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Introduction

The Concept of Smart Mixes for Transboundary Environmental Harm

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1.1 INTRODUCTION

The complex nature of transboundary environmental problems, such as global warming, ozone depletion, land degradation, oil pollution and biodiversity loss, and the risks associated with such problems, pose a fundamental challenge to policy makers worldwide, namely that of designing an effective global environmental governance system.

An important part of the quest for such a governance system, though one that has been recognised only relatively recently, consists of finding 'smart mixes' of regulatory instruments. We define this term in Section 1.2, but at this stage already note that the idea is that particular combinations of instruments may work better than others.

An example of such a smart mix constitutes the combination of safety regulation and civil liability in the US Oil Pollution Act (OPA). Normally, under the OPA the civil liability of tanker owners is limited to a financial cap. However, a responsible party can lose its right to limitation if the incident was caused by the violation of an applicable federal safety, construction or operating regulation. The construction of the civil liability regime therefore provides incentives for compliance with safety regulations intended to prevent oil spills.[1]

The emergence of the notion of smart mixes is one further stage in the development of modern environmental regulation. This development is intimately linked with the realisation that many environmental problems are transboundary in nature. Initially, such problems arose from the use of transboundary resources (such as rivers), or from the movement of pollutants across national boundaries. The advancement of science gradually generated concern over problems of a wider reach, namely global commons problems, such as the depletion of the ozone layer,

[1] See Chapter 13.

climate change, biodiversity loss or depletion of fish stocks. This has led to the expansion of the scope of environmental law from domestic to international to global.

Parallel to the expansion of the scope of environmental law to address transboundary and global problems, a wider variety of regulatory and governance actors and instruments has emerged. Traditional top-down command-and-control rules prohibiting or restricting environmentally harmful industrial activities[2] have been supplemented by a diverse spectrum of regulatory approaches. Gradually, starting in the mid-1980s a shift took place in the way of thinking about environmental law, both on the international and domestic plane. The ascent of a neoliberal thinking gave birth to the assumption that environmental problems, previously thought to require direct state intervention, could also be solved by (combinations of) deregulation, privatisation, voluntarism, outsourcing, and/or the use of market and suasive mechanisms.[3] This assumption has affected the character of environmental policy instruments, and a diversification of instruments has occurred, both at the domestic and international plane. This can be illustrated by the fact that in 1992 a call for the 'effective use of economic instruments and market and other incentives' was included in chapter 8 (C) of the UN's Agenda 21 for sustainability.[4]

Second, the emergence of global value chains, and other forms of increased connectivity – such as the current revolution in forms of information technology – have facilitated and stimulated private forms of regulation.[5] Thus, private actors (such as corporations, NGOs, regulatory intermediaries[6] and citizen initiatives[7]) and transnational networks have assumed key roles alongside states. A constellation of private environment-related instruments has emerged, such as standardisation instruments, certification/labelling schemes, transparency initiatives and corporate codes of conduct. The coexistence of the regulatory state, with its proliferating private or hybrid modes of regulation, has led to a pluralist environmental governance system.[8]

In sum, transnational environmental governance conjures an image of polycentricity. A diversity of international and domestic laws and regulations operate in parallel with market-based and suasive instruments and private standards promulgated by nonstate entities, and private actors operate alongside state actors and international organisations.

[2] Gunningham (2009).
[3] For a detailed classification of instruments, see Gunningham, Grabosky & Sinclair (1998), at 37–92.
[4] United Nations Conference on Environment & Development, Agenda 21, Rio de Janerio, Brazil, 3–14 June 1992, (Agenda 21), https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf.
[5] Auld (2014).
[6] Abbott, Levi-Faur & Snidal (2017).
[7] Trevisanut (2014).
[8] See *inter alia* the contributions to Van Rooij, McAllister & Kagan (2010).

