

Governance of Climate Change Adaptation: Policy Review

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Abstract

Climate change adaptation is considered an important policy goal within the European Union with majority of the Member States now formulating their adaptation policies. This policy review focuses on adaptation policy and strategies within the Baltic Sea Region (BSR), paying particular attention to the project member countries of the *Climate Change: Impacts, Costs and Adaptation* (BaltCICA) project. Firstly, this review discusses issues of terminology and defines adaptation and planned adaptation. Secondly, theoretical issues relating to the governing of adaptation are highlighted, drawing literature on European adaptation. Thirdly, the review briefly outlines the emergence of adaptation in Europe, and consequently presents main conclusions from previous studies on adaptation policies in Europe. Fifthly, adaptation within the BSR at the national level is discussed, followed by a short review of adaptation initiatives at the regional level within the region. The review concludes by summarising some early lessons on the development of European adaptation policy.

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1. Introduction

Although initially considered to be a developing country issue, adaptation is now included on the policy agenda alongside mitigation of climate change in most if not all developed countries. This is largely due to the realisation that irrespective of the success of mitigation measures, adaptation to the changes already caused by the emission of green house gases will be necessary, due to the inertia of the climate system. In the European context, the European Union published a White Paper on adaptation in 2009 that outlines the Union's approach to adaptation (Commission of the European Communities 2009). The White Paper places emphasis on the role information in adaptation and so far leaves adaptation decisions to individual countries with no clear policy prescriptions. In addition to the developments at the supranational level, majority of the member states have now developed or are in the process of developing national adaptation strategies. Similarly, action on adaptation and development of strategies by sub-national actors is increasing within these countries. This creates a complex governance structure within which decision-making and action on climate change takes place.

Firstly, this paper briefly outlines the concept of adaptation to climate change and how adaptation has been defined. Secondly, the paper briefly discusses the emergence of adaptation policy, focusing on requirements for successful implementation of adaptation. Thirdly, adaptation within the European context is briefly outlined as a fairly recent development with many countries still in the process of formulating their approach to adaptation. Fourthly, the paper provides an overview of adaptation policy within the Baltic Sea region countries with particular attention paid to the BaltCICA project countries. This review highlights that even within the region, there are several different ways of approaching adaptation that are pursued by the countries. This naturally has implications to the sub-national scales of governance within these countries and their adaptation strategies.

2. Adaptation to climate change

Adaptation, as already mentioned in the previous section was firstly discussed in terms of the developing countries. The Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) outlines that adaptation has always taken place in human history but new challenges are placed by the uncertainty, the speed of the changes to come, as well as by the fact that the extremes that are likely to exceed previous conditions (IPCC 2001). Thus, adaptation *per se* is not a new phenomenon when one considers the evolution of human societies as humans have been able to adapt to changing environmental conditions for centuries. This autonomous adaptation, it is argued now, will need to be complemented by planned adaptation as the new challenges posed by climate change are likely to require additional measures.

The Fourth Assessment Report of the IPCC defines adaptation as “[A]djustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC 2007). Adaptation thus includes both anticipatory and reactive actions in order to reduce vulnerability or enhance resilience in response to already observed and expected changes in climate. Adaptation practices can be differentiated along several dimensions, including the spatial scale, sector, action or actor for example. Although many actions are already taking place, it should be highlighted that adaptation measures are seldom undertaken in response to climate change alone (IPCC 2007).

3. Challenges of governing climate change adaptation

The governance of planned adaptation takes place on different scales of social organisation. Governance has recently become a widely used term in the analysis of decision-making in society. It is increasingly recognised that more actors outside the state are becoming involved in decision-making, resulting in a variety of mechanisms for steering actor behaviour (Hooghe, Marks 2003). Environmental decision-making in general and climate change mitigation and adaptation are naturally included in this transformation. Partnerships and networks of actors more and more take part in designing and implementation of measures to mitigate and adapt to climate change.

In this process, the state no longer exclusively controls or commands actors in terms of their behaviour but rather enables or steers the process of decision-making (Bulkeley, Betsill 2003). These governance processes also take place across multiple sectors of administration and from the local to the global level, stretching the sphere of governance both horizontally and vertically. Thus, the governance process can be termed as a system of continuous negotiation between nested governments at the several different territorial tiers (Hooghe, Marks 2003).

As climate change adaptation is a new policy issue, the governance mechanisms and policy instruments for dealing with climate change are still in the process of developing. Interestingly, the speed with which adaptation has become a policy issue also varies depending on different countries within Europe (Swart et al. 2009). In most of the countries, the international processes, mainly the United Nations Framework for Convention on Climate Change has been influential in pushing the adaptation agenda forward, including Finland (Juhola 2010). In some countries, such as the UK, France and Sweden extreme weather events have influenced the policy agenda, highlighting the vulnerabilities of the societies to current weather events. More long-term concerns, such as sea level rise have been a driving force in the Netherlands whereas some countries, such as Finland have been drafting adaptation policy without any impetus from severe impacts of climate change as of yet. In terms of sub-national adaptation initiatives, local action is taken when direct impacts of climate change are felt.

