EU Climate Policy Mainstreaming

Background paper for RESPONSES/ IEEP symposium

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1. Introduction

> 'Climate policy in both its mitigation and adaptation dimensions is firmly a cross-sectoral and whole-of-government activity; however, such "mainstreaming" or climate policy integration (CPI) has yet to be developed sufficiently either in the scholarly literature or in policy practice' (Ahmad 2009: 1).

Climate policy 'mainstreaming', 'proofing' and 'integration' are increasingly used buzzwords in EU policy making today, reflecting the view that many policy sectors need to play a part in both reducing greenhouse gas emissions and increasing societal and ecosystem resilience to climate change impacts. The 2009 Adaptation White Paper commits the European Commission to 'a review of how policies could be re-focused or amended to facilitate adaptation' (European Commission 2009a). A directorate of the Commission's DG Clima is responsible for *Mainstreaming Adaptation and Low Carbon Technology*. The implications for both emissions of greenhouse gases, and for the EU's capacity to adapt to climate change, now need to be considered in Impact Assessments of new EU initiatives. Underlying these new commitments, however, is a degree of uncertainty about what exactly they mean, what steps they require, and what their effects could be. Although often couched in technical language, there is no doubt that profound political challenges, at multiple levels of governance, lie at the heart of the mainstreaming agenda.

One task of the *Responses* FP7 project is to reflect on the potential for, and limits to, the integration of climate policy goals (mitigation and adaptation) in key EU policy sectors, and the changes in policy and governance that may be required to facilitate this.[1] The July symposium provides an opportunity to critically investigate these themes and begin to respond to the call from Ahmad (2009), quoted at the outset of this paper, for further development in terms of both scholarly analysis and policy practice. In developing its Adaptation Strategy, the Commission's DG Climate Action has already sponsored several studies referred to as 'climate proofing' of policies (see e.g. Altvater *et al* 2011a; 2011b; 2011c). To large extent these have been motivated by the need to include costs of adaptation measures in on-going budgetary negotiations, and are arguably quite narrowly technical studies. We interpret the mainstreaming research agenda more widely, to include consideration of the political context and 'opportunity structures' presented by prevailing institutional frameworks and policy processes in different EU policy sectors. As extensive research on the EU's earlier experience with environmental policy integration (EPI) has demonstrated (Jordan and Lenschow 2010), progress of reform is often impeded by an unfavourable political context and controversy over which policy objectives should be given priority, but may be possible where more conducive conditions prevail.

[1] The project's full title is: *European responses to climate change: deep emissions reductions and mainstreaming of mitigation and adaptation*). It has work packages dealing with water and agriculture, biodiversity, regional infrastructure, health, and energy.

A further reason, we suggest, for adopting a broader, more 'political' framing, is that the Commission's view that the ultimate objective of (adaptation) mainstreaming is to '…ensure that the sectors covered by the policy areas are able to carry on with their core tasks even within the circumstances of a changing climate' (European Commission 2010a: 2) may represent rather a conservative interpretation of the mainstreaming challenge. Arguably, climate change will demand more radical consideration of whether certain 'core tasks' remain viable, and whether 'proofing' certain activities in some areas might have adverse effects on others. Related to this is the question of which policies should be adjusted to ensure protection of which 'valued attributes' from climate impacts, and who makes this choice. We suggest that the way concepts of policy mainstreaming, integration and proofing are interpreted by policy makers in a range of sectors could have significant consequences for the framing and working out of the hard choices in policy design and implementation that emerge in practice.

As preparation for the symposium, drawing on work by the *Responses* project, this background paper sets out to review how integration, mainstreaming and proofing have been conceptualised in existing literature (section 2). Along the way, it refers extensively to contributions by various symposium participants, including those from the Institute for European Environmental Policy (IEEP) with whom we developed the initial idea for this event. We note that sectors vary in their basic characteristics and the types of challenge they face, in terms of likely climate impacts, appropriate responses, and the constellation of actors involved in developing and implementing policies and measures. The paper raises the issue of whether there are some conducive conditions that help to explain why mainstreaming is more vigorously pursued in some sectors or areas than others, and whether these can be promoted. With an **emphasis on adaptation** (in the interests of manageability, and also because the imminence of the Commission's new Strategy on the subject makes it especially topical), the paper then offers an overview of how the mainstreaming agenda is currently being interpreted and acted on at the EU level, classifying a number of existing actions in terms of a typology borrowed from the well-established literature on environmental policy integration (section 3). Section 4 reports on some research findings from the Responses project, specifically on developments in the water sector.

2. What is climate policy mainstreaming?

Mainstreaming is not a new concept. In climate policy, the need to mainstream *mitigation* priorities into energy and transport policies has been acknowledged for about 20 years. Mainstreaming in this case has been pursued as part of the broader quest for environmental policy integration (EPI), enshrined in the EU's founding Treaties as a key principle (see e.g. Collier 1994, Jordan and Lenschow 2010). For climate *adaptation*, however, it was not until the 2002 World Summit on Sustainable Development in Johannesburg that calls for mainstreaming began to be heard (Klein *et al.* 2005). According to one definition from the time, adaptation mainstreaming involves '*…the integration of policies and measures to address climate change in ongoing sectoral and development planning and decision-making, aimed at ensuring the sustainability of investments and at reducing the sensitivity of development activities to current and future climatic conditions*' (Klein *et al.* 2005: 584).

There is widespread agreement about the importance of climate policy mainstreaming, with high-level statements of commitment and guidance documents on the subject proliferating (see e.g. OECD 2009a), and academic interest increasing. However, there is no common terminology or shared understanding of what mainstreaming entails. A recent stocktaking exercise of adaptation mainstreaming efforts in development assistance concluded that: '…[i]t is (…) not straightforward even for experts within the field of climate change adaptation and development (…) to establish a clear picture of what mainstreaming is, let alone how it can be made operational, supported, and strengthened' (Olhoff and Schaer 2010: 7). In practice, the terms climate mainstreaming and climate policy integration (CPI) are often used interchangeably. Therefore, we view the two terms as synonymous.[2] By doing so, policy makers and researchers alike are able to learn from the much longer history of EPI - as recommended by, *inter alia.* Ahmad (2009), Dovers and Hezri (2010), Mickwitz *et al*. (2009) and Persson and Klein (2009). A further term, 'climate proofing' is increasingly used by EU policy communities, mostly in connection with spending programmes, though its meaning too remains ambiguous. While some use the term essentially to refer to local project-level efforts to ensure resilience to climate impacts (Gupta 2010; Svieven 2010), others have used it to denote a check on policies, to ensure that they provide a favourable context for appropriate local-level action, although accepted methods for doing so are lacking (Urwin and Jordan 2008). Some have used it to refer to efforts to ensure that sufficient *mitigation* occurs in EU cohesion policy (Baltzar *et al.* 2009).

The EPI and CPI literatures propose, broadly, that integration requires environmental or climate policy goals to be taken into account in other policy fields, with inconsistencies between sectoral goals recognised and in some way addressed. It can be interpreted in relation to policy making ***processes***, their concrete ***outputs*** in the form of legislation, planning documents, or ***outcomes*** in the form of policy goal-achievement. The related concept of 'policy coherence' is also used to describe a condition of synergy between different policy areas, where incentives and signals to target groups do not conflict.

[2] For a slightly different view, see Gupta (2010), who considers mainstreaming to be more thorough than integration.

Researchers in the PEER project built on a familiar definition of EPI to define climate policy integration, in policy *process*-oriented terms, as:

- the incorporation of the aims of climate change mitigation and adaptation into all stages of policy-making in 'other' policy sectors (non-environmental as well as environmental), complemented by:
- an attempt to aggregate expected consequences for climate change mitigation and adaptation into an overall evaluation of policy, and *a commitment to minimise contradictions between climate policies and other policies* (Mickwitz *et al.* 2009, emphasis added).

A crucial political question concerns the weight given to climate goals relative to other goals, when trade-offs have to be made. Where 'principled priority' (Lafferty and Hovden 2003: 9) is given to environmental (or climate) considerations, a 'strong' form of EPI (CPI) can be said to be in place; where no such priority is given, a 'weak' form may be considered to prevail (Jordan and Lenschow 2008). Climate policy mainstreaming may be 'active' - a process in which a set of policies and instruments for ambitious environmental targets are clearly defined – or 'defensive', where traditional sectoral priorities are not explicitly challenged, but where policy-makers are expected to assess the environmental impact of activities and limit side-effects (Lenschow 1999). 'Indirect integration' may be regarded as a third kind, where environmental (or climate-related) benefits accrue as unintended side-effects of pursuing existing sectoral objectives. Much agricultural policy mainstreaming, for example, seems to be of this kind, with the Commission presenting activities that may have occurred for other reasons as climate-related measures.