Despite – or perhaps because of – this polycentricity, the success of environmental governance remains modest, as evidenced by the state of the natural environment. Scholars have responded by engaging in empirical analyses of the effectiveness of a number of international environmental treaties, regimes,[9] and regulatory instruments.[10] While for a long time the effectiveness of the treaties and instruments was examined in isolation, scholarly approaches are increasingly responding to the increased pluriformity and complexity of the global regulatory landscape. A growing body of international law scholarship is shifting the focus from single regulatory instruments to more holistic analyses of interactions between regulatory institutions and between various levels of governance – international, state, local and within markets – as all of these contribute to the environmental outcome.[11] An important contribution is made by the scholarship on regime complexes, which studies complex and interwoven institutional landscapes consisting of nested, overlapping and parallel regimes.[12] This scholarship often views regime complexity as a source of ineffectiveness, as it finds that the interconnected and interdependent character of different regimes governing the same subject area generates a variety of problematic interactions, results in suboptimal outcomes, and creates a variety of structural opportunities for actors to strategically exploit regulatory diversity to further their self-interest. This raises the question of whether international governance interactions can also create positive incentives for environmental protection. For example, the rise of global value chains and other forms of international connectivity enables more stringent regimes to cast 'shadows of hierarchy' to less stringently regulated areas.[13]

This volume is induced by the quest for positive regulatory interactions and proposes that conceptions of 'smart regulatory mixes'[14] may enable an analytical way forward. The idea behind smart regulation is that various regulatory and governance instruments, both public and private and both international and local, can be combined into mixes of complementary instruments and actors, tailored to the specific needs of the situation. Such a 'smart mix' approach acknowledges that all environmental policy instruments taken separately (for example, liability rules,

[9] See Sand (1992); Young (1999).

[10] Early research tended to assess instruments independently, and, thus to conceptualize policy design as a zero-sum option. The question was often reduced to the superiority of one instrument to another in certain situations. See Howlett (2004), at 2–3; Woodside (1986), at 775–793. Later research incorporated the effectiveness of a combination of a variety of policy instruments. See *inter alia* Faure (2012).

[11] Winter (2011); Eberlein, Abbot, Black, Meidinger & Wood (2013).

[12] Raustiala & Victor (2004); Alter & Meunier (2009); Orsini, Morin & Young (2013).

[13] Borzel & Risse (2010, 2016).

[14] The concept of Smart Regulation was initially coined by Gunningham, Grabosky & Sinclair (1998).

taxation, emission trading or command-and-control regulation) have particular limitations,[15] thus justifying a need for a combination of instruments. A smart mix combines multiple instruments or programmes that interact; and can engage a wide circle of actors and networks.

The concept of 'smart regulation' does not necessarily mean that instrument mixes can easily be purposively designed. In situations of polycentric governance, combinations of institutions and actors emerge spontaneously and interact, often in unexpected and unintended ways, within governance networks. Governance arrangements are path-dependent, and their impact is context-specific and depends on the specific institutional, social, economic and environmental conditions. The idea that regulators could rationally and independently select and combine instruments out of a toolbox, or that regulatory mixes could be purposefully designed by a central actor, is mostly a fiction.

However, this does not mean that attempts to coordinate and orchestrate the interaction of instruments are entirely fruitless. Social change occurs through accident, evolution or intervention, and mostly through a combination of these three processes.[16] Although, as Goodin stated, 'institutions are often the product of intentional activities gone wrong', at least some form of intentionality almost always plays a role. Thus, studies oriented towards institutional design should acknowledge the multiplicity of designers and interactions of their intentions rather than advocating a Grand Design.[17]

This project is grounded in the conviction that a better understanding of instrument interactions can contribute to institutional design that is tailored to a specific situation where the need for environmental regulation arises. The contributions to this volume attempt to draw lessons from the experiences that have been gained with existing instrument mixes. These suggest that some instrument combinations are more effective than others; certain conditions are more beneficial to the emergence of smart mixes, and some actors have more effective strategies than others. Future instrument mixes can benefit from these lessons, whether they are purposively designed or incrementally shaped and reshaped.

This volume will look specifically into four key areas of environmental concern, namely deforestation, greenhouse gas emissions, overfishing and marine oil pollution. Of course, the selection of four areas as the testing ground of smart regulation evokes the question of context. The causes and drivers for each of the four threats to the environment vary highly, and therefore the appropriate strategy to address them will likely be context-specific. Other studies have also found that outcomes of regulatory instruments are influenced by the political and institutional context of

[15] See Faure (2014), at 690.
[16] Goodin (1996).
[17] Ibid.

specific countries[18] and the composition of the particular market[19] in which these instruments operate. This entails that conclusions about what constitutes a smart mix of instruments are necessarily context-specific. Therefore, this volume does not aim to identify 'the' optimal mix that would apply to all scenarios. Rather, it will seek to establish whether, in particular contexts, existing 'mixes' of forms of regulation and instruments in relation to the aforementioned four areas of concern have been 'smart' in addressing both the causes of environmental pollution and drivers for its prevention.

