

Adaptation to Climate Change: An Emerging EU Policy

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Panel Architecture - 9: Climate Change in the European Union: Confronting the Dilemmas of Mitigation and Adaptation

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Abstract

This paper presents an overview of the origins, development and characteristic features of the EU's emerging policy on adaptation to climate change, from the perspective of six 'governance dilemmas'. While the need to coordinate climate change mitigation efforts at EU level is now well established, the situation regarding adaptation policy is rather different. No international treaty deadline has provided an equivalent impetus to that of Kyoto, and Member States are not nearly so reliant on one another to achieve policy results in relation to adaptation as they are for mitigation. In the face of considerable uncertainties surrounding the incidence of future climate impacts and the diversity of regional environments and national institutional arrangements, a 'one size fits all' approach is regarded as neither necessary nor desirable. However, since local decisions are significantly enabled and constrained by institutional arrangements at higher levels, and key policies in a range of sectors significantly at risk from climate change are made at EU level, EU-level institutions may be able to contribute to a framework that is conducive for adaptation in a range of policy areas. The extent to which an EU role is justified and feasible, however, is complicated by a range of factors, including ongoing, well-known tensions between the Commission and Member States in relation to 'task allocation' and 'subsidiarity' issues. Moreover, the Commission has struggled to make firm commitments before a new post-2013 financial perspective is agreed and a new college of Commissioners appointed. As a result, its principal policy document, the 2009 Adaptation White Paper, relies heavily on 'mainstreaming' and is regarded by many as a disappointment. In future, as the prospects for containing global temperature rise to the 2°C target recede, the EU will be faced with the task of consolidating a more integrated portfolio of climate policies, able to exploit synergies (or at least minimise conflicts) between adaptation and mitigation actions, and reconcile them with traditional concerns over subsidiarity and global competitiveness.

1. Introduction

Drawing upon the 'governance dilemmas' framework elaborated elsewhere in this panel by Jordan, Huitema and van Asselt (2009), this paper examines the EU's attempts to develop a coherent policy on adaptation to the impacts of climate change. The term 'adaptation', while lacking a widely accepted definition, is taken here to refer to public policies, practices and projects which moderate the damage caused by and/or exploit the opportunities associated with climate change (EEA 2007a). A wide range of policy sectors are likely to be affected, including water, agriculture, forestry, fisheries, biodiversity, insurance, transport, energy, tourism and health (EEA 2004; 2007a); all of them are critically important to the long-term economic, environmental and social

well-being of the EU. For example, reduced water availability, wind damage and higher temperatures are likely to have a detrimental effect on agricultural production. Increases in the frequency and intensity of extreme events such as storms and floods could cause damage to infrastructure, with knock-on impacts on the financial services and insurance sectors. Even damage outside the EU could have significant effects, reducing the supply of primary resources (COM (2007) 354 final) and/or triggering an in-flow of migrants (High Representative and European Commission 2008).

Driven by the need to comply with an 8% EU emission reduction target under the Kyoto Protocol, and a political agreement since 1996 to limit the increase of global temperatures to 2°C above pre-industrial levels (Environment Council 1996), Member States have accepted the need for mitigation efforts to be coordinated at European level; most recently in the *20-20 by 2020* climate-energy package (COM (2008) 30). By contrast, the locus of adaptation decisions is often held to be more local, amongst the most directly affected actors and institutions (Klein *et al.* 2007). In the face of considerable uncertainties surrounding the spatial and temporal incidence of future climate impacts, as well as the diversity of regional environments and national institutional arrangements, a ‘one size fits all’ approach is regarded as neither necessary nor desirable. Nevertheless, local decisions are enabled and constrained in important ways by governance frameworks at higher levels, be they national or supranational. Moreover, key policies in a range of sectors significantly at risk from climate change are already made at EU level. Given the ongoing tensions between the EU and Member States in relation to task allocation issues, these distinctive features of the adaptation *problematique* make dilemmas related to the *level and scale* of action particularly pointed. Related to this is another dilemma: *who* should act? Will public authorities lead or can civil society actors be relied upon to adapt themselves? The answer to this question, and the kinds of public policy measures that flow from it depend, in turn, on the overall framing of the adaptation problem. This is another running theme in this paper. Finally, we highlight the issue of

who should pay for adaptation, given that some governments may struggle to address the fiscal difficulties arising from future climate impacts.

The remainder of this paper is structured as follows. The next section gives an overview of the origins, development and characteristic features of adaptation policy at national and EU levels. In section 3, the processes of policy design and adoption are examined from the perspective of the six governance dilemmas outlined in Jordan, Huitema and van Asselt (2009). We show how, given the institutional constraints pertaining in the EU, climate policy ‘mainstreaming’ has emerged as the preferred ‘solution’ to the EU’s adaptation needs, but how its progress has been slow. Section 4 draws together the main threads of the argument and identifies the factors - both general and specific – that have most strongly affected the design and functioning of the EU’s adaptation policy. Section 5 highlights future challenges and discusses the prospects for a strengthening of EU adaptation policy, before a concluding section summarises the factors that have enabled and constrained policy development to date.

2. The main phases of policy development

One of the stark messages of the IPCC’s Third Assessment Report was that climate change was already happening, and that due to time lags in natural systems, no amount of mitigation can prevent it entirely (Watson *et al.* 2001). This warning was reinforced in the IPCC’s Fourth Assessment Report (Klein *et al.* 2007: 748). ‘Adaptation’ can take multiple forms, occur at different levels of governance, and in different policy sectors, presenting governors with a range of possibilities. Actions can be classified according to their: *timing* (anticipatory, concurrent, reactive); *intent* (autonomous, planned); *spatial scope* (local, widespread); and *form* (technological, behavioral, financial, institutional, informational) (Smit and Wandel 2006). A well known typology distinguishes between ‘building adaptive capacity’ – generally considered to include elements such as economic wealth, technology, infrastructure, information, knowledge and

skills, institutions etc - and ‘taking adaptive action’ (West and Gawith 2005), with the latter assumed to follow the development of the former.