As well as the need for integration *horizontally* across sectors, there is also an important *vertical* dimension across levels of governance. A range of commentators has noted that in an EU context, where competence over particular policy sectors is often shared between EU and national decision-makers, successful environmental or climate policy integration can only be achieved if addressed seriously at all governance levels (see e.g. Mickwitz *et al.* 2009). This means that every level of the governance system provides potential *entry points* for promoting and delivering a mainstreaming strategy (Medarova-Bergstrom *et al.* 2011a: 25). This is recognised in the encouragement given by the Commission to the development of National Adaptation Strategies, for example. Indeed, the history of EPI suggests that some of the more difficult trade-offs will be resolved at lower levels of governance, in particular in implementation (Urwin and Jordan 2008). This may be more than a matter of expediency on the part of EU-level policy makers; arguably, such decision making *should* be left to national or sub-national actors, in accordance with the principle of subsidiarity (Acclimatise and Hampshire County Council 2007).

2.1. Policy coherence

A useful distinction can also be made between policy integration and policy *coherence* (see e.g. Kivimaa and Mickwitz 2009). The latter provides criteria for evaluating policy *outputs*, rather than processes, and is used to describe a condition of synergy between different policy areas, where incentives and signals to target groups do not conflict (see e.g. Van Bommel and Kuindersma 2008: 15) or, better still, mutual benefits are realized (Collier 1994). Full mutual consistency,

however, is generally recognised to be unrealistic (OECD 1996). For present purposes, concerning adaptation mainstreaming, a potential danger needs to be highlighted that although key sectoral policy makers may accept the necessity for adaptive actions in order to ensure the continued delivery of their key objectives into the long-term, adjusting policies accordingly, they may fail to coordinate with the efforts of other sectors. The result may be piecemeal approaches at best (Ellison 2010) and, at worst, incoherent, conflicting strategies (Pittock 2011; Biesbroek *et al.* 2009; Flörke *et al.* 2011). For example, enhancing infrastructure for irrigation in arid areas to allow water-intensive agriculture could hinder adaptation in other sectors (Flörke *et al.* 2011). In addition to *intra*-sectoral mainstreaming, therefore, there may be a need for broader, *inter*-sectoral policy coordination to ensure a coherent overall effort.

Greater consultation and co-ordination in itself, however, does not address the difficulty of deciding which policy objectives should be given priority when interests conflict (Ellison 2010; Pataki *et al.* 2011; more broadly, see Degeling 1995, Jordan and Schout 2006). It may even be that the rise to prominence of climate objectives complicates the trade-offs already inherent in the EPI agenda, by requiring some cherished environmental policy targets, e.g. on water quality or biodiversity, to be reconsidered (issues discussed by e.g. Trouwborst 2009; Verschuuren 2010).[3] Adaptation, for example, may be carried out in such a way as to preserve traditional economic assets using hard infrastructure at the expense of other 'valued attributes' such as particular habitats (Secretariat of the Convention on Biological Diversity 2003, 2009). Advocates of biodiversity conservation in DG Environment have responded to the potential threat from the adaptation mainstreaming agenda by commissioning their own research on 'biodiversity proofing' (DG Environment 2011), promoting *eco-system-based* adaptation and mitigation strategies (Naumann *et al.* 2011) and 'green infrastructure' (see e.g. Mazza *et al.* 2011), although how far they will allow for win-win solutions is debatable. Some have suggested that the creation of a new DG Climate Action to operate alongside DG Environment has not been helpful in these respects (Pataki *et al.* 2011).

Similarly, the goals of mitigation and adaptation may entail the need for adjustments *within* a sectoral policy which are not mutually compatible. Ellison (2010) illustrates this using the case of the forestry sector: while mitigation interests would encourage bio-energy strategies that promote the use of wood to substitute for fossil fuels, adaptation interests are more likely to emphasise the benefits of biodiversity for future forest resilience. This potential incoherence can have a multi-level dimension. For example, mitigation objectives set at EU level may impede adaptive actions at a more local level (see Urwin and Jordan 2008 and discussion of the water sector in section 4). Urwin and Jordan (2008) and Van Bommel and Kuindersma (2009) suggest that it is worth examining the coherence of policies from the perspectives of both high-level policy makers and more locally-based implementers, respectively, since what appears inconsistent from a 'top-down' perspective may not be so when viewed 'bottom-up', and vice versa.

[3] Dupont and Oberthür (2011) note that a distinction can be made between *external* EPI in non-environmental policy sectors and *internal* EPI, between environmental sub-policies. In this way, 'principled priority' can be granted to environmental/climate objectives for *external* EPI, while a balancing and synergy logic is applied to *internal* EPI.

2.2. Sector characteristics

Processes of policy integration need to take into account varying sectoral characteristics, and how these affect entry points for integrating or aligning sectoral policies with climate policy objectives (governance levels, stages of a policy cycle etc). What kinds of action are relevant and the technical, economic or political constraints they may face also vary by sector. Arguably, sectoral variations have not been considered as far as they could have been in the EPI literature (Persson 2007). According to Lowi (1972), while some sectors are essentially 'distributional', involving the spending of resources (including, in our sectors, agriculture and cohesion), others are more regulatory in nature (e.g. biodiversity), with consequences for types of policy instrument and governance mixes adopted. Moreover, some have regular cycles and opportunities for review, while others do not.

In the EU's system of multi-level governance, policy sectors are distinct in terms of the levels of 'competence' assigned to the EU level and the varying constellations of actors and interests able to shape policy (Lenschow 1997, 2002, Jordan *et al.* 2010). These are reflected in different 'opportunity structures' confronting reform. Differences between sectors in terms of these variables can provide the basis of explanations for varying degrees of success with policy integration (Lenschow 1997, 2002). The sectors included in the *Responses* project were chosen largely because, in addition to their vulnerability to the potential impacts of climate change, the EU has gained a degree of competence to make policy in relation to the powers of Member States. But they vary in the extent to which this has happened, and in the extent to which policy actors at national and sub-national levels have discretion to make their own policy.

2.3. Possible aspects of sectoral mainstreaming in the EU context

Broadly, we suggest that an EU approach to mainstreaming climate objectives (both mitigation and adaptation) could potentially involve a number of actions from sectoral policy makers:

i. Ensuring sufficient investment is made on particular adaptation or mitigation priorities (in key spending sectors).
ii. Ensuring resilience of particular investment projects, through additional expenditure (in key spending sectors).
iii. Preventing certain kinds of investments or practices that are likely to be 'mal-adaptive'[4] either to their own sector or others (in key spending sectors).
iv. In more regulatory sectors where certain quality standards and objectives are enshrined (such as water and biodiversity), checking to see whether these remain attainable in a changing climate (and potentially revising if not).
v. Making sure an overall policy framework (cross-sectoral) is enabling, or at least not constraining, to actions deemed necessary to adapt at local level (which may not be obvious to higher levels).

Given the need to inform ongoing high-level budget negotiations, DG Climate Action's interest in 'climate proofing' has tended to centre on (i) and (ii). Arguably, less attention is being paid to

[4] Creating or exacerbating existing vulnerabilities to climate impacts, or leading to increased GHG emissions.

(iii), although the Commission is due to issue guidance on how Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) can better incorporate climate and biodiversity-based concerns (see section 3.3). Action (v) is perhaps most problematic, involving as it does the need to review potentially 'hundreds of un-transparent environment directives, guidelines, frameworks, and monitoring schemes' (Biesbroek *et al*. 2008) and, if a bottom-up approach is taken seriously, time consuming discussions with local actors to establish what policies may be problematic to them meeting their goals.

2.4. Strategies for pursuing mainstreaming

Regardless of governance level, or sector, drawing from EPI literature it is possible to identify the *broad strategies* that might form part of mainstreaming efforts and also what barriers they might encounter. Persson and Klein (2009) and Mickwitz *et al.* (2009) have done much useful work on these lines, and this section draws heavily on their work.

Essentially three strategies can be identified, which have been labelled normative, organisational, and procedural (Klein and Persson 2009; see also Lenschow and Zito 1998). Each aims at different 'entry points' into the policy process (but broadly can apply at multiple levels of governance). Invited speakers at the symposium are invited to frame their contributions in these terms – or comment on their usefulness.