Identifying 'smart mixes' in a context-sensitive way has several benefits. First, the identification of such mixes may inspire a shift of research paradigm from the choice among regulatory strategies to the interaction between regulatory strategies.[20] Second, it may provide valuable insight into the design aspects of mixing forms of regulation and instruments that prove effective in a particular context. Finally, it may allow for a context-specific understanding of the role of nonstate entities within the framework of global environmental governance. Thus, the focus on smart mixes brings a complementary, yet distinctive, focus to the field of transnational environmental law and governance, and possibly also beyond that, to regulatory theory.

1.2 THE CONCEPT OF 'SMART MIXES'

The concepts of 'smart mixes' and 'smart regulation' were introduced by Gunningham and Grabosky in their seminal book in 1998,[21] and have been widely adopted since. 'Smart regulation' departs from a broad interpretation of 'regulation' that is not limited to state-based law[22] but also includes self- and co-regulation and a wide variety of other forms of social control exercised by business and NGOs.[23] 'Regulation' thus can take various forms: international treaties; domestic law; private standards; economic incentives; transparency and information disclosure; and procedural rights. 'Smart regulation' thus fits in the broader shift from 'government' to 'governance' in networks of states, businesses and civil society.[24]

Essential to smart regulation is the idea that the *combination* of regulatory instruments and actors is often more effective than a single instrument, and that instruments can be complementary. Since most instruments and actors have strengths and weaknesses in specific circumstances, combining instruments and regulatory actors into a mix allows them to take advantage of their strengths while

[18] Liu, Faure & Mascini (2017).
[19] Auld (2014).
[20] Cf. Eberlein et al. (2013).
[21] Gunningham, Grabosky & Sinclair (1998).
[22] Gunningham (2009).
[23] Gunningham & Sinclair (1999), at 49–76.
[24] Gunningham (2009); Howlett & Rayner (2004).

compensating for their weaknesses.[25] For example, command-and control regulation may be dependable and predictable, but also inflexible and inefficient; economic incentives, on the other hand, are generally flexible and efficient, but less dependable. Smart mixes combine instruments tailored to specific environmental goals and circumstances. They also can balance coercive and noncoercive regulatory techniques, and organise public regulation in such a way that it mobilises, facilitates and supports third-party regulation and informal social control.

Precisely because there is no one single instrument that can be considered as the silver bullet that would solve all environmental problems, smart regulation necessarily entails a search for smart mixes of instruments. The challenge for regulators and policy makers is thus to assess how the regulatory instruments and other governance initiatives regarding a certain environmental problem interact, and, where possible, to coordinate and orchestrate this interaction to stimulate a productive and compatible mix in a particular context.

A 'smart mix' does not necessarily include many instruments.[26] If too many instruments are included, there is a risk that the mixing of instruments simply results in a 'messy mix', rather than in a 'smart mix'.[27] Some instruments are even inherently incompatible and will turn out ineffective or even counterproductive when combined, such as command-and-control regulation imposing fixed performance levels on industry, in combination with economic instruments, such as tradable pollution rights. As performance standards limit choice, and tradable rights enable flexibility, their combined outcome will be at least suboptimal.[28] Other combinations, however, such as industry self-regulation backed up by command-and-control regulation, may be complementary.[29]

Smart combinations of instruments do not only appear between different policy instruments at the domestic level, but also between different levels of governance. One could, for example, imagine a combination of standard setting at the international level (for example, by a treaty aiming to reduce overfishing) with an implementation at the domestic level via regulatory standards, quotas and certification by the Marine Stewardship Council (MSC).[30] Therefore, one needs to examine how different forms of regulation and instruments incorporate, promote, limit or replace one another, also at different levels of governance.[31] To some extent, of course, most environmental treaties rely on domestic implementing measures; therefore, a combination of instruments is inherent in international regulation.

[25] Gunningham & Sinclair (1999).
[26] Ibid.
[27] See Peeters (2014), at 173–192.
[28] Gunningham & Sinclair (1999).
[29] Gunningham, Grabosky & Sinclair (1998).
[30] See Stokke (2012); Garcia, Rice & Charles (2014).
[31] See Stewart (2008), who indicates that the distinctive characteristics of international environmental regulation also affect the instrument choice in the international context.

