and Ultenbroek, C. (2014). Towards a systematic framework for the analysis of environmental policy integration. *Environmental Policy and Governance* 24(4), 233-246. <https://doi.org/10.1002/eet.1647>
- Schaffrin, A., Sewerin, S. and Seubert, S. (2015). Toward a comparative measure of climate policy output. *Policy Studies Journal* 43(2), 257-282. <https://doi.org/10.1111/psj.12095>
- Schmidt, T.S., Batte, B., Grosspietsch, D. and Hoffmann, V.H. (2016). Do deployment policies pick technologies by (not) picking applications? - A simulation of investment decisions in technologies with multiple applications. *Research Policy* 45(10), 1965-1983. <https://doi.org/10.1016/j.respol.2016.07.001>
- Schmidt, T.S. and Sewerin, S. (2018). Measuring the temporal dynamics of policy mixes – An empirical analysis of renewable energy policy mixes' balance and design features in nine countries. *Research Policy*. <https://doi.org/10.1016/j.respol.2018.03.012>
- Scrase, J.I. and Ockwell, D.G. (2010). The role of discourse and linguistic framing effects in sustaining high carbon energy policy—An accessible introduction. *Energy Policy* 38(5), 2225-2233. <https://doi.org/10.1016/j.enpol.2009.12.010>
- Sebenius, J.K. (1991). Designing negotiations toward a new regime: The case of global warming. *International Security* 15(4), 110-148. <https://doi.org/10.2307/2539013>
- Simmons, B. (2010). Treaty compliance and violation. *Annual Review of Political Science* 13(1), 273-296. <https://doi.org/10.1146/annurev.polisci.12.040907.132713>
- Sprinz, D. and Vahtoranta, T. (1994). The interest-based explanation of international environmental policy. *International Organization* 48(1), 77-105. <https://doi.org/10.1017/S0020818300000825>
- Stadelmann, M. and Castro, P. (2014). Climate policy innovation in the South – Domestic and international determinants of renewable energy policies in developing and emerging countries. *Global Environmental Change* 29, 413-423. <https://doi.org/10.1016/j.gloenvcha.2014.04.011>
- Stokke, O.S. (ed.) (2001). *Governing High Seas Fisheries: The Interplay of Global and Regional Regimes*. Oxford: Oxford University Press. <https://global.oup.com/academic/product/governing-high-seas-fisheries-9780198299493?cc=ke&lang=en&>
- Telli, Ç., Voyvoda, E. and Yeldan, E. (2008). Economics of environmental policy in Turkey: A general equilibrium investigation of the economic evaluation of sectoral emission reduction policies for climate change. *Journal of Policy Modeling* 30(2), 321-340. <https://doi.org/10.1016/j.jpolmod.2007.03.001>
- Tews, K., Busch, P.O. and Jörgens, H. (2003). The diffusion of new environmental policy instruments. *European Journal of Political Research* 42(4), 569-600. <https://doi.org/10.1111/1475-6765.00096>
- Turnpenny, J., Radaelli, C.M., Jordan, A. and Jacob, K. (2009). The policy and politics of policy appraisal: Emerging trends and new directions. *Journal of European Public Policy* 16(4), 640-653. <https://doi.org/10.1080/13501760902872783>
- Underdal, A. (1983). Causes of negotiation 'failure'. *European Journal of Political Research* 11, 183-195. <https://doi.org/10.1111/j.1475-6765.1983.tb00055.x>
- United Kingdom, Department of Energy and Climate Change, (2009). *Carbon Valuation in UK Policy Appraisal: A Revised Approach*. London. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/245334/1_20090715105804_e_carbonvaluationinukpolicyappraisal.pdf
- United Kingdom, Department for Business Innovation and Skills, (2010). *Impact Assessment Toolkit: A Guide to Undertaking an Impact Assessment and Completing the IA Template*. London. <http://webarchive.nationalarchives.gov.uk/20110120023243/http://www.bis.gov.uk/assets/biscore/better-regulation/docs/10-901-impact-assessment-toolkit.pdf>
- United Kingdom Environmental Protection Agency (2018). *Strategic environmental assessment*. <http://www.epa.ie/monitoringassessment/assessment/sea/>