Normative approaches – sometimes referred to as 'communicative' (Mickwitz *et al.* 2009; Jacob, Volkery and Lenschow 2008) – emphasise the importance of political commitment and the need to change overall policymaking cultures. The underlying assumption is that political priorities and narratives are the main driving forces of sectoral policymaking. However, success depends on the extent to which normative commitments and frameworks enjoy wide support and critical engagement with the issues involved (Persson 2007). Relevant normative instruments may include commitments to particular goals in constitutions (or in the EU case, Treaties), requirements for sectoral strategies, obligations to report performance and external and independent reviews. Pursuing these assumes that the problem is essentially that the rationale for EPI (or CPI) has not been established well enough among those responsible for implementing it, and that these actors are susceptible to political influence.

A wide range of **organisational** changes have been proposed in the environmental policy integration (EPI) literature, including: alteration of formal departmental responsibilities and mandates; placement of environmental 'correspondents' in sector ministries; staff rotation, training and network initiatives; creation of new ministries; and structural changes of budget lines (Peters 1998; OECD 2002). The purpose of organisational changes is not only to ensure that the right expertise and competence is in the right place, but also to encourage ownership and internalisation of environmental issues within the sectors. The literature suggests that as well as the assignment of new responsibilities to existing organizations, various accountability mechanisms are needed (Persson 2004). Regarding reforms to budget lines, Medarova-Bergstrom *et al.* (2011a: viii) define 'climate proofing' in budgetary terms as involving stepping up and promoting spending that is both carbon saving and climate resilient, while at the same time minimising and gradually phasing out spending that is counter to these objectives.

Procedural factors relate to the various inputs into the policy process, based on the assumption that better inputs from a broader range of stakeholders can lead to better policies. This leads to an emphasis on instruments such as monitoring systems and strategic assessment tools, and how they can influence (existing) sectoral decision-making processes to make them more rational or infused with particular normative values (Persson 2004). According to the EPI literature, procedural instruments include veto or obligatory consultation rights for environmental departments or external stakeholders, and various forms of strategic and impact assessment, and policy evaluation. Budgetary climate proofing may also be regarded as a procedural approach in that 'it provides a frame for coordinating activities to integrate climate change concerns in other policies in a coherent way and for deploying tools aimed at improving the performance and result-orientation of EU spending in this regard' (Medarova-Bergstrom *et al.* 2011a: viii). Some consider procedural instruments to have the highest potential for policy innovation in terms of environmental/climate integration (Jacob, Volkery and Lenschow 2008). However, such instruments often face significant political resistance and bear relatively high administrative costs. Success depends on their effective application in practice (Medarova-Bergstrom *et al*. 2011a).

It is important to note that this framework provides an overview, not definitive categories (Persson 2004: 26). The three approaches are neither mutually exclusive nor exhaustive, but highlight what kinds of opportunities can be emphasized. While procedural and organisational changes can provide the necessary 'software' and 'hardware' for policy integration, clearly communicated political will (normative change) is needed to provide the 'electricity' for the system (Jordan 2002). Arguably, without normative agreement on what objectives are to be pursued, procedural and organisational aspects will not fall into place (see also Pittock 2011).

For the PEER project, Mickwitz *et al.* (2009) explored the implications of climate policy integration in more detail for a number of policy areas at Member State and EU level. Interestingly, while they identified a profusion of communicative and organisational initiatives, for the most part policy makers had not introduced any new *climate-specific* procedural instruments, preferring instead to integrate climate into existing procedures. Mickwitz *et al.* then outlined these procedural innovations under four headings: i) making impact assessments climate inclusive; ii) utilising the annual budget as a climate policy instrument; iii) spatial planning[5]; and iv) cross-compliance. The last of these has been introduced in the context of the EU's common agricultural policy (CAP) as a mechanism to promote greater policy coherence. Conceptually, it means ensuring compliance with one policy, e.g. environmental, by means of another, e.g. agricultural. Apart from DG Environment securing some of its objectives through CAP, DG Regio has been able to use its leverage as a provider of structural funding to promote environmental aims through cross-compliance by making EU financial support through the Structural Funds and the Rural Development Regulation dependent on Member State compliance with wild birds and natural habitats legislation (Jordan, Schout and Unfried 2009: 167).

[5] On the potential role for spatial planning, see e.g. Wilson and Piper (2008) and Biesbroek *et al* (2008).

2.5. Measuring mainstreaming

Given the complexities of *defining* mainstreaming, it should be no surprise that assessing the degree of mainstreaming attained is difficult. Even in the longer-established area of EPI, Jordan and Lenschow lament a '…virtual absence of agreed yardsticks to measure the degree of … integration achieved' (2010: 115). Regarding adaptation, Persson and Klein (2009) note how *any* attempt at measuring mainstreaming is compromised by the absence of a sound theoretical foundation on which to evaluate it in terms of ultimate outcomes. This is because the 'required' level of adaptation is determined relative to the risk of climate change and variability in a given time and space, as well as society's willingness to accept those risks, both of which are difficult to establish.

In measuring climate policy integration, several frameworks have been applied. These vary in the extent to which they aim to measure changes in policy-making processes or in outputs, with the distinction becoming blurred at times. The analytical framework offered by the PEER project (Mickwitz *et al.* 2009) - utilised in adapted form in *Responses* project research on the water sector (Brouwer *et al.* forthcoming) - seems designed to be applied to both policy *processes* and the *outputs* from them (i.e. plans, legislation and related guidance documents), in any policy sector. It asks for qualitative judgments according to a number of criteria, as set out in table 1.

Criterion	**Key question**
Inclusion	*To what extent have climate policy objectives and/or direct as well as indirect climate change mitigation and adaptation impacts been covered?*
Consistency	*Have the contradictions between the aims related to climate change mitigation and adaptation and other policy goals been assessed and have there been efforts to minimise revealed contradictions?*
Weighting	*Have the relative priorities of climate change mitigation and adaptation impacts compared to other policy aims been decided and are there procedures for determining the relative priorities?*
Reporting	*Are there clearly stated evaluation and reporting requirements for climate change mitigation and adaptation impacts (including deadlines) ex ante and have such evaluations and reporting happened ex post? Have indicators been defined, followed up and used?*
Resources	*Is internal as well as external know-how about climate change mitigation and adaptation impacts available and used and are resources provided?*

Table 1: Summary of PEER project criteria used to assess policy integration (Based on Kivimaa and Mickwitz 2009).

One problematic aspect of this framework is its implicit assumption that mitigation and adaptation objectives tend to be harmonious, whereas, as we noted above, they may in fact conflict in particular cases.

2.6. Factors conducive to mainstreaming

Drawing from the EPI literature and more recent climate policy related work, it is possible to hypothesise a number of factors influencing the degree to which mainstreaming is likely to be

pursued. With its remit to investigate the opportunities and limits of mainstreaming in different policy sectors, the symposium provides an opportunity to reflect on these, where they apply, and the extent to which they can be influenced by policy makers. Brouwer *et al* (forthcoming) explored the applicability of a number of factors in explaining variability in how River Basin Management Plans in different localities dealt with climate aspects. Below, we offer these to stimulate discussion, although other factors could also be relevant in this case, and other cases.

From an actor-centred institutionalist perspective, Hey (2002: 128) suggests that two institutional characteristics are essential: 'a certain regulatory capacity of public authorities, and at least a balance of power and resources between environmental, and sector stakeholders and authorities'. Regulatory capacity depends on the resources (finances, legal competencies, legitimisation, target group support and information) to achieve change in the sector. According to Hey, it is problematic when just one of these conditions is met. In the case of river basin management, this may be the case if high water consumption of some sectors, such as agriculture, is difficult to challenge by administrative actors in charge of water protection (Deloitte and IEEP 2011).

Focusing on the Commission bureaucracy, Pollack and Hafner-Burton (2010) adopt a rationalist approach to the prospects of mainstreaming. They find that the Commission is more successful in achieving mainstreaming objectives, when it provides 'hard' incentives for relevant bureaucrats to implement reforms, whether they be positive (carrots) or negative (sticks). Soft incentives, such as persuasion and socialization of the relevant bureaucrats, '*will be successful only insofar as a proffered policy frame resonates with officials' existing world-views … or produces 'win-win' outcomes in which the acceptance of a cross-cutting mandate coincidentally delivers benefits to sectoral policymakers*' (Pollack and Hafner-Burton 2010: 286). Such outcomes are difficult to achieve, particularly in the EU, where sectoral policies are often deeply 'pillarized'.

