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“Bookkeeping” rather than climate policymaking:

National mitigation strategies in Western Europe

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Abstract

Climate change mitigation is a wicked problem that cuts horizontally across sectors and vertically across levels of government. To address it effectively, governments around the world, in particular in the EU, have developed several generations of multi-sectoral national mitigation strategies (NMS) since the early 1990s. Although NMS became the main effort to systematically coordinate mitigation policies, few works have studied them comparatively so far. The present article fills this gap by analysing how the EU-15 group of countries operationalised climate protection through NMS. First, we introduce the three roles policy strategies usually aim to fulfil: besides being policy documents they also represent governance processes (supposed to coordinate sectoral implementation), and capacity-building efforts. Empirically, we then explore the rationale, origins and prevalence of NMS. Subsequently, we characterise them as policy documents (with regards to their contents and structures) and as governance processes that address capacity building only implicitly. Based on existing assessments we finally review some performance indications of NMS. We find that in particular second- and third-generation NMS aimed to take their governance function seriously but resembled "lacklustre bookkeeping" of emissions, targets and mitigation options. Instead of approximating NMS towards their obviously overcharging governance function, we suggest to recalibrate them towards their communication and capacity-building function in a way that goes beyond bookkeeping.

Policy relevance

The present article shows that NMS fail to effectively govern climate change mitigation across a broad range of sectoral policy domains. Since most European countries have adopted not one but up to three generations of NMS since the 1990s, this finding is highly relevant for them - and for all others aiming to adopt similarly broad strategies. Instead of piling one strategy on top of another irrespective of their implementation, and instead of abolishing mitigation strategies altogether, we recommend recalibrating them towards what they can realistically accomplish: effective communication and capacity building so that NMS can advance from lacklustre bookkeeping to actively promoting a government-wide climate change mitigation vision. The article can help governments to realise that renewing integrated strategies such as NMS without overhauling them comes close to flogging a dead horse.

Keywords

climate change mitigation, national mitigation strategies, climate policy frameworks, climate action plans, multi-sectoral strategies, integrated strategies, governance, policy integration, policy coordination, UNFCCC, Kyoto Protocol

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1 Introduction

While countries around the world agreed to cap global warming with 2°C (COP-15 2009), translating this vague commitment into concrete policies that either reduce greenhouse gas (GHG) emissions or enhance sinks has been a challenging task, even in the EU. Although the latter reduced its GHG emissions not by 8 (as foreseen in the Kyoto Protocol) but by 14.7 per cent during 2008-2012 com-pared to 1990 (EEA 2012), we will show that these reductions can only partially be traced back to mitigation policies in general, and even less to comprehensive multi-sectoral mitigation plans or strategies in particular. The latter, here referred to as national mitigation strategies (NMS), are at the centre of this article.

What makes the governance of climate change mitigation so difficult? Since GHG emissions are directly linked to fossil fuel burning in all economic sectors, climate change mitigation usually requires profound (sometimes costly) and therefore contested policy changes not in one but in many governmental departments (or ministries). Since most of them focus on non-environmental tasks they usually pay little attention to climate-related concerns (Meadowcroft 2014). In addition, policy changes in multiple sectors have to take place at all levels of government, from international via national to local levels (Adger et al. 2005; Gupta 2007). Consequently, climate change is often considered as a wicked issue that challenges not only traditional political systems, governance routines, and policy designs but also socio-economic and behavioural patterns of modern societies (Suranovic 2013).

Referring to the meanwhile classical concept of environmental policy integration/EPI (Lafferty and Hovden 2003; Nilsson and Persson 2003; Jordan and Lenschow 2008), policy scholars now frame the main governance challenge associated with climate change as climate policy integration/CPI (Mickwitz et al. 2009b; Adelle and Russel 2013). Normatively, CPI postulates the integration of climate change mitigation horizontally across sectors (Yohe et al. 2007; Adelle and Russel 2013) and vertically across levels of government (Gupta et al. 2007). Procedurally, CPI is concerned with the governance structures and processes necessary to meet the normative postulate. Ultimately, we can also speak of CPI as outcome that is concerned with how much GHG emissions have been reduced (Kok and de Coninck 2007; Adelle and Russel 2013).

This article analyses the role NMS played in facilitating in particular the procedural and the outcome dimensions of CPI. They represent what policy scholars dubbed integrated or multi-sectoral strategies that resemble “a new kind of governance instrument”. The ideal-type purposes of such integrated strategies are to redesign sectoral policy regimes with sets of substantive objectives and measures enshrined in a comprehensive policy document, and to orchestrate various actors through governance processes and capacity-building (Howlett and Rayner 2006a; Jacob et al. 2012: 12; Casado-Asensio & Steurer, 2014). Spread with an astonishing speed, integrated strategies are employed to govern not only climate change mitigation but all kinds of similarly complex, multi-sectoral issues such as climate change adaptation (Swart et al. 2009; Biesbroek et al. 2010; Bauer & Steurer 2014), land management (Rayner and Howlett 2009), natural resources (Howlett and Rayner 2006a), and sustainable development (Casado-Asensio & Steurer 2014; Steurer 2008; Steurer & Martinuzzi 2005).

While several of these integrated strategies (as well as particular mitigation policies) have been scrutinised repeatedly, relatively few works have analysed NMS across developed countries[1] (Simeonova and Diez-Bone 2005; Berger et al. 2007; Kerr 2007; Mickwitz et al. 2009a; Casado-Asensio & Steurer, 2014). We address this gap by answering the following questions for the EU-15 group of Western European countries: How are NMS as policy documents structured and what objectives do they enshrine? In how far and with what means do they facilitate CPI as a governing process, i.e. the governance of integrating mitigation concerns horizontally across sectors and vertically across levels of government? Finally, what are the

[1] A larger body of work looks at Nationally Appropriate Mitigation Actions of developing countries (den Elzen 2013).

strengths and weaknesses of NMS and to what extent were they able to mitigate GHG emissions (or CPI as outcome)?

