

Adaptation in Europe: governance problems and decision-making needs¹

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Abstract

Researchers and policy makers agreed that we need to take measures now to respond to climate change impacts in the future. As the EU, its Member States and regions start to organise their adaptation efforts, it is important to understand the institutional contexts and potential challenges that might arise in the course of developing and implementing adaptation policies. This paper gives an overview of governance problems and decision-making needs that policy makers currently face. Based on empirical research in eight European countries, we mapped out the institutional context in which adaptation decisions are made and identified ten categories of needs as perceived by core policy-makers. We found no significant patterns as to why certain countries have specific needs, but there are indications that the needs change during the adaptation planning process and that Central and Eastern European countries might benefit from EU coordination efforts.

Keywords: *governance, climate change adaptation, decision-making*

1 Introduction

If the 1990s were the decade of emerging mitigation policies, the first decade of the 21st century is marked by an emerging focus on adaptation planning. As we realize that no matter what mitigation path we follow, some warming is already locked in, adaptation has moved from being a perceived distraction from mitigation to a challenge in its own right, even though it is still too often seen primarily as a developing country concern. Although slow-onset climate change-related impacts are not always noticeable yet, the increased frequency and severity of extreme events is already causing harm to people and infrastructure across the globe. Infrastructure planning, which must take a long-term horizon of up to a century, must consider future climate impacts in decisions taking place today (e.g. Frankhauser et al. 1999).

The EU officially acknowledged the need for Europe to adapt to the unavoidable impacts of climate change and assumed an integrative and coordinating role in the process by publishing a Green Paper (CEC 2007) and a White Paper (CEC 2009) on adaptation. The road map set out in the White Paper is divided into two phases. The first phase, 2009 to 2012, shall “lay the ground work for preparing a comprehensive EU adaptation strategy to be implemented during phase two, which starts in 2013”. Phase one is based on four pillars of action: a solid knowledge base of climate change impacts; integration of adaptation into key EU policy sectors; the combination of policy instruments and the intensification of international cooperation. Several EU research projects are dedicated to providing knowledge, which is necessary to pursue these actions (e.g. RESPONSES, CLIMSAVE,

¹ This paper is a summary of the research done and reported by Pfenninger et al. 2010, in deliverable 1.1 of the FP7 funded MEDIATION project.

CLIMCOST). One of those projects is MEDIATION. The consortium of MEDIATION aims to provide an integrated set of methods to support policy-makers in their adaptation decisions. To this end, one of the first tasks was to investigate the governance context in which adaptation decisions are made and the needs of decision makers involved in them. This paper presents some of the core results of a six month investigation into these questions.

In this paper we will briefly conceptualise adaptation through its aspects that hold relevance for policy makers. We will outline the nature of the concept along its mainly jurisdictional and sectoral dimensions, its different forms and demarcations; and its inherent uncertainty. Further, we introduce the most closely related research in this field in Europe and outline our research approach. The results are presented in two parts: (1) an overview of the different governance contexts in Europe and a look at EU adaptation policy, and (2) the perceived policy needs based on a series of interviews. In the discussion we will find that no clear patterns of adaptation needs can be found across Europe, even though problems are similar. We will follow some trains of thought that we believe to be valuable for future adaptation planning and the potential for EU involvement, and the use of decision-making tools. Finally, we will conclude that adaptation needs in Europe now reflect the challenges researchers have been highlighting throughout the past 15 years. The multi-level governance issues remind us of the issues that EU regional policy has faced since the late 80s. Integrating adaptation into the Structural Funds could be an incentive for new Member States to catch up.

2 Conceptual framing

What do we know about adaptation? The concept of adaptation is very broad and difficult to grasp in all its dimensions. Concepts and methodologies applied are diverse and inconsistently used (e.g. Gallopin 2006, Ioncescu 2008) throughout the scientific and grey literature, which makes assessments even more difficult for both scientists and policy makers. There is a plethora of different assessment frameworks and guidelines (e.g. Carter 1994, UNDP 2002, Schröter et al. 2005) Overviews can be found in Hinkel (2010), Dessai and Van der Sluis (2007) or Feenstra (1998). In the context of this research it is important to frame adaptation along certain characteristics repeatedly highlighted in the literature, in order to arrive at a pre-classification of potential challenges for policy makers.