Persson (2004) indicates that the potential for acceptance of environmental considerations in a target policy sector depends in part on the technological potential for win-win solutions. In addition, the competencies of such sectors, and their proximity to environmental processes, are important variables in determining how much is accomplished by winning over another policy sector, in our case to a climate policy agenda.

Table 2 below, adapted from Brouwer *et al.* (forthcoming), provides an overview of these hypotheses derived from the literature on factors explaining the degree of climate mainstreaming. It also notes the importance of climate impacts already being felt to prompting mainstreaming effort, e.g. in Catalonia, where water scarcity has risen up the agenda in recent years.

Types of explanation	Hypotheses
Institution-related	A capacity to regulate is a prerequisite for achieving change in a target sector. A balance of power and resources between environmental regulators and the target sector helps achieve mainstreaming.
Instrument-related	'Hard' incentives work better than 'soft' in stimulating mainstreaming.
'External' factors	The greater the technological potential for win-win solutions, the greater the chance of integration/mainstreaming 'success'. Policy developments in the target sector that coincide with a climate agenda enhance the chance of mainstreaming success. Experience of climate change impacts encourages greater focus on climate-resilience in policy.

Table 2: An overview of hypotheses on mainstreaming (Based on Hey 2002; Pollack and Hafner-Burton 2010; Persson 2004).

In their work on mitigation policy integration in the energy sector, Dupont and Oberthür (2011) offer a somewhat similar framework, which highlights the importance of political commitment, the 'nature of functional overlap', the 'level of engagement of climate policy advocates and level of procedural safeguards for CPI', and institutional and policy context.

Pittock (2011) highlights how the synergies and conflicts among climate, energy, water, and environmental policies create additional challenges for governments to develop integrated policies to deliver multiple benefits. Climate policies may, for example, have substantial negative impacts on freshwater resources and ecosystems. To avoid such 'mal-adaptation', integrated, coordinated policy making is required. Success factors for more integrated policy development include engagement of senior political leaders, cyclical policy development, multi-agency and stakeholder processes, and stronger accountability and enforcement measures. Interestingly, Pittock suggests that the EU is better equipped to deal with integration challenges than many other jurisdictions.

Other literature highlights the availability of relevant and consensual knowledge as an important factor. Larsen and Kørnøv (2009), for example, highlight how lack of knowledge regarding the climate impacts that may eventually be experienced, can be used as excuse for business as usual in river basin management. Similarly, interviews conducted throughout *Responses* have highlighted the need to put convincing numbers on costs of not adapting, in order to win over sceptical DGs.

2.7. Barriers and dilemmas in mainstreaming strategies: a summary

The literature suggests that policy integration and mainstreaming strategies may fail if the political context and 'opportunity structures' are not adequately taken into account (Medarova-Bergstrom 2011b: 26). Arguably, those promoting mainstreaming therefore need a realistic approach taking into account organisational structures and socio-political conditions (leadership, political will) and the opportunity structures they offer. Here we summarise what the literature suggests are the barriers and dilemmas that those pursuing mainstreaming and integration must contend with.

It is also worth noting that apart from barriers to change in policy processes, mainstreaming strategies may also be limited in the degree to which they can produce significant outcomes in terms of either reductions in emissions or vulnerability. A more effective approach might therefore be to introduce a wholly new instrument, rather than attempting to 'tweak' existing ones. For example, rather than rely on implementers of the water framework directive to achieve water use efficiencies, it may be more effective to introduce specific legislation, mandating water efficiency standards.

Drawing on our review of the literature on both EPI and CPI, and some of our own research, we point to the following potential obstacles to policy mainstreaming.

***Lack of agreement about priorities*:** This includes the issue of whose 'valued attributes' should be prioritised in adaptation efforts, whether existing policy targets should be set aside in the interests of adaptation, and what should happen in the event that mitigation and adaptation objectives require trade-offs. As Brouwer *et al.* (forthcoming) describe, some policy makers are suspicious that adaptation objectives might be used to dilute some sectorally important objectives, such as the achievement of water quality targets (see section 4). Dilemmas over what, if anything, should receive 'principled priority' remain, and might even become more acute when climate considerations are included in policy integration efforts.

***Lack of strong political commitment and point of steering*:** There is arguably a danger of repeating EPI experience where an absence of strong network managers caused problems (Jordan, Schout and Unfried 2009). Without strong political commitment and coordination to oversee the resolution of conflicts over priorities and resource allocations, little change may happen. In the climate policy field this may also be due to differences of emphases between DGs for Climate Action and Environment.

Opposition from powerful sectoral interests: The main underlying problem identified in the EPI literature is sectoral compartmentalization: any organisational restructuring initiative risks encountering 'turf mentalities'. These can have cultural motives, reflecting different professional backgrounds and perspectives of bureaucrats (Peters 2001) or reflect budget-maximizing behaviour. Sectoral policies that receive considerable financial support from the EU budget such as agriculture and cohesion policy tend to be averse to reforms that concern the scale or scope of funding, and are characterised by strong vested interests (Van Beers and de Moor 2001; Usubiaga 2011). Environmental authorities are often less powerful than sectoral and budgetary authorities who have tended to be less open and supportive of greening EU budgetary processes and decisions. Researchers in the PEER project suggest that 'promoting policy integration

instead of issue specific policies is ... an old way resisting change *(sic)*, by diffusing attention and by making the means and resources for policy implementation weak, while declaring support for change through proclaimed integration' (Mickwitz *et al.* 2009: 83; see also Weale 2005).

***Risk of results being restricted by current scope of legislation**:* Emerging from the last point, according to one analysis of emerging EU adaptation policy:

> 'Directives ... provide excellent opportunities for the EU to begin integrating ('mainstreaming') adaptation strategies into the EU policy framework. At the same time the general EU adaptation strategy ultimately must address a broad range of linkages across a relatively wide range of different and potentially competing policy areas. This raises at least two basic dilemmas. First, the existing EU policy framework may only inadequately consider all the competing policy linkages. It may well be necessary … to introduce a range of additional policy strategies in order to effectively address adaptation goals. Second, … the current [adaptation] strategy could ultimately be taken much further by expanding many sectoral strategies into much broader ecosystem-based approaches' (Ellison 2010: 55-6).

Lack of consensus on the costs associated with mainstreaming, and the damage that might otherwise be inflicted on a sector. This can prolong opposition from policy makers in powerful sectors.

Danger of risk transfer and mal-adaptation: A study for DG Environment on adaptation in the water sector suggests that '[c]rosschecks should be made to assure that mainstreaming in one policy does not transfer the vulnerability of one sector or area to other sectors or areas. The assessment has to be supplemented, however, by a more detailed assessment for the specific regional circumstances where the measure should be implemented' (Flörke *et al.* 2011: 139). In making choices about the pursuit of mitigation or adaptation objectives, there are likely to be 'winners and losers'. This may include the transfer of risks from one group, sector or region to another. Modifying or compensatory mechanisms may be required to address these emerging inequities.

2.8. Questions for the symposium

We think that the various concerns raised in the literature, and reviewed in previous sections of this paper, are of sufficient importance to be explored in the symposium, and the results offered to Commission policy makers in the form of a *Responses* project deliverable. In order to stimulate discussion, symposium participants (many of whom are referenced in this document) who have been invited to address implications for particular sectors may wish to address the following issues:

- How is the need for mainstreaming being interpreted in the policy sector?
- What kinds of actions are relevant?
- What 'entry points' currently offer opportunities, or could in future, and what technical, economic or political constraints stand in the way?

- How useful is it to conceive of mainstreaming opportunities in terms of 'normative', 'organisational' and 'procedural'?

Discussion of both mitigation and adaptation is encouraged, although given the imminence of the Commission's new Adaptation Strategy (due in 2013), we suggest that more emphasis should be placed on the latter. Later in the symposium, we suggest that the following questions could inform discussion:

- To what extent are climate policy goals compatible with more traditional 'environmental' ones?
- How far should it be left to local-level actors to resolve conflicts between objectives?
- Do assessments of policy coherence change when we look from the 'top down' compared to 'bottom up'?
- How real is the danger that actions in one sector may lead to problems in other sectors, and what could be done about it?
- What factors influence the degree to which mainstreaming is pursued, and to what extent can they be influenced by policy makers?

3. Mainstreaming strategies at EU level

In this section we outline the way in which mainstreaming has been interpreted at the highest political level in the EU, broadly in terms of the typology outlined above, and offer some preliminary comment on where it may have weaknesses. Integration of *mitigation* objectives into sectoral policies has been an objective since the 1990s; *Responses* Energy work package's baseline report, for example, shows how it has been pursued in quite an 'active' mode in the energy sector although, as Dupont and Oberthür (2011) observe, not necessarily delivering emission reductions sufficient to achieve the EU's headline objectives. Regarding *adaptation*, the policy integration agenda has taken longer to emerge and is less extensively analysed. We therefore place more emphasis here. We begin by highlighting the Commission's most recent statements of what it means by the mainstreaming concept.