Answering these questions shows how Western European governments operationalised mitigation policymaking. We provide a comparative overview of the EU-15 Member States because these accepted binding climate change mitigation targets under the Kyoto Protocol through the EU's effort sharing agreement from 1998 (Haug and Jordan 2010: 86; see Table 2). Moreover, the EU-15 provide an interesting variance of leaders and laggards in the formulation and implementation of environmental policies (Knill et al. 2012). Methodologically, the article builds on desk research that draws on scholarly works (including policy analyses and evaluations), documents issued by international and supranational organisations (mainly guidelines and progress reports), national governments (strategies, plans and legal acts; see Annex 1) and other public agencies (mainly reports from auditors).

Section 2 first introduces ideal-type multi-sectoral strategies as policy documents, governance processes and capacity-building efforts. Section 3 describes the international and EU foundations and the subsequent diffusion of several generations of NMS across Europe. Section 4 reviews NMS as policy documents and section 5 as governance processes (with capacity building functions). Their role in cutting GHG emissions is assessed in section 6, albeit within the constraints imposed by the broad comparison of 15 countries, and the desk research method used. We conclude with a discussion of the findings and possible futures of comprehensive strategies such as NMS.

2 Integrated strategies: documents, governance processes and capacity-building

Integrated strategies are a relatively novel approach to govern highly complex issues that involve several sectors and levels of governance (Rayner and Howlett 2009). Whether they are grand programmes that address many sectors, government levels and actors or they focus on just a few sectors or regions: they are multi-sectoral efforts that aim to coordinate policy goals and measures in a way they "support rather than undermine one another" (Rayner and Howlett 2009, 100). While sectoral strategies (e.g. on poverty reduction, employment or forestry) can (and should) consider other sector goals and policies beyond their immediate concern, integrated strategies have by definition a cross-sectoral and often a multi-level scope.

The rapid diffusion of integrated strategies fits well with global trends of policy diffusion resulting from international politics. Summits such as the 1992 Rio Conference on Environment and Development (Steurer and Martinuzzi 2005), international agreements such as the UN Framework Convention on Climate Change/UNFCCC (UNCED 1992; COP-3 1997), and EU policies all played important roles in diffusing integrated strategies along similar ideal-typical lines (for NMS see section 3). First, integrated strategies are policy documents that aim to (re-)construct a cross-sectoral policy domain in line with a number of (long-term) principles and policy objectives. Their normative basis ought to be complemented by details on measures and policy instruments, either in the strategies themselves or in periodical action plans, sectoral or regional strategies. According to Dubash et al. (2013), such strategies constitute the groundwork of climate change mitigation in every country. As we will demonstrate in this article, they are not only an ideal-type governance approach envisioned in the environmental policy literature but also an empirical reality with many flaws, in particular when compared to the ideal-type characteristics described here.

The periodical action plans bring us to the second major function of integrated strategies as depicted by policy scholars. In contrast to the one-off environmental plans of the 1970s and 1980s, integrated strategies are framed as cyclical governing processes of horizontal and vertical policy integration. As such, they ought to involve and coordinate policymakers from other sectors and governments on a continuous basis (Jacob et al. 2012: 12; Howlett and Rayner 2006b: 251f; Steurer and Martinuzzi 2005). Other key elements of cyclical governing processes are reflexivity and learning through monitoring and reporting,

which brings us to the third ideal-typical function of integrated strategies depicted in the literature: They aim to build capacities for effective policymaking, e.g. by building a knowledge base for policy formulation and implementation (also via monitoring and evaluation), raising awareness for certain issues via communication, and establishing policy networks (Jacob et al. 2012: 12-15; Casado-Asensio and Steurer 2014; Mulgan 2009: 75-113).

These policy, governance and capacity-building functions imply that ideal-type integrated strategies are something more than a simple policy instrument. Policy scholars as well as some guidelines issued by international organisations expect them to represent comprehensive governing processes that facilitate meta-governance, or "the governance of governance" (Meuleman 2008: 67): they are expected to achieve policy objectives more effectively by providing direction, structure and control with regard to who governs when, with what means and what underlying governance modes (Meuleman 2008). In a narrow, government-centred sense, this implies coordinating the formulation, implementation and monitoring of policy objectives and instruments (Peters 2010: 44). In a wider, governance-centred sense, meta-governance can also be concerned with a particular government "harnessing the capacities of markets, civil society and other institutions to accomplish its policy goals" (Gunningham 2005: 338; see also Steurer 2013).

Let us now contrast this ideal-type notion of integrated strategies with the empirical reality of NMS. The following sections highlight how NMS fall short in comparison to ideal-type integrated strategies portrayed above. Although NMS do not usually state that besides being policy documents they also represent governing processes and capacity-building efforts, we will demonstrate that they aimed to achieve all three functions to varying degrees.

3 Foundations and prevalence of NMS in Western Europe

Like most other multi-sectoral strategies, NMS did not emerge coincidentally bottom-up but were triggered and shaped by international and European guidance (Casado-Asensio and Steurer 2014). Although, this guidance was rather vague, NMS nevertheless evolved in very similar ways across Europe.