Climate change adaptation is a broad and multi-dimensional issue. The IPCC's widely used definition describes adaptation as "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (McCarthy 2001). Adaptations, thus, vary on a small to medium territorial scale according to the type and the intensity of climate impacts. Adaptations, even though implemented at regional and local levels, are constrained by institutional processes, i.e. regulatory structures, property rights and social norms (Adger 2005, 78). Adaptation is therefore a process with multiple levels involved, the global level (UNFCCC), the supra-national level (EU), and the national governments, as well as regions, municipalities, cities and smaller communities and not to forget, business, markets and individuals. This implies that there is not only a horizontal but also a vertical (sectoral) dimension to adaptation. In different sectors different adaptations are needed, answers to which, might have negative effects on other sectors or on future activities. Paying attention to cross-sectoral aspects is therefore essential. These multiple dimensions are one reason why policy makers intend to mainstream it into existing policies instead of creating specific adaptation policies.

However, it can be difficult to distinguish adaptation decisions and actions from actions resulting from socio-economic events rather than climate change (Adger 2005), as these decisions are not isolated but are made in the context of social, demographic, political and economic change (O'Brien and Leichenko 2000). The IPCC (2007) also distinguishes between anticipatory or proactive adaptation as „adaptation that takes place before impacts of *climate change* are observed“, autonomous or spontaneous adaptation as „adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or *welfare* changes in *human systems*“ and planned adaptation as „adaptation that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required“ (Parry et al. 2007). It is important to make these differences in order to distinguish between measures that are actually intended to adapt a system to climate change, measures that accidentally have an adaptive effect and measures that seem to be adaptation, but which adapt to an impact which is not a

result of climate change. In planning adaptation these sometimes opaque differences can be obstacles when financial allocations need to be made for adaptation measures, spill-over effects need to be anticipated and particularly when trying to mainstream adaptation in sectoral policies. “Where does adaptation start?”

Being dependent on the impacts of climate change, adaptation is also subject to the uncertainties inherent in our knowledge about future climate change (e.g. Dessai and van der Sluis 2007, Füssel 2007, Ingham 2007). In the scientific literature uncertainty has long been highlighted as a barrier to the development and implementation of adaptation (Gagnon-Lebrun and Agrawala 2007, Füssel 2007, Dessai et al. 2009). Adger 2009, however, argues that „...we should not consider uncertainties associated with foresight of future climate change a limit to adaptation“. Reasons, among others, are the existence of other uncertainties that influence societal activities, thus, climate predicitions should be the main factor in making adaptation decisions, but focus should be put on robust decision-making.

This paper adds to the research done by Swart et al. 2009 on national adaptation strategies in Europe with a focus on old Member States and a report by Massey 2009 on adaptation strategies in the new Member States. Several regional empirical studies on adaptation planning also deal with institutional barriers (e.g. Lonsdale et al. 2009, Amundsen 2010 and Simonsson et al. 2010). Some of these studies were the basis for Biesbroek et al. (2009), who analysed institutional barriers to adaptation planning in the light of public administration theories.

The comparative study of EU national adaptation strategies by Swart et al. was of particular interest to our research. Our work was broader as we included both old and new Member States in our study and an existing national adaptation strategy was not a prerequisite for our case studies. However, our findings support those of the PEER report. Based on key drivers and key facilitating factors for adaptation policy (figure 1), the report identifies five areas of importance for successful adaptation policy: the science-policy nexus, communication and awareness-raising, multi-level governance, policy integration and review and implementation (Swart et al. 2009).