However, this does not necessarily mean that all combinations of international and national (implementing) law and regulations are necessarily productive; and in that respect, the concept of smart mixes may have conceptual traction to help us identify which combinations do or do not work.

The concept of 'smart regulation' has been adopted by various states and supranational authorities – though mostly without using that very term. One particularly influential adoption of a 'smart' approach is perhaps in the UN Guiding Principles on Business and Human Rights, implementing the UN's 'Protect, Respect and Remedy' Framework.[32] An express application can be found in the Canadian Smart Regulation initiative (2005).[33] 'Smart' and 'better' regulation also are often used in the context of deregulation in policy practice,[34] although this is far from the original purpose of these ideas.

In further clarifying the concept of smart mixes, we will identify four aspects of the concepts: the elements of the mix; forms of regulation; policy instruments; and the emergence of mixes.

1.2.1 *The Elements of the Mix*

A wide variety of mixes can be thought of, such as mixes of actors, levels of governance and institutional structures. As alluded to in Section 1.1, this volume will focus on (1) the forms of regulation – law versus private instruments, (2) the level of regulation and (3) the specific policy instruments. The three dimensions are interconnected. Thus, a specific policy instrument, whether command-and-control, market-based or informational, may be included in an international treaty, a domestic statute or a set of private standards. Of course, certain policy instruments, such as permits and environmental taxes, can only be adopted by States and thus will necessarily form part of the law. Many others, however, can be instituted either by States, private actors or both, such as certification and performance/process standards.

1.2.1.1 Forms of Regulation

Demarcating lines are often drawn between regulation by law (whether international or domestic), as the quintessential forms of public regulation, and private standards or guidelines, promulgated by corporations or NGOs. The latter category is sometimes called 'soft law' to distinguish it from formal legal rules, but that term is rather inaccurate as in reality, private regulation cannot be labelled as 'law', and it

[32] www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf, also see Eijsbouts (2013).
[33] Hanebury (2006), at 33–63.
[34] Wood & Johannson (2009).

may also be far from 'soft'. Preferred-buyer agreements imposing private standards on suppliers in global value chains, reputational sanctions invoked by NGOs or media publicity or the threat of withdrawal of a certificate may exercise stronger influences on behaviour than formal public regulation. Especially in the area of transnational environmental problems, the capacity of states to regulate and enforce vis-à-vis transnationally operating actors may be limited, and nonstate monitoring and enforcement may have important added value.

Dichotomous conceptions of relations between international law, domestic law and private regulation make for blunt thinking about the modalities and actors involved in environmental governance. It appears that international law and private standards constitute two ends of the spectrum, between which a host of innovative and collaborative hybrid forms of regulation exists. In other words, public, private and hybrid forms of regulation interact on all levels of governance. This phenomenon has been examined in the governance literature under the heading of the 'layering of rules'.[35] Analyses of 'smart regulation', should take into account how law relates to other forms of regulation and governance, both public and private, and both domestic and international, to enable insight on the significance of the law in the wider context of environmental governance.

One particular question with regard to the relation between public and private forms of regulation, and between international and domestic law and institutions, concerns the role of state law. Whereas the state has traditionally been considered to have exclusive regulatory power, modern and pluralist forms of regulation have introduced many other nonstate, private, hybrid and supranational regulatory actors, as well as broad governance regimes, leading to the question if the state is just 'one actor among many' or still 'primus inter pares'.[36] How important is state law in a smart mix of regulatory initiatives? Does it exercise a 'shadow of hierarchy' and is that a necessary component in a smart regulation regime, or can 'governance without a state'[37] work, and under what circumstances? As previous research has shown, it is most likely that public and private regulation need to complement or even reinforce each other, as each has its own strengths and the one cannot replace the other.[38]

The transnational environmental governance literature has pointed out that the role of state law changes in a transnational governance setting from 'command and control' to orchestration and participation in governance networks.[39] This gives more prominence to the question, as formulated by Auld,[40] 'how the diversity of private governance processes interact with the diversity of intergovernmental