3.1 International and European foundations

One of the commitments of the UNFCCC from 1992 reads as follows: "All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall […] [f]ormulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate change" (United Nations 1992, 5). While adaptation entered political agendas in Europe only from the mid-2000s onwards (Casado-Asensio & Steurer, 2014), most of the EU-15 states formulated comprehensive national mitigation programmes, strategies or action plans (here all referred to as NMS) in the course of the 1990s, and a few laggards followed in the 2000s (see section 3.2). Other important triggers for their development were EU policies and international reporting obligations linked to the UNFCCC (Gupta 2010: 640; Ellis et al. 2010, 12).

Although the commitment of the UNFCCC was reiterated in the Kyoto Protocol (United Nations 1998), neither of these documents specified the contents or the governance of "climate programmes" as detailed as other guidelines did for sustainable development or for climate change adaptation strategies (Casado-Asensio & Steurer 2014). Interestingly, the Protocol was more specific about how annual Demonstrable Progress Reports and National Communications to the UNFCCC should look like (Berger et al. 2007: 2; IPCC 2007a, 2007b): Progress Reports should include (i) information on national policies and measures to limit or reduce emissions, (ii) comparable accurate national emissions data, and (iii), information on related institutional and financial arrangements (Gupta et al. 2007b: 750; EEA 2010: 10; UNFCCC 2011: 3).

Guidelines on National Communications overlap with those of Progress Reports but add three more recommendations, namely to (iv) use mitigation scenarios describing the emission trends without and with mitigation measures (UNFCCC 2008a), (v) provide analyses for key sectors (e.g., energy, forestry, agriculture, waste management, transport), and (vi), develop a set of indicators to assess (sectoral) mitigation actions (UNFCCC 2008b).

In 2009, the Copenhagen Accord introduced Nationally Appropriate Mitigation Action for developing countries, often referred to as climate change mitigation strategies. Only since then, several organisations published principles and recommendations not for reporting on but for the governance of climate change mitigation in developing countries (OECD 2008; UNFCCC 2012). Since most of these guidelines are very general, they can serve as a reference for industrialised countries. Most importantly, mitigation strategies ought to orchestrate mitigation measures that address all greenhouse gases from all large sectors in flexibe ways to allow for continuous corrections, if necessary (OECD 2008). This closely resembles the document and governance functions of ideal-type integrated strategies as described in section 2.

In Western Europe, international developments were substantiated by EU policies. In the run-up to the 1992 UN Earth Summit, for example, the European Community called for the adoption of emission and energy efficiency targets embedded in national programmes (European Council 1990: 22; Jordan et al. 2010). As signatory of the Kyoto Protocol, the EU itself devised five Climate Change Programmes since 2000, and it required Member States to monitor emission levels and climate policy measures through an Internal Monitoring Mechanism agreed in 1999 (Haug and Jordan 2010). Respective data had to be submitted annually to the European Commission and to the UNFCCC. A key EU policy to achieve the Kyoto target was the Emissions Trading Scheme (ETS) established in 2004 and revised in 2009 and 2013. The ETS is a cap-and-trade system for emissions from the industry sector, i.e. for about 45 per cent of total GHG emissions in Europe (Jordan et al. 2013: 161). Since policy makers argued that industry emissions are covered sufficiently by the ETS, it is the only major sector not addressed in the NMS analysed here. For all other sectors, the EU set sectoral targets, adopted strategies and passed directives that also shaped the contents of Western European NMS. Among the most significant EU policies that shaped NMS were the Roadmap on Transport (European Commission 2011), the Green Paper on Energy Efficiency (European Commission 2005), the Renewable Energy Road Map (European Commission 2006), and the "20-20-20" set of targets from 2007 that aims, inter alia, to reduce GHG emissions by 20 per cent until 2020 com-pared to 1990 (European Council 2007). Finally, the Commission's communication "2050 Roadmap" lays down the long-term post-Kyoto perspective for EU and national climate policies. This includes a reduction of European emissions of 80 to 95 per cent by 2050 compared to 1990 (European Council 2010).

3.2 Prevalence of NMS in Western Europe

International and European policies on climate change mitigation constitute important driving forces for national-level policymaking in general, and for NMS in particular. As this sub-section shows, they motivated Member States to adopt or renew NMS, and they shaped their contents.

Apart from the very early mitigation strategies in the Netherlands and Germany, the first wave of NMS between 1993 and 1997 was triggered by the UNFCCC commitment and respective EU policies addressed above. However, since the UNFCCC was a framework agreement without enforcement, and the EU only recommended but not mandated NMS, it took two additional waves until all EU-15 Member States had one in place (Wurzel 2008; Beck et al. 2009). The second wave emerged after 1997 when the Kyoto Protocol was agreed and the EU as a whole had to report on emissions and mitigation efforts to the UNFCCC Secretariat (Gupta 2010: 640; Ellis et al. 2010: 12). The third wave consists of three laggards that adopted their NMS only after the EU ratified the Kyoto Protocol in 2002 (see table 1).

Table 1: Evolution of NMS and other comprehensive mitigation efforts in the EU-15 (chronological order based on first NMS)

	First NMS	Renewed NMS	Sectoral strategies	Sub-national strategies	Climate Acts	Energy-climate strategies
Netherlands	1990	1999, 2010	X			2007
Germany	1991	2000, 2005, 2007	X	X		2008
Sweden	1993	2002	X	X	2008	2009
Belgium	1994	2002, 2009		X		
Italy	1994	2002	X	X		
Greece	1995	2002, 2007				
Denmark	1996	2000, 2008	X		2014	2013
United Kingdom	1997	2000, 2004, 2006	X	X	2008	2009
France	2000	2004	X		2007	
Ireland	2000	2007, 2011	X		2010	
Finland	2001	2005, 2008	X		(2014)	2009
Austria	2002	2007		X	2011	
Portugal	2004	2013	X			2011
Spain	2004			X		2007
Luxembourg	2006	(2014)				