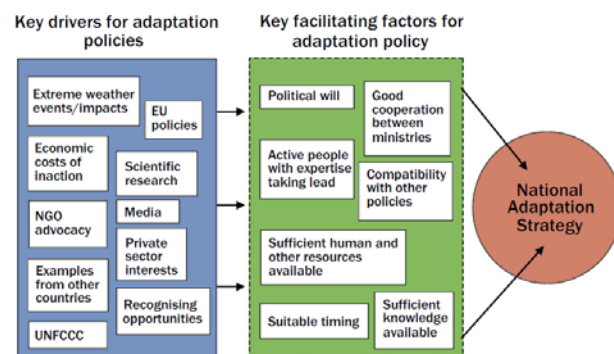


Figure 1: Key drivers and facilitating factors for NAS development (Source: Swart et al. 2009)

3 Method

The MEDIATION project is based on four case study regions: Western Europe, Southern Europe, Northern Europe and Central and Eastern Europe². Furthermore, it focuses on particular sectors in each of these regions (table 1). We selected between one and three countries from each case study region for in-depth analysis, based on criteria derived from a brief review of all EU countries and their progress in adaptation policy. The country-level case studies intend to represent both the diversity of European governance systems and the diversity of the European natural environment as well as different stages and process designs of adaptation planning³. The national level was our core unit of analysis. Adger et al (2009) argue how adaptation is most likely to be constrained by factors endogenous to a society, such as ethics, knowledge and attitudes to risk or culture. Comparing across a range of countries where such factors are different could thus reveal useful insights. While the importance of all levels, regional and local as well as global is emphasised throughout adaptation literature (e.g. Burton 2002, Adger 2005, Amundsen 2010), the national level is currently a central pivot for adaptation planning. The activities of governments reflect both international incentives (UNFCCC, EU) as well as regional and local needs, as these levels are affected by different impacts. The national level is also that unit on which cross-sectoral implications can best be addressed. If multi-level adaptation frameworks were to be achieved, the national level needs to play an integrative role. Depending on the administrative structure of the countries (e.g. Federal States), the evolution of the

² European case study... was included in this research work as cross-cutting topic.

³ Our research in Central and Eastern Europe was additionally limited by language constraints.

strategy (e.g. UK) or the nature of sectoral issues, regional level policies were considered in our analysis.

For each country and the EU as a whole, we analysed policy documents (national strategies, national legislation, research reports, assessment reports, government websites, etc). As a result of the progress of adaptation policy and the governance culture in each country, the document analysis provided different output and depth of information. Therefore, the extent to which documents play into the analysis varies. For instance, in the UK a wide range of research and policy documents exist to be drawn upon, while in Romania, few documents are available beyond a brief non-exhaustive guide on adaptation. The national strategies and other adaptation policy documents, if available, differed largely in their comprehensiveness (see therefore also Swart 2009), which also influenced the amount of information needed from interviews.

We conducted semi-structured interviews between April and June 2010 to complement the document analysis. On the one hand to fill information gaps encountered during the document analysis, on the other hand to get information that cannot necessarily be found in policy documents; information on the nature of the challenges faced in adaptation planning and the needs as perceived by policy makers. For the interviews key players in adaptation policy-making in general and according to sectors were selected, keeping again in mind the different governance regimes. For example, in the case of Romania also NGO representatives were interviewed, as they play an important role in environmental education and training also concerning adaptation.

Region	Sector	Country	Key features
Central and Eastern	Water management (floods) and agriculture	Austria	Extensive elaboration process of a national adaptation process ongoing. Strategy to be expected in 2011. Policy paper on adaptation published in 2009.
		Poland	No national adaptation strategy.
		Romania	Adaptation strategy as part of the Climate Change Strategy 2010-2012 expected (2010). Guide on adaptation published in 2009.
Northern	Forestry and biodiversity	Finland	First national adaptation strategy (2005), assessment of strategy (2009)
Southern	Water management (droughts), health (heat waves), cities, tourism	Italy	No national strategy has been adopted so far, nor is there any project to do so.
		Spain	National Climate Change Adaptation Plan adopted in 2006, with subsequent work programmes to address the issues.
Western	Coastal zone management and sea level rise	France	National Strategy on Adaptation (2006) National Plan on Adaptation (in process, should be completed by 2011)
		United Kingdom	Wide range of activities since late 90s in absence of a national strategy until most recently (ACC programme, 2008, departmental plans, 2010)

Table 1: Case study countries

4 Governance contexts

There are two important aspects which need to be considered when looking at adaptation policies and its respective governance context in Europe. Firstly, the different administrative structures and governance traditions prevailing in different countries should be kept in mind. Secondly, we need not forget the early stage of most structured adaptation planning – most countries are only setting up strategies. Combined with the intentions to mainstream adaptation into existing policy sectors these are reasons why no settled institutional structures are in place in most countries. Consequently it is difficult to analyse the current structures.