To complicate matters, the projected impacts of climate change remain highly uncertain. According to the Commission, while impacts will be felt across the Continent, Southern Europe and the entire Mediterranean Basin, mountainous areas (especially the Alps), coastal zones and Arctic regions of the EU stand to be most significantly affected (COM (2007) 354 final: 5). These impacts are likely to exacerbate existing socio-economic inequalities (European Commission 2007a) and test prevailing governance systems to their limit. Not surprisingly, governors and societal actors at a range of governance levels have started to develop adaptation policies (Swart *et al.* 2009). What is still not clear is the extent to which deliberate interventions need to be made by governors at national or supranational levels (‘planned adaptation’), and how far adequate responses will emerge independently amongst affected actors and communities at more local levels (‘autonomous adaptation’).

Policy development at national level

Although both mitigation and adaptation action is required by the UN Framework Convention on Climate Change (FCCC), the policies adopted throughout the 1990s tended to concentrate on the former (Swart and Raes 2007: 289-90).¹ When adaptation was discussed in international fora, it was mainly in the context of developing countries, widely perceived to be more vulnerable to climate change impacts (Schipper 2006). In many parts of the world, but particularly in Europe (Swart and Raes 2007: 289), adaptation remained a ‘taboo’ subject (Pielke *et al.* 2007), even discussion of which could, it was feared, undermine the prospects for strong mitigation policies (Schipper 2006; Gagnon-Lebrun and Agrawala 2007).

Adaptation was only fully recognised as a legitimate problem for public policy making in all regions when the weight of scientific evidence began to suggest that some climate change was, as

noted above, unavoidable. The IPCC Third Assessment Report constituted a landmark in this respect, helping to usher in what has been termed a more ‘realist’ perspective (Klein and MacIver 1999). Thus, in the 2000s, the need for adaptation gradually came to be recognised as a policy objective amongst industrialised and industrialising countries alike, and National Communications to the FCCC were routinely including assessments of climate change impacts and vulnerability (Gagnon-Lebrun and Agrawala 2007). However, these communications revealed that governments were treating the need for adaptation with different degrees of urgency and with differing emphases. Some states famed for their ambitious mitigation policies (notably Germany) were noticeably slower at developing adaptation policy frameworks (Gagnon-Lebrun and Agrawala 2007) than some of the supposed laggards, such as Spain.

Although such self-reporting by states provides only a crude indicator, it shows that the political attention devoted to adaptation issues is just as variable as it is in relation to mitigation. Furthermore, interesting differences in emphasis across regions are observable. For example, within the Mediterranean region, Italy and Slovenia appear to have no actions to cope with extreme events, while Greece reports the most (Massey and Bergsma 2008; see also Swart *et al.* 2009). As of 2009, eight Member States had published national adaptation strategies: Finland (in 2005), Spain (2006), France (2007), and Denmark, Germany, Hungary, the Netherlands and the UK (in 2008). Five more were preparing strategies, but 14 had yet to start (European Commission 2009a).

The origins of EU adaptation policy

Adaptation policy at EU level has tended to develop in the wake of national policies, in a relatively piecemeal fashion. In contrast to mitigation, the advantages of EU-level action were not immediately clear in the 1990s. Given the ‘taboo’ on the issue noted above, there were certainly no obvious policy entrepreneurs in the Commission willing and able to push for the EU to be given a

more active role. Governors at local levels who were keen to develop stronger adaptive responses by networking with their counterparts in other Member States struggled to secure EU financial support (interview, Bryan Boulton, Hampshire County Council, 22.10.08). In general, coordination was lacking at EU or even national level.

It took a series of high profile focusing events, such as the 2002 floods in Central Europe and 2003 heat wave (Swart *et al.* 2009), to prod the Commission into acting. At a 'flood summit' held in August 2002, the Danish Presidency and Commission together took the view that the affected Member States should not be left to cope with over 15 billion Euros of damage. Within two weeks, the Commission proposed the creation of a new emergency instrument to mobilise financial assistance.² With unanimous support from Member States and the European Parliament, the EU Solidarity Fund was established by a Council Regulation (2002/1517/EC) and started work in 2004. The Fund provides financial aid for emergency measures in the event of natural disasters - including floods and fires, but not droughts - causing direct damages above 3 billion Euros at 2002 prices (or 0.6% of gross national income). Payments from the Fund are limited to covering non-insurable damages. The Floods Directive (2002/48/EC) also originated from this sequence of events. Since 2006, consideration has also been given to setting up a permanent EU rapid reaction force to deal with forest fires that regularly rage through Southern Europe (Barnier 2006).

Whether these developments can be classed as adaptation policy, or ad hoc responses to emergencies that may or may not be related to climate change, is a moot point. The development of a more concerted EU-level adaptation policy accelerated, however, under the Dutch and UK Presidencies in late 2004 and late 2005 respectively. Both states regarded themselves as leaders in the field (Swart *et al.* 2009). The conclusions of the December 2004 Environment Council cited a European Environment Agency report (EEA 2004) which claimed that the impacts of climate change were already being felt across different parts of Europe. The need for adaptation was also mentioned in the Commission's 2005 Communication, *Winning the Battle Against Global Climate*

Change, which stressed that even achieving the 2°C warming target would not obviate the need for significant adaptation efforts across the globe, and highlighted the fact that only a few Member States had examined the need for adaptation policies. It also warned that because private insurance might not adequately cover the associated damages, governments could eventually be forced to step in. The debate on a European policy response subsequently evolved in a specially convened impacts and adaptation working group under the auspices of the second European Climate Change Programme (ECCP), launched in October 2005.