Source: own compilation; Note: years in brackets indicate expected dates

Since then, Member States have renewed and operationalised NMS in disparate manners (see also Table 1): While six of the 15 countries updated their NMS once and another six twice during the 2000s, Germany and the UK did so three times. Often, NMS in "first-wave-states" were renewed in parallel to the subsequent NMS waves in other countries. In addition, 10 of the EU-15 countries passed complementary sectoral mitigation strategies. While only Finland and Portugal launched sectoral plans in all climate-relevant areas, most other countries have adopted either sectoral energy or transport strategies. Sub-national mitigation strategies, in turn, are the norm in federal states (such as Germany and Austria) and the exception in unitary states (such as Italy and Sweden). Since 2007, almost half of the EU-15 states have complemented their mitigation strategies with climate or carbon acts that enshrine the principles and targets of NMS legally. However, as the Austrian example shows, some of these acts serve symbolic rather than substantial purposes because they are neither specific nor binding (Steurer and Clar 2014). Recently, eight countries have developed their NMS further into energy and climate strategies. Since these new strategies replace classical NMS, they constitute a fourth wave in the evolution of this instrument we do not address here.

4 NMS as policy documents: structures, emission targets and policy measures

This section portrays NMS as policy documents with regard to their structures, targets, topics, sectors and measures addressed. It shows how governments across Europe operationalised mitigation policymaking (or CPI) through NMS.

The strategies usually start with a narrative overview of international negotiations, EU policies, national positions and historical emission trends. Even though NMS do not necessarily build on climate science, most documents present various emission projections and portray the risks of climate change in similar ways. Governments then address the main purposes of their NMS. While some countries emphasise the usefulness of NMS to fulfil international and EU obligations, others frame them primarily as a tool that helps to secure energy supply, promote energy efficiency and renewable energy sources, as a means to promote climate-conscious behaviour, and as a driver for climate-related R&D.

Quantified targets for the short, medium (currently 2020) and long term (2050) are mentioned in all NMS. While nine countries simply reiterate the burden/effort sharing targets agreed at the EU level (Haug and Jordan 2010), six presented more ambitious targets for 2008-2012 or for 2020 (see table 2).

Table 2: GHG emission targets in Western Europe (EU-15) compared to 1990 level

	Kyoto targets for 2008-2012	EU 2020 targets[2]	Other recent national targets
Austria	-13%	-16%	
Belgium	-7,5%	-15%	
Denmark*	-21%	-20%	-40% by 2020 -80 to -95% by 2050
Finland*	0%	-16%	-16% by 2008-2012 -80% or more by 2050
France	0%	-14%	-75% by 2050
Germany*	-21%	-14%	-25% by 2005 -40% by 2020 -80 to -95% by 2050
Greece	+25%	-4%	
Ireland	+13%	-20%	
Italy*	-6,5%	-13%	-20% by 2020
Luxembourg	-28%	-20%	
Netherlands	-6%	-16%	-40 to -60% by 2030
Portugal	+27%	+1%	
Spain	+15%	-10%	
Sweden*	+4%	-17%	-4% by 2008-2012 -17 to -21% by 2005-2020 -40% after 2020
United Kingdom*	-12,5%	-16%	-20% by 2010 -34% by 2020 -50% by 2025 -60% by 2050 (in 2003) -80% or more by 2050 (in 2008)

Source: own compilation; Note: an * denotes states having more ambitious targets than those required by the EU burden/effort sharing agreements for 2008-2012 and 2020 (targets for later years are not taken into account)

Although the emission reduction targets of the EU-15 countries are measurable and timed, the following three points illustrate that they are not always adequate. First, long-term targets for 2050 appear to be over-ambitious and lack intermediary steps to guide policy action (exceptions are the German, Swedish and British NMS which also state medium-term targets). Second, even in countries that stated medium-term (often sectoral or regional) targets (such as Finland and Belgium respectively), implementation mechanisms to achieve them remain vague. Third, although all member states reiterate the EU-2020 targets in their most recent NMS and some adopted stricter ones (see table 2), only few of them "explore, understand or assess the effects of these targets" for domestic policymaking (Skovgaard 2013: 9).

In terms of the sectors covered, most NMS address 'the usual suspects' (that is, energy, transport, buildings, agriculture, forestry and waste) only in a few pages (sometimes paragraphs). While most NMS mention that the industry sector is left exclusively to the EU-ETS, they ignore the aviation and sea-shipping sectors as well as the import of emissions through trade entirely (Aström et al. 2013: 117). In addition, sectoral interdependencies (e.g. between agriculture and forestry) are rarely addressed (Simeonova and Diez-Bone 2005: 2545), and the relation between NMS and other cross-sectoral strategies is either competitive rather than complementary (as is the case with sustainable development strategies; see Steurer and Berger 2011: 105) or overall weak (as is the case with most climate change adaptation strategies; see Casado-Asensio and Steurer, 2014). Only recently, France and Portugal began studying how to address adaptation and mitigation jointly in their NMS on top of full-fledged adaptation strategies.

[2] This refers to GHG emissions that are not covered by the EU ETS; the ETS aims to reduce industry emissions by 21% by 2020 compared to 2005 (European Commission 2009).