The Commission's DG Clima website describes mainstreaming as occurring when:

> 'actors whose main tasks are not directly concerned with mitigation of, or adaptation to, climate change also work to attain these goals. For instance, the EU climate and energy package sets emission reduction targets for several sectors. However, reaching sector-specific targets often requires measures in other sectors as well'.[6]

The Commission has at times been inconsistent, however, as to what counts as mainstreaming. According to the head of DG Clima's Adaptation Unit:

> 'We have a number of potential policy instruments at our disposal for mainstreaming adaptation, such as: revising and reviewing existing policies; new legislative action; information platforms; capacity building initiatives; guidelines; spatial planning. All such instruments are being considered'.[7]

This comment suggests a definition of mainstreaming in which the creation of wholly new, dedicated climate policy instruments can be conceived as contributing to a process of mainstreaming within a sector (i.e. wider than the more common usage in which changes to an already existing specific policy instrument are referred to).

3.1. Normative approaches

The EU is committed to ambitious long-term climate change objectives and has adopted a related package of policies through which they are to be delivered. The broader agenda of 'ecological modernisation' of the European economy is reflected in the *Europe 2020* economic strategy and related initiatives. For example, a 'roadmap' for decarbonising Europe's economy in order to reduce emissions by 80-95 per cent by 2050, increase competitiveness, and encourage innovation has also been drawn up under the Europe 2020 process (European Commission 2011a). A separate roadmap covers resource efficiency and the shift to a greener economy (European Commission 2011b). Both roadmaps call for the reform of key sectoral EU policies in the

[6] http://ec.europa.eu/clima/policies/brief/mainstreaming/index_en.htm
[7] www.lne.be/en/2010-eu-presidency/events/.../rosario-bento-pais-keynote

context of the post-2013 EU budget, or Multi-Annual Financial Framework (MFF) and highlight the need to align spending priorities and objectives with the requirements of a low carbon and resource-efficient economy (Medarova-Bergstrom *et al.* 2011a,b).

Regarding adaptation, although an early reference to its importance appears in the 2006 Sustainable Development Strategy,[8] it was only through the Adaptation Green and White Paper processes that the agenda came to be treated more seriously (Rayner and Jordan 2010, Isoard 2011, Ellison 2010). The White Paper (European Commission 2009a) reflects acknowledgment that while adaptation is to a large extent a matter for local level actors and Member States, the EU should take responsibility for its own policies and investments, to ensure their viability and appropriateness in a changing climate. Therefore, among the four 'pillars' constituting its post-White Paper adaptation strategy, perhaps the most prominent is that policies should be reviewed to see how they could be 're-focused or amended' (European Commission 2009a: 8) to facilitate adaptation in the light of climate impacts, in a process described as 'mainstreaming'. In terms of the typology introduced in the previous section, this may be regarded as the **key normative statement** by the Commission. Interestingly, however, the key objectives of the post White Paper Adaptation Framework are left somewhat unclear. Although the objective is said to be improving the EU's *resilience* to deal with the impacts of climate change, this remains undefined, as do the concepts of vulnerability and climate-proofing which are also referred to.

How far the promised review will go, how far it will lead to **organisational** and **procedural** reforms, and ultimately to changes to the substance of key policies, remains unclear. However, each Directorate-General is expected to play a part. According to Commission President Barroso:

> '*Each and every Community policy* will need to be assessed and if necessary adapted in the light of climate change, whether we are talking about water use in agriculture, how to deal with coastal erosion or the implications for fisheries policy. Therefore I intend to *launch a major initiative* to help the EU anticipate the changes that need to be made so that we can cope with the climate change that is already happening, at the same time as we reduce our emissions for the future. This work will involve marshalling all the necessary scientific and economic data that exists to help the EU to adapt its policies to the challenge of climate change (Barroso 2009a: 22, emphasis added).

The President called for the development of adaptation strategies across all policy areas (Barosso 2009b). DG Climate Action, established in 2010 (see next section) has attempted to influence key policy review processes associated with the new, post-2013 financial perspective, through additional consultancy contracts on aspects of climate-proofing (Altvater *et al.* 2011c; DG Climate Action 2011), and through its oversight of the Joint Action Plan to implement the Adaptation White Paper (see next section). Its efforts were hindered by a number of factors, in particular the difficulty in costing the impacts that sectors would be exposed to if they failed to take adaptive action (DG Climate Action official, pers.com).

[8] 'Adaptation to, and mitigation of, climate change should be integrated in all relevant European policies' (EU 2006: 8).

Both the White Paper and the invitation to tender for the climate proofing contract refer to the objective of mainstreaming being 'to ensure that the sectors covered by [the affected policy areas] are able to ***carry on with their core tasks*** even within the circumstances of a changing climate' (European Commission 2010a: 2, emphasis added). The invitation to tender stressed the threat to policies and their objectives from climatic impacts, arguably neglecting the need to examine how 'mal-adaptive' policies can themselves exacerbate vulnerabilities (although the consultants appear to have done this to a limited degree). Examples of mal-adaptation could include subsidising crop growing in arid areas, which then requires extensive irrigation to continue, or encouragement of biofuels at the expense of biodiversity and high water usage (see e.g. Flörke *et al.* 2011; Pittock 2011).

As noted in section 2.4, normative approaches also include independent reviews and evaluations of policy. Since 2011, a new system has been in place for the evaluation of existing policies. *Fitness Checks* are comprehensive policy evaluations assessing whether the regulatory framework for a policy sector is fit for purpose.[9] Their aim is to identify excessive administrative burdens, overlaps, gaps, inconsistencies and/or obsolete measures which may have appeared over time, and to help to identify the cumulative impact of legislation. Their findings will serve as a basis for drawing policy conclusions on the future of the relevant regulatory framework. In the area of environment, an ongoing fitness check concerns the protection of EU freshwater resources, feeding into a new Blueprint to Safeguard Europe's Water.[10]

3.2. High-level organisational strategies

The Directorate-General for Climate Action (DG Clima) was established in February 2010. Its creation may be regarded as the key organisational element of the Commission's mainstreaming strategy.[11] DG Clima's responsibilities include leading international negotiations, helping the EU to deal with the consequences of climate change and meet its targets for 2020, and overseeing the EU Emissions Trading System. Its new Commissioner was given:

> 'a cross cutting responsibility for developing adaptation to climate change inside the EU and for working with other Commissioners to ensure that an *appropriate climate dimension is present in all Community policies*.' (Barroso 2009b, emphasis added).

The name of DG Clima's Directorate C - *Mainstreaming Adaptation and Low Carbon Technology* – at least implies that mitigation and adaptation are being considered in a more integrated way. Arguably, however, when it comes to adaptation, 'the words do not match the resources allocated to it: just one unit' (Interview, DG Environment official).

DG Clima has initiated a network (inter-service group) of DGs and Services to oversee a Joint Action Plan (JAP) that follows up on actions promised in the Adaptation White Paper. Certain DGs take the lead on particular actions, often in collaboration with others with a stake in the

[9] http://ec.europa.eu/dgs/secretariat_general/evaluation/docs/fitness_check_en.pdf

[10] http://ec.europa.eu/environment/water/blueprint/index_en.htm

[11] Prior to this, climate change had been within the remit of DG Environment.

policy issue. DG Environment, for example, is in charge of approximately a dozen actions (DG Environment official, pers. com.). Three involve DG Environment only; eight are in association with other DGs. *Prima facie*, the assigning of joint ownership of tasks can be regarded as lessening the danger that mainstreaming strategies are pursued within sectoral silos, producing incoherent policy outputs. The inter-service group meets once every 2 months, when it 'discusses progress on mainstreaming adaptation into the EU policies and how to ensure effective synergies between adaptation strategy with *[sic]* other relevant work being undertaken by the Commission'.[12] How closely progress is monitored, and various DGs held accountable for the progress on actions for which they have been allocated responsibility – critical to the success of organisational approaches – is unclear. Arguably, there could be a danger of repeating the EU's experience of EPI, where the absence of strong network manager caused problems (Jordan, Schout and Unfried 2008). Pataki *et al.* (2011) have suggested that the inter-service working group setting is not conducive to the constructive and consensual resolution of potential conflicts between policy fields, but do not suggest alternatives.