- United Nations (2005). *Review of the Application of Environmental Impact Assessment in Selected African Countries*. Addis Ababa. http://repository.uneca.org/bitstream/handle/10855/5607/bib_32041846_1.pdf?sequence=1
- United Nations (2017). *Voluntary National Reviews 2017 Synthesis Report*. New York, NY. https://sustainabledevelopment.un.org/content/documents/17109Synthesis_Report_VNRs_2017.pdf
- United Nations Environment Programme (2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication: A Synthesis for Policy Makers*. Nairobi: United Nations Environment Programme. https://sustainabledevelopment.un.org/content/documents/126GER_synthesis_en.pdf
- United Nations General Assembly (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*. A/RES/70/1. New York NY. http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
- Uslu, A., Mozaffarian, H. and van Stralen, J. (2016). *Deliverable 3.2: Benchmarking Bioenergy Policies in Europe*. Strategic Initiative for Resource Efficient Biomass Policies. Brussels: European Union. <https://www.ecn.nl/publicaties/PdfFetch.aspx?nr=ECN-O-16-009>
- Voigt, S. (2013). How (Not) to measure institutions. *Journal of Institutional Economics* 9(1), 1-26. <https://doi.org/10.1017/s1744137412000148>
- Von Stein, J. (2005). Do treaties constrain or screen? Selection bias and treaty compliance. *American Political Science Review* 99(4), 611-622. <https://doi.org/10.1017/s0003055405051919>
- Weber, M., Driessen, P.P.J. and Runhaar, H.A.C. (2013). Evaluating environmental policy instruments mixes: a methodology illustrated by noise policy in the Netherlands. *Journal of Environmental Planning and Management* 57(9), 1381-1397. <https://doi.org/10.1080/09640568.2013.808609>
- Willenbockel, D. (2011). *Environmental Tax Reform in Vietnam: An Ex Ante General Equilibrium Assessment*. Institute of Development Studies at the University of Sussex. https://mpr.ub.uni-muenchen.de/44411/1/MPRA_paper_44411.pdf
- Wittneben, B.B.F. (2012). The impact of the Fukushima nuclear accident on European energy policy. *Environmental Science & Policy* 15(1), 1-3. <https://doi.org/10.1016/j.envsci.2011.09.002>
- Yin, H.T. and Powers, N. (2010). Do state renewable portfolio standards promote in-state renewable generation? *Energy Policy* 38(2), 1140-1149. <https://doi.org/10.1016/j.enpol.2009.10.067>
- Young, O.R. (1999). *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioral Mechanisms*. Cambridge, MA: The MIT Press. <https://mitpress.mit.edu/books/effectiveness-international-environmental-regimes>
- Young, O.R. (2002). *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. Cambridge, MA: MIT Press. <https://mitpress.mit.edu/books/institutional-dimensions-environmental-change>
- Young, O.R. (2003). Determining regime effectiveness: A commentary on the Oslo-Potsdam solution. *Global Environmental Politics* 3(3), 97-104. <https://doi.org/10.1162/152638003322469295>
- Young, O.R. (2006). Vertical interplay among scale-dependent environmental and resource regimes. *Ecology and Society* 11(1), 27. <https://doi.org/10.5751/ES-01519-110127>
- Young, O.R. (2008). Building regimes for socio-ecological systems: Institutional diagnosis. In *Institutions and Environmental Change: Principal Findings, Applications, and Research Frontiers*. Young, O.R., King, L.A. and Schroeder, H. (eds.). The MIT Press. chapter 4. <http://mitpress.universitypressscholarship.com/view/10.7551/mitpress/9780262240574.001.0001/upso-9780262240574-chapter-4>
- Young, O.R. (2011). Effectiveness of international environmental regimes: Existing knowledge, cutting-edge themes, and research strategies. *Proceedings of the National Academy of Sciences* 108(50), 19853-19860. <https://doi.org/10.1073/pnas.1111690108>
- Young, O.R. (2017). *Governing Complex Systems: Social Capital for The Anthropocene*. Cambridge, MA: The MIT Press. <https://mitpress.mit.edu/books/governing-complex-systems>