The emergence of EU adaptation policy

No Member State objected to the EU becoming involved in adaptation policy on the grounds of principle (Entec 2008). On the contrary, many saw the ECCP as a useful forum in which to develop and exchange new knowledge, and allow the Commission to catch up with thinking in some of the leading Member States. Policy in some of the most climate sensitive sectors (e.g. agriculture, water, biodiversity, fisheries, and energy networks) was already harmonised at EU level, so the idea of additional EU involvement had an obvious logic. Since incorporating new adaptation goals into these sectors would require extensive involvement from the associated DGs, representatives from these were invited to join relevant ECCP meetings. Meanwhile, awareness grew in DG Environment that piecemeal solutions developed at national level might lead to problem displacement across borders, as had been witnessed when flood defence measures enacted in Germany led to flooding in the Netherlands. So, despite earlier misgivings that focusing on adaptation might detract attention from the EU's emphasis on strong mitigation, DG Environment – encouraged by a number of the more active Member States - gradually came around to the idea that securing a more prominent role for the EU was not just logical, but necessary.

Meanwhile, support for a stronger EU role was also growing within civil society and at lower levels of governance. For example, local authorities in the Eurocities network used the ECCP as a

platform to lobby for an ‘adaptation directive’, which they saw as a means to guarantee adequate financial support from complacent national governments (Cowan 2006). However, the reaction from leading Member States such as the UK and the Netherlands made it clear to DG Environment that an adaptation directive would be regarded as overly prescriptive and was therefore not feasible (Cowan, pers. com), leading it to rely on the Policy Coordination Method.

The deliberations of the ECCP impacts and adaptation working group were intended to inform a Commission green paper. When eventually published in June 2007, this identified four key ‘pillars’ of future EU action:

- 1) Developing adaptation strategies and ‘mainstreaming’ them into existing EU policies and funding mechanisms.
- 2) Integrating adaptation policy into the EU’s dealings with non-EU states.
- 3) Supporting research and ensuring it is taken up in policy making.
- 4) Involving European society, business and public sector in the preparation of future adaptation strategies (COM (2007) 354 final: 14).

For the most part, it sought only to identify options for further discussion, but the absence of strong commitments disappointed some stakeholders (Entec 2008). Some ideas that had appeared in early drafts were noticeably absent. For example, plans to make adaptation measures an ‘integral part’ of the EU budget ‘with their own committed appropriations’ (European Commission 2007b: 21-22) were dropped. Similarly, references to the role of adaptation in ongoing agricultural policy reforms were toned down after discussions within the Commission. Other critics, while acknowledging the Commission’s lack of competence in the area, expressed disappointment that more emphasis had not been placed on the importance of strong spatial planning in preserving healthy eco-systems and improving adaptive capacity (see for example Institute for European Environmental Policy 2007).

In terms of pillar three, DG Research has funded several large academic research projects which focus on adaptation, including ADAM. Networks of local and regional government planners and regulators have also been active, using such means as the Interreg programme³ to fund their own capacity-building efforts through initiatives such as ESPACE (European Spatial Planning: Adapting to Climate Events) and BRANCH (Biodiversity Requires Adaptation in Northwest Europe under a Changing Climate). Monitoring bodies such as the EEA and the OECD have also become increasingly active as shapers of an emerging adaptation policy discourse (see e.g. EEA 2007a; 2007b; OECD 2008). Among industry groups, the insurance sector has been by far the most active, given its obvious exposure to the risks associated with climate change (see e.g. Association of British Insurers 2007). Under pillar four, an additional stakeholder and expert engagement effort in the form of a proposed European Advisory Group was quietly neglected in favour of policy development through a new Adaptation Task Force within the Commission (led by DG Environment's Water Unit), charged with turning the Green Paper into a White Paper.

However, none of these efforts represented a significant departure from the status quo, leaving pillars one and two ('mainstreaming') as the main focus for future EU policy efforts.⁴ While DG Environment officials were satisfied that the existing provisions of the Water Framework Directive were already conducive to mainstreaming, in other areas revision of legislation, such as the Energy Performance of Buildings Directive, was considered necessary. In terms of funding mechanisms, climate change objectives were declared to have been already mainstreamed into the Community strategic guidelines for rural development for the period 2007-13. Commitments were also made to integrate both mitigation and adaptation concerns into the Cohesion Fund (COM (2008) 301/4). The Green Paper also noted the possibility of developing wholly new policies, but did so in a rather brief and non-committal manner. The main candidates identified included integrating national insurance markets (which was already an aspect of the internal market programme), reviewing the functions of the EU Solidarity Fund (see discussion of costs and benefit dilemmas,

below) and exploring the possibility of ‘innovative financing arrangements’ to support the most vulnerable states and sectors (COM (2007) 354 final: 20).

The Adaptation White Paper and beyond

The publication of the Green Paper significantly raised awareness of the adaptation agenda across the Commission. Other DGs were subsequently engaged by DG Environment in a fresh round of discussions to inform the development of the White Paper. Although formally led by DG Environment, this would have to be signed off by the whole Commission, and be subject to a full impact assessment process. This raised the stakes considerably and made for more complex and time consuming negotiations (*European Voice* 5-11.3.09: 2). When it emerged in 2009, the White Paper contained no radical initiatives, promising instead to prepare the ground for a more comprehensive strategy after 2013 (COM (2009) 147 final). To this end, all sectoral policies would be reviewed, and the development and exchange of knowledge and best practice fostered by a new Clearing House mechanism. Separate papers were issued on health and water, coastal and marine issues, while DG Agriculture produced its own document (European Commission 2009b). Arguably, this was symptomatic of internal differences that, despite all the discussions since 2005, the Commission was unable to resolve.

3. How were the governance dilemmas confronted?

What was ‘the problem’?