Budget negotiations

As noted above, organisational mainstreaming strategy can include budgetary reforms whereby new budget headings are created and funds shifted towards them (and away from spending that worsens emissions or vulnerability). In advance of further discussion at the symposium of mainstreaming in the main spending areas of the EU budget, namely regional policy and agriculture, this section highlights the importance of mainstreaming in the overall budget review process.

Since the late 1990s, the Commission has gained influence over spending priorities at the Member State level, culminating in the development of EU strategic guidelines for both regional and rural development funds in the current Multi-Annual Financial Framework (MFF). Normatively, the EU has made the removal of environmentally harmful subsidies a political objective, as reflected *inter alia* in the 6th Environmental Action Programme (European Communities 2002), the Integrated Guidelines for Growth and Jobs (2008-2010) and the Flagship Initiative on resource efficiency under the Europe 2020 Strategy (European Commission 2007; 2010c). The 2020 Strategy also emphasises the need to 'improve the effectiveness and efficiency of the existing EU budget through stronger prioritisation and better alignment of EU expenditure with the goals of the Europe 2020' (European Parliament 2010; Usubiaga 2011).

In the present institutional framework, however, lack of transparency in definitions of categories of expenditure and what is covered under them makes it difficult to establish what is actually being spent on climate-related objectives. For example, in the current MFF, one of the four headline categories, 'sustainable growth' does not refer to environmental sustainability but essentially to the Lisbon Strategy for jobs and growth and the structural funds; another, 'conservation and management of natural resources' is overwhelmingly dominated by spending on the Common Agricultural Policy (CAP). In addition to direct, dedicated climate change spending (such as under Life+), spending is also 'mainstreamed' in other funding instruments,

[12] http://ec.europa.eu/governance/impact/planned_ia/docs/2013_clima_002_communication_adaptation_strategy_en.pdf

such as the CAP and Cohesion Policy. Assessing the scale and scope of climate change funding in this context is also difficult as mechanisms and procedures vary across the different funding instruments (Medarova-Bergstrom *et al.* 2011a: 18).

In the current review process it is envisaged that, rather than setting up entirely new financial instruments, the financing of climate change and environmental protection will be delivered largely by their 'mainstreaming' across the 2014-2020 MFF (European Commission 2010b; 2011c). The Commission's proposals address mainstreaming in two ways: seeking to dedicate a proportion of the whole budget to climate-related expenditure, and to green some key policy areas.[13] In order to ensure that a certain budget share is dedicated to climate change, the Commission proposes (for the first time) to 'earmark' at least 20% of the budget for climate-related activities. To make up this figure, contributions are expected from all the major EU funds. Addressing the failure to report expenditure in a transparent and accountable manner, progress is now due to be tracked by so called 'Rio markers', providing an indication of climate-related expenditures (but not results), i.e. climate-related only (100%); significantly climate-related (40 %); and not climate-related (0%).[14] Priorities for funding include the renovation of buildings, smart grids, renewable energy supplies and innovation in transport. Under Cohesion Policy, richer regions, for example, will be required to dedicate at least 20% of their funds to energy efficiency and renewable energy sources (itself a form of quantified earmarking within Cohesion Policy).

Arguably, although representing progress (CEE Bankwatch and Friends of the Earth 2011), this remains a rather fragmented approach to mainstreaming in the EU budget, and may also indicate that climate concerns are eclipsing more established environmental concerns. While mechanisms are proposed to meet the 20% earmarking target and to green part of the CAP, provisions on other environmental issues such as biodiversity and reducing natural resource use are weak. Currently the Commission's proposals refer mostly to energy efficiency and renewable energy. As yet, there is no clear indication of whether mainstreaming climate change in this context even includes action on adaptation (Medarova-Bergstrom *et al.* 2011b). Moreover, while raising the share of expenditure dedicated to climate change and environmental issues, the Commission's proposal has less to say on how to prevent the potential adverse impacts arising from expenditures under existing budget lines. Various studies classify sections of the Structural and Cohesion Funds as environmentally harmful subsidies, in particular those of road-based transport infrastructures (12% of total Structural and Cohesion Funds) (Usubiaga 2011).

Analysis by Baltzar *et al.* (2009) and Medarova-Bergstrom *et al.* (2011a) identifies procedural and organisational budget-related strategies for 'climate proofing' of EU spending, both in present systems and in terms of recommended future reforms, at all stages of the policy process. Their recommendations for reform range from restructuring categories of expenditure, greater

[13] Under the auspices of an IEEP project on strategies and instruments for reforming the budget, Medarova-Bergstom *et al.* (2011a) developed more detailed categories of present and possible future action. They note that in the current political and economic climate, Member States are unlikely to increase their budget contribution, making the task of climate-proofing existing expenditure more relevant.

[14] The 'Rio markers' approach was devised by the OECD to track spending on climate change, biodiversity and desertification (OECD 2009b).

application of conditionality by the Commission in agreeing funding, more rigorous application of strategic environmental assessment of programming documents, ex ante screening of projects based on climate criteria, to improved project and programme monitoring and evaluation at the implementation stage.

3.3. Procedural strategies

At EU level, the situation has not changed much since Mickwitz *et al* (2009) noted that for the most part policy makers have not introduced any new *climate-specific* procedural instruments, but have preferred to integrate climate into existing procedures. This section notes developments regarding the *ex ante* impact assessments that are already carried out at policy, plan/programme and project levels.

EU policy level

Since 2002, the Commission has operated a system for appraising major new policy initiatives through Impact Assessment (IA). The system is intended to allow reflection on policy objectives, the impacts of options and possible alternatives (in terms of the social, economic and environmental pillars of sustainable development). It has the potential to facilitate wide involvement from a range of DGs and stakeholders (Bäcklund 2009). Now that it is embedded through a series of increasingly strict, centralized and enforced guidelines, overseen by an independent Impact Assessment Board (IAB) within the Commission's Secretariat General, IA arguably has potential to become a strong mainstreaming instrument, providing 'hard incentives' for bureaucrats to consider environmental and climate concerns in all EU policies (Pollack and Hafner-Burton 2010).

The original IA guidance document from 2002 included a mitigation related question under the environmental heading: *'Does the option affect the emission of ozone-depleting substances and greenhouse gases ... into the atmosphere?*' When the guidance was updated in 2009, an adaptation-related question was added: *'Does the option affect our ability to adapt to climate change?'* (European Commission 2009b: 36). While appearing to be an advance, a significant caveat in the guidance is that analysis must always be 'proportionate'. It also needs to be highlighted that not all policy initiatives and legislative proposals are subject to an impact assessment; the precise scope of application is decided on an annual basis[15], published together with the Commission's Annual Legislative and Work Programme (CLWP). One high profile initiative that was not subjected to impact assessment was the Europe 2020 strategy.

Evidence of the effect that the IA system is having on how far policy makers consider climate-related aspects when developing and assessing options is mixed (Rayner 2012). Regarding its role in increasing attention to mitigation aspects, Van Gameren (2009, 2010) found considerable variation in how well IAs conducted by five lead DGs performed. Regarding adaptation, although 'effect on vulnerability' is now a suggested criterion, guidance on how to conduct IA has not been revised to ensure this aspect is explicitly taken into account, although it may be in future (Altvater et al. 2011c). In a review of 11 IAs in a number of sectoral DGs, Adeler (2011)

[15] http://ec.europa.eu/governance/impact/planned_ia/planned_ia_en.htm

found that outside policy areas where an adaptation dimension is obvious (e.g. flooding), vulnerability aspects may be quite cursorily treated. In an IA on biofuels, for example (European Commission 2006a), vulnerability is considered to have been addressed through the creation of employment opportunities in rural areas (although this predates the updating of the IA guidance). Even the recent IA of the proposed new cohesion policy contains quite cursory treatment of both mitigation and adaptation aspects (European Commission 2011d). On the other hand, the recent IA of the new biodiversity strategy contained extensive treatment of climate aspects (European Commission 2011e).

Given the EU's official commitment to holding average global temperature increases to 2°C, the question arises of whether consideration of the implications of higher temperature changes and associated impacts for new policy initiatives may be discouraged. In their climate proofing report for the Commission, Altvater *et al* (2011a) comment on this aspect, noting that:

> 'Most of the existing scenarios suffer from being 'too plausible' and almost systematically avoid inclusion of discontinuity (high impact low probability extreme events). This compromises the role of scenarios as a tool for exploring a wide range of possible futures and hence to help to prepare 'Plan B' in order to be able to act more adequately in extreme situations'.