In most of the countries analysed, on the national level adaptation is a matter of environmental ministries, which are traditionally weak compared to more influential ministries such as, for instance, agriculture and economics. How adaptation is integrated varies among countries. Environment agencies usually support the work of the ministries in the planning as well as in the implementation process. Only in some of the old Member States boundary organisations such as the UKCIP were set up, even though such organisations have been highlighted as crucial for successful adaptation (cf. Swart et al. 2009). In many cases inter-ministerial working groups are in place, which in some countries are extended to include interest groups and research institutions. Besides the UK no countries have implemented laws on adaptation.

The integration of regional and local level governments and organisations depends on the administrative structure and on the progress in adaptation planning. Even though it is a necessity for planned adaptations to include all levels, federally organised countries and countries with otherwise strong regions tend to coordinate sooner with lower levels. Italy is a special case, as there are no national attempts to plan adaptation and adaptation efforts are limited to regional and lower levels, which often lack the competencies to act appropriately.

Centralised governments and governments with less developed regional development structures (e.g. many new Member States) may be slower in achieving an integration process across jurisdictional levels. Also in these cases national policies imply that implementation is a matter of regional and local governments. However, these documents rarely propose ideas as to how this shall be achieved.

The role of the private sector was not a core aspect of our research. Adaptation policy documents rarely make implications on the involvement of private partners. Existing considerations on this matter vary across countries and policies. In Austria, for example, on some regional levels businesses are encouraged to take adaptation measures.

In most European countries NGOs do not yet play an active role in adaptation planning and implementation. NGOs are traditionally active in promoting mitigation. Romania, however, is an example for a country where NGOs are relevant to implementing adaptation (e.g. in awareness-raising, training and education) as government resources are very limited.

5 The EU and adaptation

The EU started its official adaptation efforts by introducing a working group on climate change impacts and adaptation into the 2nd European Climate Change Programme (ECCP2) in 2005, followed by the introduction of the Green Paper on Adaptation in 2007 and the respective White Paper in 2009. Countries such as the Finland, which had its first adaptation strategy in 2003 and the UK (adaptation strategy 2006) were well ahead of EU in adaptation planning. In February 2010 a special DG dedicated to “climate action” was introduced to be in charge of responses to climate change and thereby took these responsibilities from DG Environment. The new DG will take up the challenge to coordinate mitigation and adaptation across sectors, i.e. with other relevant DGs. This creation corresponds to a trend observed in different member states to set up a special government department to deal with climate change issues. The European Environment Agency (EEA) based in Copenhagen assist the DGs by providing information on environmental matters.

Mainstreaming adaptation into its sectoral policies is the big aim of the EU for the coming decade (CEC 2009). The White Paper suggests mainstreaming of adaptation, i.e. increasing the resilience, in five groups of sectors: Health and social policies; agriculture and forests; biodiversity, ecosystems and water; coastal and marine ecosystems and production services and infrastructure.

The White Paper recognises the importance of cooperation and coordination between member states for the good implementation of adaptation policy and to that end, suggests the creation of an Impact and Adaptation Steering Group (IASG) before the 1 September 2009. The first official IASG meeting is planned for September 2010 and will gather representatives of Member States. National strategies on adaptation are also promoted and may become mandatory from 2012 onwards.

The first concrete action as a consequence of EU adaptation policy was taken in the water sector: The Water Directive was one of the first policies to become subject to mainstreaming adaptation. By the end of 2009, the elaboration of climate-proofed River Basin Management Plans was one of the first

specific measures initiated on the European level. The much younger Flood Directive, which is part of the Water Directive, was an answer to the floods occurring throughout Europe between 1998 and 2004, thus much earlier. Current adaptation on the EU level is still in an early planning phase, the motivation seems great, but there is nothing to evaluate yet. There are however implications on national level experiences that might be relevant to EU efforts.