Regarding measures, most NMS rely on a portfolio approach that foresees a variety of policy instruments without a particular order or much consideration of complementarity or orchestration. Only a few countries (Denmark, Germany, the Netherlands, Sweden, and the UK) apply a phased approach through which they aim to implement policy instruments in subsequent packages. The number of measures range from 100+ in France, Germany and the UK to a handful of measures in Greece or Italy. Although substantial portions of these measures reflect EU policies, all NMS also state genuine ones. However, only a few of them (e.g. those in Germany, Sweden and the UK) do not simply state measures but also provide timeframes, responsibilities, emission reduction estimates, economic impact assessments, and/or monitoring indicators. As the example of promoting renewable energies illustrates, the details of actual measures under the same heading differ substantially across Europe. Although most countries rely on economic incentives they are hardly com-parable: While Sweden offers a 30% and France a 50% income tax credit for renewable energy installations, Austria as well as the UK subsidise the installation of photovoltaic panels, and many others (including Germany and Denmark) subsidise feed-in tariffs. When NMS address flexible mechanisms to offset emissions abroad, only a few (e.g. those in Belgium, Ireland, Spain and Sweden) specify the share of emission reductions to be reached this way.

In sum, most NMS are both comprehensive and ambitious policy documents that contain not only details on emission targets but also scenarios, large portfolios of measures and estimates as well as indicators to control their emission reductions. Although the performance of NMS is overall dubious (see section 6), their contents (not necessarily the number of objectives but the details provided) give at least hints about who the frontrunners and laggards are. Nevertheless, all NMS suffer from the shortcomings resulting from the facts that long lists of objectives and measures hide rather than emphasise priorities, and that implementation often remains unclear. This enables policymakers to cherry-pick those (often ineffective) measures that serve their (often symbolic) purposes while ignoring other (often more effective) measures (Cappelletti et al. 2007; Mathy 2007; Zafarrilla et al. 2012). This helps to prolong our “fossil fuel addiction” - as Suranovic (2013) would put it. These shortcomings lead us to NMS as governance and capacity-building processes.

5 NMS as governance and capacity-building processes

Apart from providing orientation via emission targets and scenarios, policy objectives and measures, NMS are also supposed to facilitate cross-sectoral coordination and capacity-building for CPI. While the very first NMS responded mainly to international monitoring and reporting obligations and therefore focused mainly on their document and capacity-building functions, later NMS also embraced their process-oriented governance function. Yet, how did NMS perform as governance and capacity-building processes?

Except for Denmark, Finland and France, the formulation and implementation of NMS is led by traditionally weak environment ministries. In most countries, other ministries (in particular those on energy, economy, finance, agriculture and transport) are involved in inter-ministerial groups (Beck et al. 2009), but their representatives are usually low- to middle-level civil servants with limited decision-making powers rather than high-level politicians (Braun 2008). This indicates that the interest in and backing of NMS by non-environment ministries is usually weak (Skovgaard 2013). In Finland, for example, the transport ministry opted out of the NMS process after a conflict with the environment ministry, a pattern that can be found frequently when strategies or policies progress from the formulation to the implementation phase (Lekakis and Kousis 2013). Even if the approval of an NMS involves the council of ministers and/or the parliament (as in Finland, France, Germany, Ireland, Sweden, and the UK), these institutions play only marginal roles later on. All this implies that NMS are overall weak governance processes that lack political salience. Beyond that, the economic and financial crisis from 2008-2010 has marginalised climate change from the political agendas across Europe and hampered the governance of CPI, in particular in the countries hit hardest by the crisis (Lekakis and Kousis 2013: 12). Consequently, the inter-sectoral coordination of climate policies is inadequate across Europe (UNDP 2007: 118; Beck et al. 2009: 30), and policy mixes are

arbitrary rather than thought-through (OECD 2007). Against this background it is not surprising that even in the UK, a European frontrunner in climate change mitigation, respective policies have emerged piecemeal rather than systematically, notably in contradiction with the government's better regulation agenda and its adoption of the OECD "whole of government" principles (Bartle and Vass 2007: 35; WWF 2012).

While NMS as governance processes have clear weaknesses in facilitating horizontal integration, they performed even worse in coordinating various levels of government. While most NMS link national climate policies to international and European ones, they usually acknowledge vertical coordination with sub-national actors as important task on paper but fail to implement it. Since several states have federal (Austria, Belgium, Germany) or semi-federal political systems (Italy, Spain) that allocate significant mitigation responsibilities to sub-national governments, one would expect strong emphases on vertical coordination at least in these countries. As the Austrian example shows, the national government undertook various efforts in integrating climate change mitigation into provincial building policies, yet not primarily through its NMS but through bilateral agreements and a federal climate change act. The provinces even rejected the renewed Austrian NMS from 2007 because they disagreed on targets and measures for the building sector (Steurer and Clar 2014). The Belgian NMS is also rather silent on the vertical coordination, even though federal and regional governments had signed a Cooperation Accord to organise GHG emission cuts across constituencies (Happaerts et al. 2012). Even worse, the Spanish NMS and its emphasis on vertical CPI is purely symbolic: Although the provinces were not involved in formulating the NMS, the national government delegated its implementation to them but does not even attempt to coordinate respective efforts or provide financial resources to this end.

The inclusion of non-state actors is a concern for some NMS, but respective practices vary considerably across Europe (Simeonova and Diaz-Bone 2005: 2551). While only a few countries (such as the UK) rely on ad-hoc participation via roundtables, workshops and conferences, most others (e.g. Finland, France, Sweden and Denmark) opted for permanent stakeholder councils or networks. In both settings, broad consultation is rare, transparency is low, and, as studies show for the Nether-lands (Glasbergen 2004) and the UK (WWF 2012), participation in NMS processes does not translate into more coordinated, legitimate or effective policies. While limited participation may have to do with the fact that integrated strategies such as NMS are too abstract for gaining public attention, its limited effectiveness is also due to the fact that economic interests often dominate not only policymaking but also stakeholder fora (Mathy 2007; Vogel et al. 2010: 18).