Jordan *et al.* (2010) show how ‘the problem’ of climate change has been viewed alongside other perceived ‘problems’, including economic competitiveness and energy insecurity. In these areas, the tried and tested ‘solutions’ developed by the EU have included the completion of the internal market programme and deepening integration on foreign policy issues. In the adaptation sphere, things have played out rather differently. No immediate concern, akin to energy insecurity, has spurred policy development, and nor has adaptation been viewed by EU institutions as an area in

which public support for deeper European integration can be fomented. On the contrary, adaptation has mainly been seen as a *national* issue by the majority of Member States. Moreover, the possibility of ‘autonomous adaptation’ by societal actors *irrespective* of governmental steering raises the question of how far adaptation should even fall within the remit of *national* governments, let alone EU public policy. Not surprisingly then, there has been little appetite within DG Environment to repeat the carbon/energy tax fiasco by trying to use the adaptation issue to ‘creep’ into new policy areas. Moreover, it has been far too busy servicing international and EU mitigation policy to significantly advance adaptation policy.

With the possible exception of insurance, adaptation has not been seen as directly affecting the movement of traded products. Therefore, the single market dimension of adaptive planning (and hence the perceived need to harmonise national approaches) has not been nearly as obvious as it has in relation, say, to renewable energies or energy efficient products. This is not to deny that there is a market dimension to adaptation, however. The Stern Review (prominently cited in the Green Paper) for example, lists uncertainty and imperfect information, missing and misaligned markets and financial constraints as three main barriers to ‘adaptive capacity’ (Stern 2006: 411). However, to date the cross-border dimensions of this have not emerged strongly, although a Commission Communication on Water Scarcity and Drought (COM (2007) 414 final) hinted at possible future legislative responses to water scarcity, including an extension of the Energy-Using Products Directive to water-using devices, a new law on the water performance of buildings and an expansion of the EU efficiency labelling scheme to promote water-efficient products.

Although cohesion and environmental policy could offer clearer links, framing the adaptation problem in such terms is not necessarily straightforward. Regarding cohesion, the policies of DG Regional Policy have to a large extent been underpinned by a model of economic competitiveness in which environmental factors are not prominent. Regarding environmental policy, linking adaptation to key areas of legislation such as biodiversity raises a potential dilemma in that if

climate impacts are seen to reduce the value of existing protected areas, pressure may grow to ‘de-designate’ some sites and allow them to be developed. Awareness of such implications may have lain behind the apparent reluctance of DG Environment to lead on the issue of adaptation sooner than it did.

Even amongst specialists there are fundamental debates about the locus, aims and instruments of adaptation. Berkhout, for example, argues that adaptation policies could address up to seven different objectives, including: informing the potentially vulnerable; assisting in the provision of early warning and disaster relief; providing incentives for appropriate investments and enabling adaptation; mainstreaming ‘climate-proofing’⁵ of public policy (in cases where the state either provides collective goods or has a regulatory or ownership role); planning and regulating long-term infrastructural assets to reduce future vulnerabilities; regulating adaptation ‘spillovers’ (to prevent the most vulnerable social groups bearing new social and economic risks); and compensating for the unequal distribution of climate impacts (Centre for European Policy Studies 2008).

Four of these objectives can be found in the Adaptation Green Paper. However, three of them play a less prominent role: facilitating adaptation in the market; regulating spillovers; and compensating for the unequal distribution of climate impacts (Centre for European Policy Studies 2008: 5-6). This pattern was broadly repeated in the White Paper. Part of this pattern is related to the governance system of the EU, namely its preference for ‘liberalisation by regulation’, limited financial resources and relatively weak capacity for (re)distributive policy (see e.g. Weale *et al.* 2000). Hence the Commission has largely focused on what is most feasible: sharing information (via Policy Coordination Methods) and pledging to develop existing policy areas (e.g. agriculture, regional policy, environmental protection) in ways that take heed of adaptation.

Interestingly, the White Paper never precisely defines adaptation. However, the overall objective of the EU's Adaptation Framework is said to be 'to improve the EU's resilience to deal with the impact of climate change' (COM (2009) 147: 7). The importance of over-coming market failures and preventing autonomous adaptation from leading to 'mal-adaptation' - shifting the impacts or exacerbating the problem in another area, country, sector or social group - are also heavily stressed as justifications for policy intervention.

The results of DG Environment's consultation on the Green Paper highlighted some interesting discrepancies between the Commission's framing of the adaptation 'problem' and those of other actors. Over half of respondents felt that it did not focus on the right things (Entec 2008). One specific area of concern was that of migration – be it across Member State borders or from third countries - a topic on which neither the Green nor White Papers had much to say. It is also not an area in which the EU enjoys strong competence.⁶ However, in March 2008, a paper on the international security dimension of climate change, prepared jointly by the Commission and the EU's High Representative for Foreign Affairs, Javier Solana, was presented at the Spring European Council. It raised the alarming prospect of millions of environmental migrants by 2020, and recommended 'considering... the further development of a comprehensive European migratory policy, in liaison with all relevant international bodies' (High Representative and Commission 2008: 10). It remains to be seen whether Solana's apparent attempt to use adaptation policy to expand the EU's role in such matters finds support amongst Member States.

At what level was policy enacted?

The previous section demonstrated that adaptation lacks a stable and settled 'problem framing' in Europe: even experts disagree about what exactly policy should address. This disagreement about problems and problem framings has become closely tied to the way in which the EU has handled level and scale dilemmas. In many ways, the most significant barrier to the development of supranational adaptation policy in Europe has been the unwillingness of many actors (including

but by no means wholly restricted to states) to allow the EU to intrude into policy issues that are mainly or wholly under state control. For example, although spatial planners can play a significant role in adaptation – think of the siting of certain infrastructures on river and coastal flood plains for example - such a logic has not yet convinced national governments that an EU dimension is warranted. This is despite the fact that many existing EU policies (e.g. the Strategic Environmental Assessment Directive) and programmes (transport and rural development for example) are intimately bound up with national land-use planning practices (Wilson and Piper 2008), but often conflict with one another (EEA 2007c). The protection of European soils offers a further example, where despite its potential to further both mitigation and adaptation goals, several Member States have not been prepared to countenance a proposed directive (European Environment Bureau 2009).