The IA for the *Energy 2050* Roadmap (European Commission 2011f) provides an interesting example, explicitly stating that '[c]onstant climate conditions were assumed over time. This simplification may be justified given that all decarbonisation scenarios assume that the climate targets are met' (p39). This effectively rules out the possibility that even if the EU were to meet its decarbonisation objectives, expressed in the Roadmap, global GHG concentrations could still reach a level that leads to the 2°C target being exceeded, with correspondingly more severe impacts being set in train. The potentially serious consequences arising from higher impacts for whether the EU would still be able to achieve the kind of de-carbonisation envisaged (if hydropower was more constrained by more severe water shortages, biomass imports became less available, etc) remain unexamined.

The implications for vulnerability and ability to adapt to climate impacts of a new EU-level initiative can of course be difficult to assess when so much is dependent on eventual implementation by the Member States (DG Environment Official, pers. com.). Arguably, this suggests the need for some kind of 'tiered' approach across governance levels and forms of assessment (in the manner envisaged by idealized models of environmental impact assessment – see below).

Plan, programme and project levels: Revisions of environmental assessment legislation

Both mitigation and adaptation are widely acknowledged to be relevant in impact assessment processes at both project and strategic levels in different sectors (Byer and Yeomans 2007; Duinker and Greig 2007; Wilson and Piper 2008). Following a commitment in the Adaptation White Paper (European Commission 2009a: 13), the Commission is currently developing practical guidance and recommendations for integrating climate change (and also biodiversity) into legislation on both Environmental Impact Assessment (EIA), which covers the project level,

and Strategic Environmental Assessment (SEA), which applies to plans and programmes. The document, *Practical guidance and recommendations for integrating climate change and biodiversity into EIA/SEA procedures,* is expected to be published in mid-2012 (DG Environment official, pers. com.). At present, only a handful of Member States such as the UK (Levett-Therivel 2007) have issued relevant guidance.

What little empirical research that has been done suggests that climate (and biodiversity) aspects are at best inconsistently handled in EIA and SEA. Benzie (2007) finds that SEA is at an early stage in its applicability to adaptation and has so far not been used effectively to integrate adaptation into final plans and programmes. A fairly positive assessment is offered by Posas (2011), who suggests that in England, at least, contrary to common assumption, climate change is being routinely addressed in Sustainability Appraisals (i.e. SEAs) of land use plans, unlike in the early 2000s. On the other hand, examining SEAs of regional planning in Germany and the UK, Wende *et al.* (2011) find weaknesses in current practice. Although climate change-related criteria may be applied, the 2°C warming target is not being treated as a target that must be delivered. In this sense, SEAs are being implemented in accordance with a 'weak' interpretation of what climate policy integration should entail. Wende *et al.* caution, however, that SEA should not be overstretched by extensive new requirements on 'climate proofing'.

4. Sectoral mainstreaming: the case of water

A range of policy sectors are due to be introduced by invited speakers at the symposium. Since the water is not, we include some discussion here, drawing from *Responses* research by Brouwer *et al.* (forthcoming), who attempted to measure the degree of mainstreaming attained in different river basin authorities, and discussed the factors underlying the variations observed. In doing so, they raised an interesting question regarding the extent to which mainstreaming requirements can be imposed in a top-down manner. This section draws from this document.

Introducing the water policy sector

The EU's most important policy instrument to protect its freshwater resources is the Water Framework Directive (WFD), designed for the protection of inland surface waters (including rivers, lakes, transitional and coastal waters) and ground waters. As a Framework Directive, the WFD does not contain detailed regulations on policy objectives or measures, but leaves a considerable degree of freedom to Member States in how they 'translate' the Directive to their national and local (river basin) contexts. Its conceptual basis lies in a concept of integrated water resources management that has potential to facilitate mainstreaming of climate objectives and cross-sectoral coordination (Deloitte and IEEP 2011). Member States were required to draft River Basin Management Plans (RBMPs), the first to be in place by 2009. These subsequently undergo six yearly cycles of updating. The plans should include a programme of measures (PoM) by which their objectives are to be reached, to be operational by 2012. Such measures can range from wetland restoration, enhancements of wastewater treatment facilities, to the introduction of demand management by water pricing. The final deadline for the achievement of WFD objectives is 2027. A separate Floods Directive (FD) requires Member States to identify the river basins and associated coastal areas at risk of flooding.[16] For areas with a potential significant risk, flood risk maps and Flood Risk Management Plans (FRMPs), focused on prevention, protection and preparedness are required by 2013 and 2015 respectively. Moreover, the FD establishes a cyclic review of its core elements, to be synchronized with the schedule of the WFD.

According to the findings of DG Clima's 'climate proofing' study, the water sector is currently at a stage where a high level of adaptation activity is already undertaken (Altvater *et al.* 2011b).[17] However, findings from *Responses* research suggest that there is still some way to go before mainstreaming is taken as seriously as the Commission apparently intends and for its meaning to be as clear as it could be.

[16] Parts of the draft WFD that were intended to address water quantity concerns proved too controversial, and were dropped from the legislation as finally adopted. The Floods Directive is an attempt to address some of the resulting gaps (Massey *et al.* 2010).

[17] For this reason DG Clima's project concentrated its efforts elsewhere.

Normative commitments / references to climate in existing legislation

In the formulation of the Adaptation White Paper, DG Environment officials were satisfied that the existing provisions of the Water Framework Directive were already conducive to mainstreaming, presenting its step-wise and cyclical 'ecosystems-based' approach as well-equipped to handle the challenge without the need for additional legislation (Rayner and Jordan 2010). Although focused on quality and ecological aspects of water management, a separate Floods Directive (FD) requires Member States to identify the river basins and associated coastal areas at risk of flooding, addressing what might otherwise be an important gap. More striking, however, in terms of integrative shortcomings, is that climate change is not explicitly referred to in the text of the WFD. The Directive was adopted in 2000, and it was only with the launch of the second European Climate Change Programme (ECCP II) in 2005 that EU water experts began to look seriously at the implications of climate change (Massey *et al.* 2010). Although the requirement that Member States also introduce water pricing schemes by the end of 2010 has clear implications for the management of water quantity, scarcity and availability issues, some commentators have lamented the lack of legislation on water scarcity and drought, and the fact that river basin managers are not prioritising it (Ellison 2010). What is in place is a Communication *Addressing the challenge of water scarcity and droughts in the European Union* (COM/2007/0414 final), listing a set of policy options that are implementable as a concerted EU action to increase water efficiency and water savings, and to improve drought preparedness and risk management. At their heart is the need to price water correctly with the 'user pays' principle becoming the rule.

In addition to these policies, the Commission Document *Climate Change and Water, Coasts and Marine Issues* (European Commission 2009c) accompanying the Adaptation White Paper promised six actions, including that:

i) a set of guidelines and tools (guidance and exchange of best practice) should be developed by the end of 2009 to ensure that the RBMPs required under the Water Framework Directive are 'climate proofed'.
ii) Member States must take climate change into account in the implementation of the Floods Directive.
iii) the Commission will assess the need for further measures to enhance water efficiency in agriculture, households and buildings.
iv) the potential for policies and measures to boost ecosystem capacity for water storage should be explored, in particular in the context of reviews of the Water Framework Directive and the Water Scarcity and Droughts strategy.[18]

For most of these actions it is too early to assess how they have been taken forward. Regarding (i), however, in 2007, a Strategic Steering Group was launched to explore the relationship between the WFD and climate change adaptation (CIS 2008). The Strategic Steering Group (SSG) on Climate Change & Water published *Guidance document No. 24 'River Basin Management in a Changing Climate'* in November 2009 (European Commission 2009d; Wright

[18] As part of the 'Blueprint' process already referred to.

et al. 2011).[19] This covered the following themes: how to handle available scientific knowledge and uncertainties about climate change; how to develop strategies that build adaptive capacity for managing climate risks; how to integrate adaptive management within key steps of producing RBMP; how to address the specific challenges of managing future flood risk; and how to address the specific challenges of managing future water scarcity. Member States now have responsibility to ensure that the second-generation RBMPs, due by the end of 2015, are 'climate-proof'.

Regarding (iii), it is perhaps a concern that in the budget review, 'while energy efficiency is relatively well anchored, water efficiency … is not addressed even though water scarcity and infrastructure needs are likely to have a significant impact on economic development in several parts of the EU in the near future' (Medarova-Bergstrom 2011b: 4).