Finally, many NMS also attempt to keep the cycle of climate policymaking in motion by facilitating not only coordinated but also adaptive and reflexive implementation (Simeonova and Diaz-Bone 2005). Cyclical implementation or action programmes are popular instruments to meet not only this governance challenge but also international reporting requirements (Ellis et al. 2010: 13). While these programmes may have raised sectoral awareness for climate change mitigation, we found no evidence suggesting that they played important roles in coordinating or implementing significant mitigation policies.

Evaluating NMS is a common practice that may contribute to building capacities for climate change mitigation. While most evaluations are conducted internally by the environment ministry in charge of the NMS (or affiliated organisations such as environment agencies), some countries (also) resort to external evaluations conducted by scientists (e.g. in Belgium and Germany), civil society groups (e.g. in France and the UK), and/or courts of auditors (e.g. in Austria, Finland, Ireland, Sweden, United Kingdom). The various evaluations also differ in terms of what is assessed and how. Generally, they focus on emission trends, reduction targets and the implementation of key measures in a few sectors. While some (mostly external) evaluations are blunt about NMS failures (see e.g. Government of Finland 2009; Government of Ireland 2011; Government of Portugal 2012; Foxon 2013: 13), most internal assessments are diplomatic, or sometimes even biased in the sense that they make unjustified claims about policy successes (Kerr 2007; Mickwitz et al. 2009b: 78). Since only a few countries (among them Belgium, Germany and the UK) discuss NMS evaluations in their cabinet or parliament, their ability to improve capacities for climate change mitigation are usually low (Hulme et al. 2009: 20). Consequently, most NMS sequences resemble more of the same rather than continuous learning and improvement from onegeneration to another. Although newer

NMS usually build upon predecessing ones and refer to some of their targets, scenarios and measures, they rarely draw lessons from their implementation failures. Thus, we did not find that newer NMS have learned from older ones and became more effective in coordinating mitigation policies.

6 GHG emission reductions as outcomes of NMS?

In how far were NMS able to facilitate climate change mitigation policies that ultimately reduced GHG emissions? Since most evaluations do not attempt to reconstruct the cause-effect linkages between NMS, policies implemented through them, and emission reductions, we can answer this question only rudimentarily by critically explaining emission trends, and by comparing them with the qualitative assessments of NMS and climate policies we summarised so far.

As table 3 shows, the EU-15 reduced its GHG emissions by 14.7% instead of the targeted 8% between 1990 and 2011. While five countries (highlighted in grey) were not able to reach their mitigation targets with domestic measures, the other ten countries outperformed their targets.

Table 3: GHG emissions and Kyoto targets in the EU-15

Country	1990 (million tonnes)	2011 (million tonnes)	Change 1990-2011 (% points)	Kyoto Target 2008-2012 (% points)	Deviation from target (% points)
EU-15	4264.9	3630.7	-14.7	-8.0	-6.7
Austria	78.2	82.8	+6.0	-13.0	+19
Belgium	143.3	120.2	-16.0	-7.5	-8.5
Denmark	68.0	56.2	-18.1	-21.0	+2.9
Finland	70.4	67.0	-4.9	0.0	-4.9
France	562.9	485.5	-12.7	0.0	-12.7
Germany	1247.9	916.5	-26.7	-21.0	-5.7
Greece	104.4	115.0	+10.0	+25.0	-15
Ireland	54.8	57.5	+4.1	+13.0	-8.9
Italy	519.2	488.8	-5.8	-6.5	+0.7
Luxembourg	12.8	12.1	-6.2	-28.0	+21.8
Netherlands	211.8	194.4	-8.2	-6.0	-2.2
Portugal	59.4	70.0	+14.8	+27.0	-12.2
Spain	283.2	350.5	+23.9	+15.0	+8.9
Sweden	72.5	61.4	-15.5	+4.0	-19.5
UK	776.1	552.6	-28.8	-12.5	-16.3

Source: EEA (2012)

However, four points suggest that the decline of GHG emissions in the EU-15 is hardly due to NMS (or more precisely: to policies triggered by or coordinated through them), and partly not even to mitigation policies at all. First, assessments of the Austrian, Finish, French, and Irish climate policies suggest that few of the measures stated in NMS were actually implemented (Mathy 2007; Government of Finland 2009; Government of Ireland 2011; Steurer and Clar 2014). Second, policies that have been implemented and that contributed to emission reductions were often unrelated to NMS (Foxon 2013), inter alia because roughly 80 per cent of all climate-related policies stem directly from EU policies (EEA 2008: 7). NMS could play a role in implementing EU policies, but as evidence from Austrian building policies suggests, muddling through in an ad-hoc fashion often trumps strategic planning and coordination (Steurer & Clar 2014). Third, parts of the emission reductions achieved in Western Europe are neither due to NMS nor to mitigation policies but to other policies with positive effects on GHG emissions. Prominent examples for "non-climate policies" that achieved emission reductions of up to 50% as an unintended by-product are those that shifted the energy mixes from coal to gas in Finland, Portugal and the UK, and towards nuclear energy in France (for Finland see UNDP 2007: 119; for the UK see Giddens 2009; OECD 2011; for France see Mathy 2007).

In Germany, the demise and modernisation of polluting industries in former Eastern Germany had similar effects (Simeonova and Diaz-Bone 2005: 2540; Beck et al. 2009: 25). Fourth, parts of the emission reductions were also due to developments that occurred outside (although facilitated by) the policy domain altogether, such as the financial and economic crisis from 2008 on-wards (Chiodi et al. 2013: 170; Lekakis and Kousis 2013), and, more importantly, carbon leakage (i.e. the shift of carbon-intensive production to developing countries and the statistically carbon-free consumption of imported goods in industrialised countries): As several studies confirm, the GHG emissions of the EU have increased not decreased when adjusted for trade (Peters et al. 2011; Kanemoto et al. 2014). The alleged mitigation frontrunner UK is a particularly striking case in this regard: while production-based carbon emissions accounted for under the Kyoto Protocol fell by 15 per cent between 1990 and 2005, consumption-based emissions surged by 19 per cent in the same period (Foxon 2013).