6 Policy makers' needs

As climate change impacts and governance cultures vary across Europe, so do policy makers' needs when planning adaptation. These needs can be categorised similarly, but vary in their intensity and nature across Europe. These institutionally rooted needs are in many cases not new and not specific to adaptation, which reflects the nature of adaptation and its early stage in policy planning. It also raises the question on how to address these needs and whether new tools are actually needed or whether tools can be found in other policy sectors. We grouped the needs we were confronted with in ten themes. There are interdependencies between the different themes, which sometimes makes it difficult to single out and assign an identified need to one specific category (e.g. human and financial resources are often coupled with political commitment, inter-agency cooperation often relates to mainstreaming issues, etc.).

In some of the interviews and policy documents certain themes listed below were not touched upon at all, which is another reference to the early stage of adaptation on the policy agenda. Some issues are not perceived as problems yet, because adaptation planning is not advanced enough, or maybe not emphasised enough.

Inter-agency Coordination

Inter-agency coordination refers to the need for better cooperation between different divisions in and beyond the national government. As adaptation calls for cross-sectoral consideration of potential positive and/or negative spill-over effects, it is necessary to coordinate policies and their implementation among different governmental departments and in many cases also with interest groups and the private sector. However, beyond the respective environmental department where adaptation is located, concern for such issues is often missing. Most countries have inter-ministerial working groups in place for better coordination (e.g. Austria, Finland, France, Romania, Spain, UK), these bodies however, have a different degree of influence and thus varying levels of effectiveness. It is worth highlighting that some countries, which otherwise are on different stages in adaptation policy perceive the need for enhanced inter-agency coordination (e.g. both the UK and Romania). In Austria on the other hand this is not felt as a matter of concern.

Main-streaming

Adaptation will not be a stand-alone policy domain. Scientists and policy makers have identified it as an issue that needs to be integrated into existing policies across sectors. The necessity of this is widely recognised, the how-to, however, has yet to be determined and will be a challenge in the years to come. These reasons might be intertwined with other adaptation needs we identified. For example, many European regions and many sectors do not feel the impacts of climate change at the moment; often policies and measures which exist already, could have adaptive effects but are officially not in place to for adaptation to climate change (e.g. disaster management measures, vitalisation of forests, organic farming methods). Drastic adaptation measures are not yet necessary and a lack of research and uncertainties impede proactive/anticipatory measures. Some sectors (e.g. agriculture, forestry, coastal management,...) might be less problematic than others that so far received little attention. Interviewees (e.g. in Austria) highlighted spatial planning, infrastructure and energy as being particularly important for more adaptation mainstreaming. The UK identified the key for successful mainstreaming in the accessibility of tools and information on adaptation.

Multi-level governance

The need to coordinate adaptation planning across multiple jurisdictional levels is one of the issues inherent to adaptation. Researchers (e.g. Adger 2005, Swart et al. 2009, Simonsson et al. 2010) highlight the need to consider all levels, as implementation measures will finally be implemented on the regional, local and individual levels. The policy framework established in the UK based on the

2008 Climate Change Act does exactly that by encouraging local governments to self-assess their preparedness in terms of adaptation by means of a national process-based indicator. Federally organised countries such as Austria and Spain to some extent are aware of the necessity to include different levels and not afraid to face it as lower levels already have a powerful status and particularly the federal states will want a say. Challenges are only anticipated when deciding on who will finance the implementation of the adaptation strategy. In the new Member States the integration of the regional and local levels will be difficult as these states are used to centralised administrative structures and the regions if existing have hardly any competences. The example of Romania fits well to demonstrate this issue. It is best reflected in the matter of fact answer of Romanian policy makers that nobody thought about this issue yet. First, a national strategy will be developed and maybe in the future if resources are available the local level may be included. Bottom-up initiatives are rare in the new Member States as local and regional governments are weak and expect guidance and resources from the national level.