[35] On the concept of 'layering', see Bartley (2011), at 517–542.
[36] Gunningham (2009).
[37] Borzel & Risse (2010).
[38] Liu, Faure & Mascini (2017).
[39] Abbott & Snidal (2009), at 501–576.
[40] Auld (2014), at 250.

processes that are directly or indirectly affecting a particular social or environmental problem'. State law can be an important form of directive orchestration, by, for example, relaxing legal requirements for firms that adhere to transnational CSR schemes, by imposing requirements on standard setting arrangements and their monitors, or by threatening with mandatory regulation. Nevertheless, states often lack the authority, power, and administrative capacity necessary for directive orchestration, and more facilitative forms of orchestration are more likely to be successful in the transnational arena. These can range from subsidising NGOs to convening actors to providing knowledge and technical assistance to transnational standard-setting bodies. However, some authors question the ability of states to effectively steer and orchestrate at all (see Chapter 3).

1.2.1.2 Policy Instruments

Public, private and hybrid regulation can be further broken down to specific policy instruments. Among various ways to categorize instruments,[41] this volume will distinguish between substantive and procedural instruments and, within the category of substantive instruments, between command-and-control regulation, market-based economic instruments and suasive instruments.[42] The substantive instruments essentially target polluting behaviour that has direct environmental implications. The procedural instruments only indirectly impact the environment by establishing/supporting institutions or by targeting third parties, whose behaviour in turn influences the behaviour of polluters.[43]

[41] There are mainly two approaches of classification: the 'resource' and the 'continuum' approach. According to the former, the instruments are categorised according to the resources actors use in the governing process, such as nodality (information), authority, treasure and organisation. See Hood (1983). The latter approach ranges the instruments against some choices government/actors must make in the implementation process. See Dahl & Lindblom (1953). See further, Howlett (1991), at 2–4, in which the author argues that the first approach focuses on the differences between instruments and their technical aspects while the second focuses on the similarities and the contextual aspects.

[42] Typologies and classifications abound. Vedung differentiates between sticks, carrots and sermons, Bahr uses the typology of command-and-control, economic and suasive instruments, whereas Wurzel adopts the category of regulatory, market-based and suasive instruments. Cf. Vedung (1998), at 21–58; Bahr (2010); Wurzel, Zito & Jordan (2013). On the international level, Sand (2003) has referred to sticks, carrots and games. Bodansky (2010) refers to command-and-control measures, informational measures and market-based approaches. A similar approach is used by Sands & Peel (2012) and Stewart (2008). See also Wiener (1999).

[43] According to Howlett, substantive instruments directly affect 'the production and delivery of goods and services in society', including advice, training, licenses, grants, taxes, administration, public enterprises, etc. Procedural instruments are 'designed to indirectly affect outcomes through the manipulation of policy process', including information provision/withdrawal, treaties and commissions creation, interest group funding/creation, government reorganisation and so on. Howlett (2000), at 412–31.

TABLE 1.1 *Elements of a Mix*

		Public Regulation		Private/Hybrid Regulation
		International Law	Domestic Law	
Substantive Instruments	Command and Control	Process Standards ('driftnet fishing' ban) Product Standards ('double hull' tankers under MARPOL) Emission Standards (atmospheric emissions from aircraft)	Permits/Licences/ Performance/ Process-Related Standards Zoning/Planning Regulation Generally	Performance/ Process-Related Standards Planning
	Economic Instruments	Emission Trading Schemes International Law Rules on Liability Investment Incentives (under the CDM)	Environmental Taxes Emission Trading Schemes Subsidies/Public Procurement Policies Liability and Property Right–Based Instruments	Emission Trading
	Suasive Instruments		Public Voluntary Agreements Certification	Certification Environmental Management and Audit Schemes, Codes of Conduct CSR
Procedural Instruments		Access to Information/ Information Disclosure (cf. the obligation to conduct an EIA) Public Participation Access to Justice	Access to Information/ Information Disclosure Public Participation Access to Justice	Access to Information/ Information Disclosure Public Participation Access to Justice

We summarize the various options in Table 1.1, which shows that the substantive instruments can increasingly be found at all the different levels (international/ domestic/private or hybrid). For example, command-and-control types of instruments specifying required or prohibited conduct for particular regulated actors[44] can have their origins at the international level (for example, the phasing out of so-called single-hull tankers to prevent oil pollution), but also at the domestic level

[44] Stewart (2008), at 150.