These diverse patches of evidence coincide with our critical analysis of NMS as policy documents (section 4) and as governance and capacity-building processes (section 5), both suggesting that, so far, not a single strategy was effective in integrating climate policies across sectors and levels. In addition, we find confirmation in one of the few quantitative assessments of NMS in 21 OECD countries conducted by Kerr (2007). By comparing emission trends before and after the adoption of NMS, Kerr highlights that, in contrast to the policy documents claiming that they have achieved GHG emissions reductions, he found no statistically significant impact in 20 out of 21 OECD countries. The exception is Luxembourg, but interestingly it did not decrease but increase its emissions significantly since the adoption of its NMS in 2006 (Kerr 2007: 424). With regard to the few countries that reduced their emissions after adopting an NMS insignificantly, Kerr (2007: 426) concludes: “the apparent success of the climate programme to date may owe more to serendipity – fortunate timing and limited time-series data – than the strategic outcome of the climate programme”. The title of Kerr’s article summarises his and our findings pointedly: ‘Serendipity is not a strategy’.

Thus, we conclude that the roles multi-sectoral strategies such as NMS play in addressing complex environmental problems should be reconsidered carefully.

7 Conclusion and outlook

National mitigation strategies emerged in the 1990s and spread widely in the early 2000s as a response to respective calls in the UNFCCC, the Kyoto Protocol, and EU policies. Besides being policy documents that are supposed to formulate emission reduction targets and measures to reach them, NMS also represent relatively novel governance approaches that are supposed to coordinate mitigation efforts horizontally across sectors and vertically across levels of government in reflexive ways. As capacity building efforts, NMS are supposed to build a knowledge base for policy formulation and implementation, raise awareness for mitigation needs via communication, and establish policy networks. However, as the present article has shown, actual NMS of the EU-15 countries resemble all three functions, but they have fallen short in meeting them adequately. Although it is impossible to say in how far NMS as policy documents were able to provide guidance, we can summarise that their objectives are most often vague and the policy portfolios they propose are usually messy packages that pay little attention to trade-offs and synergies between measures, sectors and levels of government. With regard to capacity building, NMS focused on cyclical monitoring and reporting, and they played limited roles in facilitating research. Raising awareness for critical mitigation issues was usually not among their concerns. As governance processes, NMS served as catalysts for innovative means of policy integration (such as inter-ministerial coordination bodies) but largely failed in implementing medium-term policy objectives and long-term visions across sectors. Since NMS hardly played a role whenever governments made significant progress towards CPI in recent years, we conclude that they resemble “lacklustre bookkeeping” rather than strategic policymaking. In other words, NMS provide accounts of GHG emissions, targets and arbitrary portfolios of policy options that have little (or at best informative) relevance for sectoral policy decisions on the ground. Obviously, the

governance of climate change mitigation is either in a poor state, or takes place elsewhere (e.g. at the EU level, through other, more focused strategies, or in an ad-hoc manner in key sectors).

Since climate change was relatively high on political agendas approximately until 2009 (Dubash et al. 2013; Carter 2014), the failure of NMS to become effective governance and capacity-building processes cannot be blamed on a lack of political interest. The fact that NMS always had a close linkage to international reporting (see section 3) certainly played a role in framing them as bookkeeping tools, but as similar findings on other multi-sectoral strategies suggest (for sustainable development and climate change adaptation see Casado-Asensio & Steurer 2014; for climate change adaptation see also Bauer & Steurer 2014), the instrument as such is problematic. Apparently, encompassing multi-sectoral strategies have major difficulties in fulfilling one of their three key functions, namely to solve complex problems by effectively orchestrating policies across sectors and levels of government (not to mention non-state actors). Obviously, the challenges of policy integration are too serious to be overcome with a single instrument (for a similar conclusion see Mulgan 2009), in particular when this instrument is in the hands of relatively few administrators from comparatively weak environment ministries.

What alternatives do governments have to the status quo of piling one NMS on top of another and not caring enough about their implementation? First, they could try to improve their strategies as governance processes. However, based on the findings summarised here and elsewhere (Casado-Asensio & Steurer, 2014; Bauer & Steurer 2014), we conclude that this option would require reinventing policymaking as a predominantly rational problem solving process. As Hansen and Ejersbo (2002) emphasise, politicians usually prefer ad-hoc problem solving and do not care much about goals and measures accorded in strategies (in particular not when they are in conflict with current interest constellations). Second, governments could abandon multi-sectoral strategies altogether and content themselves with disjointed incrementalism, policy layering and policy drift (Howlett and Rayner 2006a; Steurer and Martinuzzi 2005). However, since multi-sectoral strategies are more than governance processes, this option implies losing their two other, more appropriate functions. This leads us to the third (and in our view most promising) option: governments could finally recalibrate NMS, away from their failed planning and governance function and toward their capacity building and communication function.