Awareness-raising

Awareness-raising across levels and sectors is another key factor of successful adaptation policy. As awareness-raising is often one of the first measures countries take, those which are farther ahead in adaptation do not see it as an immediate need anymore. The UK and Finland which have been pursuing adaptation policies longer than other European countries demonstrate the value of a national strategy and other adaptation policy processes to raise awareness and prepare for more specific measures. In Romania the need for much more awareness is widespread among both the organised and the general public. Austrian policy makers see a need to raise awareness on particular matters such as the need to individually take adaptation measures and for the private sector to take more action. A classic need also mentioned in interviews in Austria, was the need for awareness-raising on long-term thinking and planning. France considers its attempts to raise awareness failed due to a lack of promotion of the national adaptation strategy. In Italy, where no explicit adaptation efforts are made on the national level, lacking awareness for the topic is felt even stronger. The regional and local levels often lack understanding for future climate change impacts and ways to act upon them. At the same time they will face decisions on adaptation in the future. This could be an area where the exchange of good practices between communities will be valuable.

Coping with uncertainty

In almost all countries and even at the EU level, uncertainty about future climate impacts impedes adaptation planning. However, an amount of uncertainty is inherent to future climate change. This suggests that there is a need to help decision-makers understand what uncertainty means in the climate change context and that it will not be possible to eliminate it entirely. The UK is the only country where interviewees addressed uncertainty as an issue that needs to be embraced and dealt with other than to come by it with more research.

Research needs

All interview partners emphasised the need for more research on climate change impacts and on the cost of adaptation. Uncertainties about impacts hinder both, resource allocation for adaptation planning as well as the allocation of funds for concrete adaptation measures. On the one hand because it is difficult to gain support for concerns that are not immediate, on the other hand because it is difficult to find adaptation measures for unknown problems. "Robust measures" is the keyword on the agenda, which is supposed to gain decision-makers' attention and support. In many countries this need is met by structured state-funded research programmes (e.g. StartClim in Austria, FinAdapt in Finland, etc.), especially new Member States lack such programmes on the national level and depend largely on international research projects and results. In some cases the first adaptation strategies are to large extent research roadmaps (e.g. Finland, Spain).

Tools and information access

Tools are formal methods to support decision-making, which can include economic methods such as cost-benefit analysis or knowledge elicitation methods such as expert interviews or working groups as well as participatory tools, which can also be important support mechanisms for mainstreaming and awareness raising, by making both professionals as well as the general public aware of issues that

otherwise may not have come to their attention. Amongst the countries assessed, the UK stands out with the array of tools and guidance developed through UKCIP. Experience from the UK also highlights existing economic assessment methods, chiefly cost-benefit analysis, as insufficient to address adaptation decisions, (which is also concluded by economists, e.g. Stern 2007). In most of the countries it seems that decision-makers use few formal tools apart from knowledge elicitation methods (which, as some indicate, is due to absence of better formalized methods). Policy makers often lack the capacities to spend a lot of time on collecting and reviewing information and finding and applying the right tools. Their sources are mostly national and come from government agencies, research programmes or consultancies. International exchange is often informal, but in some cases happens through research programmes (e.g. AMICA) and networks (e.g. CICLE). In many countries (e.g. UK) science-policy boundary organizations take over these tasks to make decision-makers aware of what is available to support them. For decision-makers, it appears that it is often still too early to know what types of tools will be needed due to climate system and regulatory uncertainty.

Financial and human resources

Financial and human resources are another universal need, claimed by all interviewees. This need has again very different dimensions. In Romania it is a threat already at the stage of developing an adaptation strategy. In other countries such as Austria it slows down or at least hampers planning processes and puts the implementation of measures in question. In France the lacking human resources were lamented as problem in adaptation planning. The UK, which is currently well-equipped, fears that political change in the government might end a phase of intensive adaptation.

Political commitment

Political commitment is not only essential for providing enough money and staff to realise adaptation activities. The strength of political will decides on the level of implementation, whether adaptation will be based on strong laws or weak guidelines. Austria and Romania are confronted with weak commitment, while countries such as Italy and Poland have none to begin with. Conversely, too much political commitment which lacks scientific backing might lead to hasty and ineffective measures. Short term thinking of politicians can be seen as a lack of commitment as well, this lack is reflected in the fact that also our interviewees come up with needs that might be faced in the long-term.