The Commission, strongly backed by the Parliament (European Parliament 2008), has certainly begun to stress the need for a stronger EU-level policy. Its Green Paper made a case for deeper EU involvement on several grounds: (1) adaptation has cross border implications (flooding, for example, shows little respect for political borders), and efforts should be co-ordinated in a cost-effective manner; (2) certain sectors are largely integrated at EU level through the single market and common policies and it makes sense to integrate adaptation goals directly into them; (3) investments made through EU funding mechanisms could be vulnerable to climate impacts; (4) solidarity among Member States is necessary to ensure that the poorest are protected; (5) knowledge and experience developed nationally should be shared; (6) the EU should show leadership globally, especially in relation to mainstreaming (COM (2007) 354 final: 12). None of these were elaborated or justified in much detail and arguably only numbers (2) and (3) really provided the Commission with a solid rationale for additional EU action. Consequently, the Commission has decided to concentrate on mainstreaming adaptation into existing policies rather than develop new ones.

When and in what sequence did governors act?

In adaptation policy making, this dilemma has manifested itself in several ways. Firstly, it is related to the relationship between mitigation and adaptation. Put crudely, should Europe concentrate its efforts on limiting climate change by strong mitigation, or adapting to its consequences as they unfold?⁷ The former implies early and decisive action to de-carbonise societies; the latter could involve the early adoption of adaptive measures or might simply add up to a series of highly reactive actions. As noted above, the EU has mainly concentrated on mitigation policy, but as the scientific understanding of impacts developed and the demands from non-state actors for greater state involvement grew, it gradually developed a policy response. But unlike mitigation policy, the desire for a stronger EU role has been relatively subdued, even within DG Environment.

Secondly, in the EU system in general, Member States often have to make a difficult choice between ‘going it alone’ or waiting for the Union as a whole to act and then following in its wake. In the area of adaptation, these typical leader-laggard dynamics have not been particularly evident, at least thus far. The actions taken by ‘lead’ Member States, such as the UK and Finland, have helped to push the EU to act but do not appear to have reaped them a significant ‘first-mover advantage’ (although arguably it strengthened their hand in resisting the idea of a directive). This is because adaptation does not share the same cross-national characteristics as mitigation policy areas such as renewable energy or emissions trading, where a policy approach can be more easily ‘scaled-up’. One issue area in which cross-border implications might arise would be if state aids offered by one Member State (e.g. to protect vital energy generation facilities from flooding for example) were perceived to undermine the functioning of the single market by discriminating unfairly against industries in other Member States. This does not, however, appear to have been a problem thus far.

Thirdly, timing and sequencing dilemmas also manifest themselves in terms of the relationship

between key policy-making cycles. For example, in implementing the Water Framework Directive, Member States had a ‘window of opportunity’ in 2008 to conduct a ‘climate check’ of their draft River Basin Management Plans. Once adopted, these plans - and the investments that follow on from them - would be difficult to revise. However, in the absence of any guidance to river basin authorities on how this should be done, the opportunity was effectively missed (ENDS Europe Daily 27.4.09). Guidelines for integrating climate change into the second and third cycle of plans have been promised, but in their absence, river basin authorities are in effect free to choose whether and how they wish to go about ‘mainstreaming’.

In more general terms, the lack of synchronicity between policy cycles can be seen to have constrained the advancement of adaptation policy at the EU level. The impact assessment accompanying the White Paper makes clear that an important range of potential options was discarded at an early stage, including ‘any option implying substantial changes in EU financing schemes, which cannot be foreseen under current multi-annual financial framework, as well as any option implying pre-empting post 2013 (*sic*) multi-annual financial framework’ (European Commission 2009a: 37). The apparent inability to challenge current investment patterns or decisively commit to future spending evident in both these examples raises the danger of ‘lock-in’ to unsustainable practices.

What modes and instruments did governors employ?

There are a whole host of different modes and instruments that EU governors could – in theory – employ to address the adaptation challenge. However, the sheer breadth and multi-sectoral nature of the agenda and array of instruments on offer makes it difficult to generalise with respect to how mode and instrument dilemmas have been addressed. In an attempt to reduce the complexity, some analysts (e.g. OECD 2008; DEFRA 2008; West and Gawith 2005) have started by identifying a range of generic ‘adaptation options’ (see also Burton 1996). These include: bearing losses; sharing losses (through private insurance or relief from public funds); modifying threats (e.g.

through flood control measures); preventing effects (through structural/technological measures) etc. (OECD 2008: 88).

Identifying precisely which instruments to use requires more specific information on the timing and magnitude of impacts as well as the range of potential adaptation strategies in an affected sector. In some respects, the decision to pursue adaptation policy at more local levels has meant that mode and instrument dilemmas are being more acutely felt at lower levels of governance than in Brussels. At EU level, the choice has been very much conditioned by external exigencies. So rather than attempt to act in a hierarchical, regulatory or strongly redistributive way, the Commission has opted for (or been obliged to adopt) a much looser, network-oriented mode of governance, akin to the Policy Coordination Method. This may conceivably evolve into more formalised systems of information sharing, benchmarking and peer reviewing (COM (2009) 147 final). But in the short term, the Commission looks set to continue focusing on the mainstreaming of adaptation issues into existing (and new) policies and funding operations, and encouraging Member State governments to do likewise.

This (highly conditioned) choice is not surprising given the uncertainties surrounding future impacts, the novelty of the whole subject of adaptation and its strongly local character, all very much strengthened by the political importance of the informal norm of subsidiarity. In the back of many governors' minds is, of course, the legal issue of competence and whether granting the EU greater competence over internal adaptation matters could open the door to requests to harmonise many cognate areas of internal policy making (specifically spatial planning and infrastructure development) as well as external (remembering that greater internal competence leads inexorably to greater external competence in international negotiations).