Procedural approaches to mainstreaming

Guidance document No. 24 contains a somewhat mixed message, arguably stemming from a residual fear in the Commission that the adaptation agenda is open to abuse by those seeking to rationalise failures to fully implement the Water Framework Directive (Brouwer *et al.* forthcoming). On the one hand, it clearly states that future RBMPs should take climate change into account, as it may place an extra pressure on water resources, and because a large potential for synergies between WFD objectives and adaptation aims is foreseen. Accordingly, it urges Member States to at least conduct a "climate check" of proposed measures in the first round, and to include a chapter on climate change to increase awareness, facilitate public consultation, and pave the way for future action. From the 2nd RBMPs (due in 2015) measures should be flexible and robust enough to be viable under changing climate conditions, and not run counter to adaptation objectives. At the same time, however, the Commission's Guidance maintains that 'apart from exceptional circumstances, it is not expected that, within the timeframe of WFD implementation (i.e. up to 2027), and within the metrics used for status assessment, a climate change signal will be statistically distinguishable from the effects of other human pressures at a level requiring reclassification of sites' (European Commission 2009d: 41). In line with this thinking, the Commission maintains that the structure, objectives, timetable and cyclical approach of the WFD provide sufficient opportunities to incorporate climate change into the WFD planning and implementation processes. Several scholars, however, do not concur with this rather defensive vision, and urge structural revisions of the Directive itself as a way of mainstreaming. Wilby *et al.* (2006), for example, foresee problems with the fact that the WFD does not consider climate change when defining and evaluating the status of water bodies and argue that ignoring climate risks within the ongoing process of implementation eventually could result in failure to meet the environmental objectives.

Regarding the role of existing forms of impact assessment in mainstreaming, a number of analyses focus on the linkages between strategic environmental assessment (SEA) and water policies (Carter and Howe 2006; Larsen and Kørnøv 2009; Slootweg undated). They conclude that plan preparation under the various EU water directives and the process of conducting SEA follow largely similar approaches. The WFD and SEA directives have a number of requirements

[19] Water Directors are the most senior national representatives of the water industry.

in common, including the collection of baseline data, assessment, mitigation, monitoring and consultation, reporting processes and public participation.

It has been argued, however, that it is unclear to what extent the provisions of the SEA Directive should apply to the RBMPs, the PoMs, or both (Deloitte and IEEP 2011). Commission guidance on implementation of the SEA Directive includes 'water resources plans' within its scope. Although this would seem to include RBMPs, this is not specified. SEA is needed if the RBMPs and PoMs provide a framework to develop consents of projects that fall under the EIA directive and/or are likely to have significant environmental impacts, focusing on impacts in other media than water, since the RBMPs and PoMs already have the objective of improving water status (Deloitte and IEEP 2011).

Screening and scoping within SEA, though, is not only based on an assessment of how the RBMP may affect the environment: how the environment affects the plan is also a matter which determines whether a plan is subject to SEA or not, and what should be within the scope of assessment (Larsen and Kørnøv 2009). The impact assessment profession is at an early stage in addressing this new focus. According to Larsen and Kørnøv 2009, an inadequate knowledge base regarding climate change impacts is likely to mean that authorities do not include climate change well in their SEAs of RBMPs.

Relative neglect of mitigation aspects in the water sector

Abstraction, conveyance and treatment of fresh water and wastewater, together with end-use processes (particularly heating of water) are all associated with energy use in the water sector. So too are potential adaptation options such as de-salinisation and irrigation. When water quality legislation was being passed, however, energy demands (and emissions) associated with meeting them were apparently not investigated, and research into the area has only recently begun. A first estimate from the UK (Ainger *et al.* 2009) indicates that, without intervention, achieving the standards required by the Water Framework Directive could increase CO_2 emissions by 110,000 tonnes per year. A systematic review by Rotthausen and Conway (2011) shows that energy use and GHG emissions in the sector are under-recognized, in part because of differences in the scope of water-sector boundaries, data availability, methodological approaches and whether results are expressed as energy use or GHG emissions. Progress in the UK and the US (notably California), they suggest, has been primarily in response to regulatory requirements to monitor and reduce GHG emissions in the water industry, and to growing concern about water and energy security.

Although there are potentially complementarities between mitigation and adaptation goals in the sector, based largely on the potential of water saving efforts to both reduce emissions and increase resilience (Mata and Budhooram 2007), trade-offs are also possible. Rotthausen and Conway (2011: 216) highlight the danger of 'adaptive emissions' associated with adaptation measures, and the lack of attention to them:

Other potential mal-adaptation risks

A study commissioned by DG Environment (Flörke *et al.* 2011) attempted to examine how current water-related policies may influence vulnerability to climate change. Due to the current

changes in policy making and the focus on building a knowledge base for adapting to climate change, the study concluded that it is impossible to quantify these impacts. In general, it stated that the awareness at EU and MS level on the issue is increasing and adaptation issues are becoming better recognized in decision making. At the same time, however, it suggested that in some water-related sectors there is not enough attention paid to the issue; for example, the current proposal on the CAP suggests direct payments for cotton and reductions in spending on natural water retention measures (ibid). The study appears to be unusual for its willingness to investigate how current policies can be mal-adaptive, in that they *create vulnerabilities*. It highlights the need for 'crosschecks' (ibid: 139) to be made to assure that mainstreaming in one policy does not transfer the vulnerability of one sector or area to other sectors or areas. The study notes that this has to be supplemented by a more detailed assessment for the specific regional circumstances where measures should be implemented. It is unclear how widely perceived this danger is, or how such a study could be undertaken.

Pittock (2011) identifies pathways through which climate change policies – whether for adaptation or mitigation – potentially affect water, and examines how far such issues are taken into account in climate change policies in nine jurisdictions, including the EU. He concludes that assessment of these national policies demonstrates 'how poorly governmental decision makers understand that many energy generation and carbon sequestration technologies largely depend on adequate water supplies. This is a major flaw in the climate and energy policies examined that needs to be addressed if objectives are to be met in all relevant sectors" (no page numbers).

'Bottom-up' evidence of mainstreaming at river basin level

Despite water being one of the sectors on which climate change is expected to have the biggest influence (EEA 2009), and the European Commission identifying it as a priority area for mainstreaming (European Commission 2009a,c), empirical evidence of how mainstreaming works in practice is scant. Brouwer *et al* (forthcoming) provide a first analysis, analyzing how, and to what degree, climate adaptation considerations are mainstreamed in the implementation of the Water Framework Directive and Floods Directive. They find that awareness of the guidance is somewhat low - suggesting that the Commission may not be able to impose particular procedural approaches as far as it might like - and that in any case, the document does not give clear instructions on how to handle key dilemmas that arise in the process of mainstreaming, including which goals to prioritise when different EU policy objectives come into conflict. Conflicts that have arisen include whether to rely on energy-intensive de-salination plants for drinking water (going against the objectives of mitigation policy), and whether hydro-electric power should be promoted in order to meet renewable energy targets, at the expense of water quality. Although mainstreaming is quite actively pursued in some river basins (e.g. Scotland and Catalonia), Brouwer *et al* find that nowhere has a clear decision been taken to give principled priority to climate considerations above others. While some river-basin level actors apparently express a desire for more top-down guidance on resolving dilemmas over which goals to prioritise, it may be that EU-level policy-makers prefer to leave these to the lower levels of governance.

This coincides with the views encountered by analysts conducting the 'Fitness Check' of water policy, who point out that, in the absence of a) clear EU guidelines for assessing risks related to

climate change, b) examples of cause-effect best practices that can ensure adaptation to climate change and c) key performance indicators for these practices, it is very unlikely that Member States will invest significant resources in this policy area (Deloitte and IEEP 2011). It is also noteworthy that only five of the RBMPs covered in an NGO survey (out of a total of 17 analysed) set goals for reducing water use, and only two of those were targeted at individual sectors (DG Environment 2009).

Reflecting on a number of hypotheses from the literature (see section 2.6), Brouwer *et al.* conclude that there is a greater chance of mainstreaming being vigorously pursued when policy developments in the target sector coincide with a climate agenda, and when there is significant technological potential for win-win solutions. Likewise, support was found for the suggestion that the capacity to regulate is an important prerequisite for achieving change in the target sector (Hey 2002), and partial support for Pollack and Hafner-Burton's (2010) premise that soft incentives are insufficient to stimulate much mainstreaming. Additional research is needed to establish whether hard incentives in practice really work better. Finally, Brouwer *et al.* conclude that the (perceived) gravity of predicted climate change, as well as political will, hold some explanatory power. Interestingly, they suggest that the majority of these variables are difficult, if not impossible, to influence by the EU, at least for the time being.

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