Role of the EU

The role of the European Union in national adaptation planning varies significantly. Evidently, in those countries where the first strategies were implemented before even the Green Paper on Adaptation was out, the EU was not the driver behind these efforts. But also in other countries such as Austria, where EU actions were important, to gain more political attention on the national level, adaptation is an issue that is considered a national and sub-national decision domain. Indeed most national policy makers see the role of the EU in managing information and external affairs such as climate refugees. However, particularly for new Member States the role of the EU is significant (cf. Massey 2009), e.g. as a starting point for adaptation in general but also in terms of research and funding. It still seems that incentives to emphasise adaptation are not enough to enhance political commitment. Given that adaptation has only recently become a topic, it seems too early to tell whether this is a leader vs. laggard issue (a notion which has been criticized in the past anyway, e.g. in Borzel 2000).

At this point no clear pattern can be identified as to why certain countries share needs or differ in their needs to successfully plan adaptation. Even though the perceived needs are similar across Europe. The cause might be the early stage in this process and the fact that countries independently try to find ways to act on adaptation. On the other hand different governance cultures and institutional designs contribute to this absence of distinct patterns.

Major challenges across all countries seem to be *coordination and communication*, both across different jurisdictions and across sectors. This includes inter-agency coordination, multi-level governance as well as awareness-raising and mainstreaming. However, these seem to be problems, which are not specific to adaptation, but issues that are well known from environmental policy integration and regional development policy, for instance. Regional policies are in its nature very similar to adaptation, particularly as both require the involvement of jurisdictions on different levels

and affect multiple sectors. The similarity is additionally underpinned by the discrepancies in progress between old EU Members and new Member States in Central and Eastern Europe, Italy being the exception. Drawing also on the knowledge gathered by Massey 2009, new member states in Central and Eastern Europe seem to move slowly on planning adaptation. In most countries the idea of a national adaptation strategy has been played with and in many a decision to develop a strategy has been taken. In sectoral problem fields e.g. floods and droughts strategies are available, initiated by either extreme events or EU requirements. The commitment to national adaptation planning seems to be superficial, since other environmental issues such as waste and water management are higher on the agenda and financial means are scarce. These countries, rooted in their communist past, have usually very weak regional and local levels, with little communication and interaction between levels. In turn lower administrative and decision-making levels rarely take initiative to put bottom-up processes in motion. On the other hand, old Member States have stronger regions and communities and decades more of experience in multi-level processes based on the implementation of EU regional policies. The intention to mainstream adaptation into the Structural Funds could be a way to help Member States catching up also in terms of adaptation.

Most adaptation planning is sector-based as a result of the mainstreaming intentions. In countries with NAS, the respective ministries are supposed to provide the information relevant for their sector. In many sectors other strategies existed before the NAS, which are not labelled adaptation, but have adaptive effects. Thus, also countries where there is no NAS often take implicit adaptation measures (e.g. drought strategies in Italy and Romania). International incentives play an important role for such strategies e.g. the Water Framework Directive of the EU or the UNCCD (United Nations Convention to combat Desertification). For adaptation strategies to be comprehensive it will be important to properly coordinate adaptation planning with existing strategies and policies and evaluate whether they suffice or will need more explicit adaptation approaches.

Our research revealed little concrete evidence of formal, analytical *decision-making tools* for adaptation. Most countries seem to be at too early a stage to identify adequate support tools. Information seems to be gathered from different sources mostly within the respective country sometimes formalized through knowledge elicitation methods or expert consultations, but sometimes also done informally⁴ (Pfenninger et al. 2010). International networks such as CIRCLE gained importance only recently. New Member States, which do not have national research programmes additionally, rely heavily on information from European projects. There is plenty information both nationally and internationally, but it is often difficult to access or difficult to rate. We suggest making a distinction between two forms of information.

- Scientific studies and information: this includes the results from models, but also for instance specific studies into regional impacts and vulnerabilities.
- Case-based examples of successful or unsuccessful adaptations ('best practice'): this is less formal knowledge, but interviews did suggest that knowing what government departments in other countries are doing, how they approached a problem and what pitfalls had to be solved, is something that decision-makers would find useful. It may serve not only as information but also as motivation.