The focal point of many of these sensitivities has been the issue of whether the EU should (eventually) adopt an ‘adaptation directive’ that requires states to draw up national adaptation strategies and submit them to the Commission for review (European Commission 2009a). As already noted, supporters believe it would help to coordinate efforts better and force less-advanced governments to offer more support to local authorities. In many cases, public authorities are better able to encourage adaptation than markets, which may be preoccupied with very short term issues (Stern 2006: 412). Opponents, on the other hand, feel that it would be unnecessary, overly-prescriptive on issues where key trade-offs should be decided locally, and could open the door to future ‘competence creep’. So, once again, it is evident that the way in which mode and instrument dilemmas have been confronted has been inextricably intertwined with the way in which the EU has engaged with level and scale and problem perception dilemmas.

How were the costs and benefits of governing allocated?

EU adaptation policy is – as noted above – so inchoate that it seems rather premature to consider how perceptions of costs and benefits might have affected policy choices. Although the EEA and some national authorities have started to collate information about the costs and benefits of adaptation interventions, in comparison to emissions trading or renewable energy the overall picture remains far from complete and a whole series of methodological issues remain unresolved (EEA 2007b; European Commission 2009a). Nevertheless, at the very least a wariness about committing to large-scale spending in the absence of more certain knowledge of impacts, within the context of existing budgetary constraints, can be noted. The White Paper states that priority should be given to adaptation measures that would generate net social and/or economic benefits irrespective of uncertainty in future forecasts (no-regret measures), and to measures that are also beneficial for mitigation (COM (2009) 147 final).

While the emerging evidence strongly suggests that the ‘net’ impacts of climate change on Europe

are likely to be relatively modest as compared to many developing countries, there may well be strong distributional effects, with southern states likely to be hardest hit. Moreover, fears are growing that some governments may struggle to address the fiscal difficulties arising from future climate impacts (Mechler *et al.* forthcoming). This is likely to encourage the most badly affected states to continue pushing for a common, EU-wide response (there is a direct parallel with the cohesion states' support for EU-wide mitigation policies) via common mechanisms such as the Solidarity Fund. The Lisbon Treaty's new 'Solidarity Clause' (Article 188r), which states that the EU and its Member States 'shall act jointly if a Member State is (...) the victim of a natural or man-made disaster', appears to move in this direction. However, scepticism has been expressed about the willingness of EU governments to share costs (ENDS Europe Daily 15.4.09).

According to the Committee of the Regions (2006), the Solidarity Fund has proven inadequate at supporting disaster-hit regions. It argues that drought-relief should be eligible for support from the Fund and urges the Commission to consider lowering its damage threshold for assistance from 1 billion Euros or 0.5% of gross national income. In an attempt to address some of these failings, the Commission's Green Paper raised the possibility of 'innovative financing arrangements' to support 'the implementation of coordinated adaptation strategies, especially in the most vulnerable regions and sections of society in Europe' (COM (2007) 354). For its part, the White Paper merely promised to continue exploring such options.

However, while it might serve to raise the profile of the EU and present it in a favourable light to national publics, any decision to boost the Solidarity Fund raises a significant dilemma of 'moral hazard' and mal-adaptation. The concern of some critics is that the availability of post-disaster solidarity funding may discourage governments from taking necessary preventive measures that would constitute a sounder long-term allocation of resources. The Commission has indicated that it is aware of this dilemma, by expressing its readiness to examine all requests for aid following droughts as long as it 'is not the indirect result of inefficient water management and that

appropriate drought management plans are in place' (COM (2007) 414 final: 9). Critics claim that rather than providing post-disaster relief, a more appropriate and efficient function for the Fund would therefore be to act as a reinsurance mechanism for national and regional insurance pools covering public infrastructure, relief payments and cultural heritage protection (Hochrainer, Linnerooth-Bayer and Mechler forthcoming). In theory, competitively priced insurance products would send accurate signals to the market about the economic cost of climate risks. Firms and households would respond by 'climate-proofing' their operations (to reduce premiums) or, if the premium is considered too high, by relocating to a less risky area (OECD 2008: 103). However, insurance cover is by no means universal in all Member States (Bouwer, Huitema and Aerts 2007), and insurers may overcharge for climate risks or refuse to cover some actors. Therefore, public policy measures may eventually be required to overcome these market imperfections (OECD 2008).

How were policy results secured?

Given its embryonic state, it is still too early to analyse the implementation and enforcement of an 'EU adaptation policy'. Indeed, to the extent that many adaptations are being taken autonomously by private actors we might conclude that policy implementation is not yet as big a challenge as it is for mitigation policy. Certainly, adaptation policy lacks the discipline imposed by international treaty commitments, compliance with which can be - and is being - evaluated. The White Paper proposed a framework to encourage, rather than enforce, implementation in Member States. Specifically, an Impact and Adaptation Steering Group, made up of representatives from the Member States involved in the formulation of national and regional adaptation programmes, is intended to help develop the EU strategy and consider the appropriate level at which action should be implemented. Initially, the group is due to focus on monitoring progress made in strengthening the knowledge base, in particular setting up the Clearing House mechanism (COM (2009) 147 final).

Despite adaptation being at such an early stage, a number of potential challenges are already identifiable with regards the mainstreaming agenda. The White Paper and associated impact assessment stress the need for a review between 2009 and 2012 in each policy area of how policies could be re-focused or amended to facilitate adaptation. This should pay attention to how any proposed measures impact upon and interact with policies in other sectors (COM (2009) 147 final: 8). Adaptation options, it is said, will vary by sector and in some cases will require financing. Although understanding of how current EU policies enable and/or constrain adaptive planning at lower levels is relatively undeveloped, it is becoming clear that mainstreaming is by no means an easy matter (Biesbrock, Swart and van der Knaap 2009; Urwin and Jordan 2008; Acclimatise and Hampshire County Council 2007). It is certainly *not* an administratively light activity, and nor does it avoid having to confront politically sensitive implementation and enforcement dilemmas. If the rather disappointing experience with environmental policy integration at EU level is anything to go by (Jordan and Lenschow 2008), effective *climate* policy integration (i.e. mainstreaming) could well be a very long haul.