Although NMS were never more than communication instruments (albeit in the narrow sense of bookkeeping and reporting), they unfortunately ignored the full potential of communication in the broader sense of shaping ideas, arguments and paradigms. As countless policy analyses suggest, this is a considerable shortcoming because public policies are usually driven neither by goals and measures written into strategies or plans, nor by hard scientific facts, but by persuasive arguments brought forward in multiple arenas (or streams) by a variety of actors who usually adhere to different policy doctrines or paradigms (see e.g. Kingdon 1984; Hood & Jackson 1991; Hall 1993, Hajer 2002, Béland 2009). Considering the importance of ideas, persuasive arguments and paradigms in policymaking, we propose to take NMS from lacklustre bookkeeping to communication tools that aim to proactively shape problem perceptions and solutions on climate change mitigation at least within and between governments, if possible even throughout the public. As Fischer et al (2012) emphasise, a good point to start from is to focus the mitigation policy-field on issues concerned with the responsible use of natural resources. Although upgrading the capacity-building and communication function of mitigation strategies is certainly no easy task, it seems more promising than pursuing both the governance and capacity-building functions half-heartedly with little effect. For the governance of climate change mitigation, this recalibration of NMS implies trying new ways of policy coordination and implementation, e.g. by pursuing government-wide "flagship projects" such as "energiewende", or by linking sectoral mitigation policies to a government-wide vision promoted by recalibrated mitigation strategies. For future research, we hypothesise that climate policy integration is more likely when multi-sectoral strategies support sectoral policymaking processes in addressing only a few mitigation priorities. As conventional mitigation strategies make way to a new generation of even broader energy and climate strategies, the findings presented here are all the more pertinent for future climate governance.

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Annex 1: List of policy documents consulted

Country	Strategy documents	Other documents
Austria	• Austrian Strategy to Adapt to the Kyoto Goals (2002) • Second Climate Strategy 2008-2012 (2007)	• Climate Initiative "Klima: aktiv" (2004) • Climate Act (2011)
Belgium	• Belgian Plan to Reduce CO_2 emissions (1994) • Second Climate Plan (2002-2012) • Third National Climate Plan (2009-2012)	• Flemish Climate Policy Plan 2006-2012 (2006) • Walloon Sustainable Development Plan to 2020 (2009) • Currently preparing a strategy for 2013-2020
Denmark	• Action Plan to Reduce CO_2 emissions (1996) • Climate 2012 (2000) • Denmark 2020 (2008)	• Energy 21 (1996), renewed in 2001 • Action Plan to reduce carbon emissions from the transport sector (1999) • Strategy for Denmark's environment and energy research (2001) • Green Growth Plan (2009) • Our Future Energy 2020 (2012) • Integrated climate and energy strategy and action plan (2013) • Climate Act (in preparation)
Finland	• National Climate Strategy of Finland (2001) • National Strategy to Implement the Kyoto Protocol (2005) • Long-term National Climate and Energy Strategy (2008)	• Sectoral Climate Plans (2000) • Action Plan on Climate and Energy (2009) • Government Foresight Report on Climate and Energy Policy (2009) • Climate Bill (in preparation)
France	• National Climate Programme to Combat Climate Change (2000) • French Climate Plan (2004-2012)	• *Grenelle de l'Environnement* Roundtable Laws (2007)
Germany	• Climate Change Strategy (1991) • National Climate Protection Programme (2000) • Second National Climate Change Programme (2005) • Integrated Energy and Climate Programme (2007)	• Regional Climate Change Strategies (since 1990s) • • National Climate Protection Initiative (2008) • Roadmap Energy and Climate Policy 2020 (2008) • High Tech Strategy on Climate Protection (2009)
Greece	• National Climate Change Programme (1995) • Agenda to Reduce Greenhouse Gas Emissions (2002) • Action Plan on Climate Change (2007)	
Ireland	• National Climate Change Strategy (2000) • Second Strategy 2007-2012 (2007) • Third Strategy 2012-2020 (2011)	• Action Plans on Energy Efficiency, on Sustainable Transport (starting 2007) • Climate Change Bill (2010)
Italy	• National Programme for the Containment of Carbon Dioxide Emissions for the Year 2000 (1994) • National Action Plan 2003-2010 (2002)	• Guidelines for National Policies and Measures to Reduce Greenhouse Gas Emissions (1997) • Climate Change and Biodiversity Strategy (2009)
Luxembourg	• CO_2 Reduction Action Plan (2006) • Second Plan (in preparation)	
Netherlands	• First National Climate Policy Plan (1990) • Second National Climate Policy Plan (1999) • Implementation Plans (1999, 2000) • Climate Agenda 2011-2014 (2010)	• Fourth National Environmental Policy Plan (2001) • Clean and Efficient: New Energy for Climate Policy (2007) • Climate Roadmap 2050 (2011)
Portugal	• National Climate Change Programme (2004) • Second Programme 2013-2020 (in preparation)	• Sectoral Low Carbon Plans (2010) • National Low Carbon Roadmap 2050 (2011)
Spain	• Spanish Strategy to Implement the Kyoto Protocol (2004) • Spanish Climate Change and Clean Energy Strategy 2007-2012-2020 (2007) • Action Plan 2008-2012 (2007)	• Regional strategies since 2007
Sweden	• Climate Change Strategy (1993) • Second Strategy (2002)	• Climate Strategy for the Energy Sector (1997) • Transport Policy for Sustainable Development Bill (2001) • Local Climate Investment Programme (Klimp) since 2002 • Climate Bill (2008) • Sustainable Energy and Climate Strategy (2009) • Roadmap 2050 (in preparation)
United Kingdom	• UK Climate Change Programme (1997) • Second Programme (2000) • Third Programme (2004) • Fourth Programme (2006) • DEFRA's Climate Change Plan (2010)	• Energy Efficiency Action Plan (2004) • Combined Heat and Power Strategy (2004) • Climate Change Act (2008) • The UK Low Carbon Transition Plan: National Strategy for Climate and Energy (2009) • UK Low Carbon Transport Strategy (2010) • Climate Change: Taking Action (2010) • The Carbon Plan: Delivering our Low Carbon Future (2011) • Renewables Roadmap (2011)