In most countries uncertainty plays a role in how the process of adaptation planning goes. It seems however, that in some early stage cases in adaptation planning, the uncertainty inherent to future climate change impacts has not been recognized and uncertainties are translated in research needs.

⁴ "There was a noticeable focus in the UK on economic aspects, where every formal policy proposal must undergo an impact assessment based heavily on economic appraisal and cost-benefit analysis. In continental European countries interviewees made little mention of such tools apart from the need to develop cost assessment tools for adaptation (Finland, Austria, Romania, France, and Italy). This may confirm the popular wisdom that the UK (together with the United States) are more inclined towards decisions based on economic assessment than other countries are. Nevertheless, the UK approach includes extensive stakeholder consultations as well, so this not necessarily a fair judgment to make." (Pfenninger et al. 2010)

Particularly in countries that are further along the road of adaptation planning, dealing with risk and inevitable uncertainties is an emerging issue. One key element which tools may want to address is helping decision-makers to live with uncertainty. In particular, assessing costs and benefits of adaptation measures is all but impossible at the moment due to lack of consistent methods and ways to deal with inherent uncertainty. It therefore seems that the path already taken by the EU, towards promoting the development of tools and methods e.g. through the clearing house mechanism, are in the right direction.

The *role of the EU* in adaptation policy is cross-cutting in this paper. Our investigations have shown that EU action could be valuable for adaptation to climate change. Two main points can be distinguished:

Tool and information portal: Interviewees repeatedly referred to the need for harmonised information. The EU could provide a hub to exchange research results, good and best practices and decision-making tools. The Clearinghouse Mechanism as intended by the White Paper could be such a comprehensive information portal if implemented and promoted properly.

Incentives for countries with little capacities and lacking political commitment: As our research has shown, some countries are lagging behind in their adaptation efforts, causal relations can be made to centralised administrations and weak lower levels of government for countries in Central and Eastern Europe and a lack of political commitment on the national level for Italy. The Structural Funds could be an adequate instrument to direct funds for adaptation to the regions that need it most, given appropriate mainstreaming measures are taken.

An aspect, which was not a perceived need, but which struck us as potentially valuable was the harmonisation of strategic adaptation planning. To this point national adaptation efforts vary across countries. With adequate policies, the EU could provide guidance on what national adaptation strategies should look like. Attention would have to be paid that enough flexibility is given to the countries to respond to their regional and local adaptation needs. Harmonisation of adaptation would facilitate the exchange of good practices, guarantee a certain level of comparability and could serve for monitoring purposes. The monitoring and evaluation of adaptation processes is regarded as integral for successful adaptation (cf. Swart et al. 2009) but does not receive its deserved attention by policy-makers in most countries.

7 Conclusions

We have conducted a thorough document analysis and interviewed more than thirty policy makers in eight European countries. Our aim was to identify decision-making and governance contexts of adaptation policy and to find out the needs for successful adaptation planning and implementation as perceived by the policy makers. We then synthesised the information we gathered in order to find some implications for European and national adaptation planning in the near future (next ten to twenty years). Finally, we can conclude that adaptation needs in Europe reflect now the challenges researchers have highlighted throughout the past 15 years e.g. multiple levels, broad meaning and uncertainty.

The multi-level governance issues remind us of the issues that EU regional policy has been facing since the late 80s. The approach in the White Paper to integrate adaptation into the Structural Funds could be an incentive for new Member States to catch up also in this field. Even though policy-makers see adaptation as a national level policy, their needs imply that support from the EU level would be welcome in providing harmonised research, information and tools. Less explicit was the need for harmonising adaptation planning along EU guidelines. This would facilitate evaluation and monitoring two aspects, which have not been tackled yet in most countries.

Based on the foundations laid down with this initial assessment, we will now explore more concrete questions. One such issue concerns thresholds beyond which incremental adaptation is no longer possible. This is still beyond the horizon for most planning performed today, but because of the uncertainty surrounding such thresholds they may crop up at unexpected moments.

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