For now, the extent of mainstreaming achieved at EU level appears rather variable. The EU's Common Agricultural Policy is regularly accused of fostering mal-adaptation by, for example, encouraging the cultivation of water-intensive crops in dry areas (see e.g. de Pous 2009). Environmentalists expressed disappointment that the 'Health Check' of the CAP reform (COM (2007) 722) was not used as an opportunity seriously to address the effects of agriculture on rural ecosystems, the resilience of which is seen as critical to successful adaptation (Birdlife International 2008). In the area of energy, the 2007 Green Paper noted that the Commission has a role, and that its Strategic Energy Technology Plan will consider adaptation. The Commission has started work on revising the relevant regulatory framework to include an adaptation dimension.

Turning to regional policy funding instruments, here the EU has somewhat more developed implementation mechanisms. After the Commission has taken a decision on the 'operational

programmes’, the Member States and regions then have the task of implementing them, in other words selecting the thousands of projects, then monitoring and assessing them. All this work takes place through management authorities in each country and/or region. However, most of the project-level funding decisions are made by sub-national, not EU authorities and, while their spending programmes are subject to Commission approval, ‘there is little evidence that [the Commission] ... is attempting to use this power to ensure that a larger share of the funds is... used in direct support of the Union’s policy to fight climate change and adapt to its effects’ (Adelle, Pallemarts and Baldock 2008: 59). If it did, it seems likely that it would provoke a strong reaction from Member States. This takes us back to some of the level and scale dilemmas noted above.

4. Looking back across the dilemmas

The most salient dilemmas confronting governors have centred on how the EU should frame the overall adaptation *problematique* and at what level to act. In terms of the former, adaptation lacks a stable and widely agreed framing. The links between adaptation and some of the problems that have done such a lot to drive mitigation policy making – for example, energy insecurity and public disenchantment with the EU – have not been evident. Adaptation is certainly difficult to present to the public as a ‘big idea’ around which future European integration can be organised. In some respects, it has been pushed aside in favour of efforts that deal with the mitigation side of the climate change conundrum.

In a multi-level governance system which only has two main levels, the EU and the national, the handling of level and scales dilemmas has to a large extent boiled down to a straight choice between the two. For a number of fairly immediate reasons, the Member States have been generally unwilling to permit EU institutions to interfere in what they perceive to be ‘domestic’ matters, such as land-use planning. However, their reluctance is by no means absolute. In some areas – funding for post-disaster assistance, for example – there has been much greater agreement

that the EU should have a role: witness the remarkably rapid birth of the Solidarity Fund. The reliance on mainstreaming into existing areas of competence and information sharing is a symptom of this reluctance. It also reflects the unwillingness of some of the sectoral DGs to see a more radical overhaul of the EU budget, which might remove funds from ‘vulnerable’ or carbon-intensive investments and earmark them for adaptation-related ones. DG Environment has therefore navigated problem perception and level and scale dilemmas by proceeding cautiously towards an EU adaptation policy, ever conscious that to be more ambitious in this area risks diverting precious political, administrative and economic resources from its strategically important mitigation work. Thus, the delay to the Commission’s adaptation White Paper until after the agreement of the *20-20 by 2020* climate-energy package (COM (2008) 30) is arguably not surprising.

The way in which the EU has confronted these two dilemmas has, to a large extent, preconditioned its engagement with the other four:

- Timing and sequencing: the EU has concentrated on mitigation, to a large extent leaving Member State policy makers and civil society actors to deal with adaptation;
- Modes and instruments: in the face of myriad possible instruments, the EU has opted to concentrate on mainstreaming adaptation into what it is already doing (i.e. producing sector-specific legislation and disbursing sectoralised funds);
- Costs and benefits dilemmas: a small EU role to date has meant less pressure on the overall budget (itself a political hot potato). It also means that the EU does not have to get involved in the messy politics of allocating costs and benefits to particular groups (c.f. the intense political battles over car emissions, emissions trading and renewable energy).
- Implementation and enforcement: with little adaptation policy to implement, this dilemma has not had to be directly confronted. It is possible that stronger international or national pressure to develop stronger adaptation goals and targets may emerge, but in the meantime,

the Commission is concentrating on improving monitoring and encouraging the exchange of knowledge and best practice.

5. Future challenges and prospects

It is striking how EU policy development on adaptation and mitigation has remained largely separate. Even after it started to emerge, adaptation policy was still being formulated in relative isolation from mitigation policy (the decision to vest DG Environment's Water Unit with the responsibility to coordinate the EU's Adaptation White Paper is telling in this respect).

Nonetheless, official policy discourses are increasingly referring to the need to move beyond a simple dichotomy between mitigation and adaptation, and towards 'win-win' strategies which exploit synergies between the two. Improved efficiency of water use and the possible use of revenues from auctioning allowances under the emissions trading scheme for adaptation purposes, encouraged by the revised emissions trading directive (2009/29/EC) are examples of potential synergy. Soil protection has potential to be another, but until now Member States have been unable to agree on how to proceed.

With many scientists now regarding the prospects of attaining the official 2°C target as minimal, the need to invest more heavily in ensuring European resilience to climate impacts is becoming starker. Recent years have seen the emergence of a new climate discourse stressing the importance of attempting to achieve levels of mitigation that would limit warming to 2°C, but at the same time planning to adapt to the likelihood of potentially much higher rates and consequent levels of damage (see e.g. Anderson and Bows 2008). From a governance perspective, however, this balancing act presents difficulties for EU policy makers. The 2°C target has been an immensely powerful symbol of the EU's leadership, which makes it politically difficult to abandon. It also provides a signal to investors (and developing countries) that the EU is strongly committed to effective mitigation. Without this, investor confidence – which is weak at the best of times – in the

new carbon economy might fade, threatening the attainment of the EU's medium-term mitigation targets. But to assume that adaptation actions will be responding to only a 2°C rise runs the risk of inadequate effort being made (Anderson and Bows 2008).

What might a more concerted EU adaptation policy look like? A stronger regulatory approach might see the setting of mandatory standards, for example for water-using products. A new legal framework for Adaptation Strategies could seek to reduce cross-border vulnerabilities by requiring Member States to adopt national action programmes that are regularly screened and benchmarked at EU-level. Stronger implementation of existing policies, especially of the Habitats, Birds and Water Framework Directives, could lead to the development of 'green infrastructure' which should ensure connectivity between species habitats (critical to healthy and resilient ecosystems) and provide critical services such as flood management (European Environment Bureau 2009). A high level commitment to solidarity among Member States could see the Commission called upon to develop a dedicated 'climate change vulnerability and adaptation fund', offering greater assistance to regions (e.g. the Mediterranean) that are especially vulnerable to the risk of drought, funding water-efficiency measures. The potentially enormous funds that might come to be regarded as necessary to adapt or compensate for losses endured by some Member States could be raised by innovative means, including the carbon market or even through the Tobin tax that is currently gaining support internationally. However, as noted above, care would need to be taken in view of the risk of mal-adaptation, i.e. allowing activities that are ultimately unsustainable to be continued.

It seems clear that a more ambitious policy would require the EU to strike a new balance between European interests and existing national demands for subsidiarity in adaptive planning. The history of climate policy to date suggests that Member States will not willingly pool sovereignty across such a wide array of policy areas. To resolve the ensuing tensions, the Commission may decide to push for joint action more quickly in areas where EU competence is already well-established (such as agriculture, water and biodiversity protection) than where it is contested (e.g. land-use planning

matters). However, it may take very significant climate impacts to be felt before Member States allow EU institutions to curtail common spending programmes (e.g. on certain types of agriculture) that effectively increase vulnerability to future climatic impacts. The fact that its mitigation policies will be almost 30 years old in 2020, whereas its adaptation policies will still be relatively new, gives a strong clue to the scale of the governance challenge that a shift to more coordinated adaptation will pose for the EU.

6. Conclusions

In the 2000s, the EU gradually expanded the ambit of its climate policy to include adaptation. Despite this, and when set against the progress made on issues such as renewable energy and the ETS, adaptation hardly constitutes a fully-fledged, coherent sub-area of EU climate policy. Some commentators have understandably argued that since *all* policies have the potential to affect in some way the EU's vulnerability to climate change or ability to adapt, 'it is not yet clear where the field of "EU adaptation policy" starts and where it ends' (Centre for European Policy Studies 2008: 6). Nonetheless, the fact that adaptation has its own policy-making processes which have produced first a Green and then a White Paper speaks in favour of treating it as a specific sub-area, albeit one with rather blurred edges. Moreover, the title of this paper suggests that it remains an 'emerging' area of policy, which has evolved in the wake of national adaptation policies. Consequently, it is misleading to think of EU policy 'Europeanising' national policy in this case; the two have co-evolved.

What has enabled and what has constrained the development of EU adaptation policy? The enabling factors can be summarised as follows. First, increasingly firm scientific evidence has moved adaptation onto the EU's institutional agenda. Second, a number of high profile focusing events, including floods and heat waves have played an important role in catalyzing policy development, even though it is difficult to link them directly to climate change. Before 2005,

policy responses at EU level took an ad hoc and piecemeal form; thereafter, they developed in a more concerted manner. Thirdly, the underlying belief (principally in the Commission) that climate change is another policy area in which the EU should act together has been important. Although future impacts are likely to be felt differentially (and hence trigger different national and regional responses), adaptation has important cross-national implications that imply a role for some supranational coordination. With the EU enjoying competence in so many relevant areas, it is logical that the Commission should have some role in this endeavour. Fourth, action by ‘leaders’ has generated interest in adaptation issues, encouraging the Commission to pursue greater harmonisation lest inter-state differences became too pronounced.

Among the factors which have constrained the development of policy, nervousness on the part of DG Environment that action on adaptation could ‘dilute the message’ about the necessity of early and forceful mitigation, or jeopardise hard-won policy gains in water and biodiversity policy, may be noted. And even if it had wanted to be more proactive, DG Environment’s administrative capacity was limited. Elsewhere in the Commission, the better-established DGs, particularly DG Agriculture, have tried to keep policy ambitions in check (see *European Voice* 5-12.3.09: 2). The looming review of the budget (and arrival of a new college of Commissioners) meant that the Commission was unable to make specific financial commitments. Consequently, policy (as expressed in the Green and White Papers) has not heavily impinged on core areas of EU activity, such as agriculture and budgetary affairs. Opposition from some states has also constrained further harmonisation, and led to more reliance being placed on methods which do not allow EU institutions to dictate policy to Member States. The Policy Coordination Method is suited to this task because individual Member States are not nearly so reliant on one another to achieve policy results in relation to adaptation as they are for mitigation, for example through the ETS. For mitigation, common working is essential to reach common targets; for adaptation, it is important but arguably not vital. Finally, the continuing scientific uncertainties surrounding the precise incidence of impacts have provided an excuse for delay in responding.

In future, the EU will be faced with the task of consolidating a more integrated portfolio of climate policies, exploiting synergies between its adaptation and mitigation actions and reconciling them all with ever-present concerns over subsidiarity and global competitiveness. What form this integration takes, and to what extent solidarity between the most and least negatively affected will be possible given prevailing financial constraints, remains to be seen.

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Notes

¹ Article 4.1 of the UN Framework Convention on Climate Change and Article 10 of the Kyoto Protocol oblige parties to formulate and implement measures to facilitate adaptation to climate change.

² Previously, there had been no EU civil protection fund; competence for such matters has traditionally resided with Member States.

³ This initiative, financed under the European Regional Development Fund (ERDF), aims to stimulate interregional cooperation.

⁴ We do not investigate the EU's dealings with third countries here.

⁵ Ensuring the sustainability of investments over their entire lifetime taking explicit account of a changing climate is often referred to as 'climate proofing'.

⁶ It falls between the first and third pillars of the EU.

⁷ For an in-depth treatment of the relationship between adaptation and mitigation, see Hulme and Neufeldt (forthcoming).