Framing of adaptation policy directly affects the way in which adaptation measures are conceptualised and implemented (Juhola, Keskitalo & Westerhoff Forthcoming). Thus far, adaptation remains to be discussed predominantly in terms of environmental policy, focusing on certain areas such as water management and planning. However, framings of adaptation have begun to emerge that take into consideration the economic impacts of climate change and the need to include businesses and those engaged in economic activities into planning adaptation, and this particularly so in the UK (Juhola, Keskitalo & Westerhoff Forthcoming). The way in which adaptation is framed affects the way in which the rationalities of government further steers the lower levels of government.

When considering the implementation of adaptation measures across multiple scales the challenge of policy coherence and integration become central. Adaptation presents a challenge of allocation of roles and responsibilities in drafting strategies and carrying out measures in terms of responsibilities, i.e. is adaptation a national or a local concern? Furthermore, it is yet unclear as to which sector should bear the responsibility for adaptation or to what extent can adaptation measures be mainstreamed across all sectors of governance. In relation to policy coherence, the overall goal is that the aims of different policies are in line with adaptation policies by including all relevant stakeholders and also by avoiding contradictions and realising and fostering synergies (Mickwitz et al. 2008). In addition, mitigation and adaptation policies should be complementary to each other and to not have conflicting aims.

Urwin and Jordan analysed the support of public policy to climate change adaptation and the challenges of climate policy integration by combining top-down and bottom-up approaches (Urwin, Jordan 2008). The study concluded that there were many areas within which public policy conflicted with adaptation policy. If adaptation is to be successful, these concerns need to be addressed. Furthermore, the study questions the idea that climate policy should be integrated into all existing policy as it is unlikely that this will solve the problems. Interestingly, the study also highlighted the benefits of examining adaptation from a top-down and bottom up perspective and their complementary roles in contributing to our understanding of adaptation. As a result of the need for policy coherence, one of the main challenges in terms implementation of adaptation measures is posed by the sectoral divisions of public administration. Thus, successful adaptation requires cross-sectoral dialogue and action.

A study of Finland's climate policy coherence and integration shows the difficulties of integrating climate concerns, both mitigation and adaptation, to existing policy concerns and instruments (Mickwitz et al. 2009). The study analysed horizontal policy integration and coherence at the national level in general, at the national level in relation to two specific sectors (transport, and technology and innovation) as well as horizontal and vertical coherence and integration at the regional and local level in two regions in Finland (Helsinki Metropolitan region and Kymenlaakso). The study concludes that at the national level, the horizontal integration of climate concerns within sectors has been extensive but significant action is yet to be taken. Similarly, consistency between climate and other policy goals is not sufficiently addressed nor is the realisation of climate aims reported. The sectoral evaluation of integration and coherence reveal that progress has been made but consistency with other administrative sectors is poor. This is the result of lack of

resources as well as the lack of comprehensive impacts assessment of sectoral policies (Mickwitz et al. 2009).

At the regional and local level in Finland, the analysis reveals that policy coherence and integration are rather weak. This is despite the fact that both of the regions have specific climate (Helsinki Metropolitan region) or environmental strategies (Kymenlaakso). Both strategies have chosen the path of mainstreaming climate concerns into their strategies, rather than opting for climate specific allocations in their budget. Overall, the sub-national level suffers from financial resources and lack of government support and steering. Within the transport sector, vertical policy coherence and integration can be observed mainly through land use planning. The regional land use plans include mitigation concerns but less importance has been attached to adaptation issues.

Thus, it is clear that the implementation of adaptation policy presents a further set of challenges, least of which are coherence and integration. A study of two Norwegian municipalities found that flood management institutions gave weak incentives for local adaptation measures related to flood management (Næss et al. 2005). The study finds that when strong political interests coincide with political and economic interests with willingness to pay and provide support from the national level, measures for flood protection are carried out rapidly. The study also found that there was weak interaction between the municipal, county and national levels in terms of information and learning.

Similar challenges have been observed in Sweden in terms of local governance of adaptation. Storbjörk identifies three challenges of local implementation that can be observed from the case studies (Storbjörk 2007). Firstly, there is a conflict between the prioritisation of the safety and reduction of vulnerability on one hand, and questions concerning scenery on the other. For example, at the local level, providing enjoyable water front housing can run counter to the need to reduce the vulnerability to flooding. Secondly, information and knowledge of climate change impacts still present a challenge to the local level and hinder the implementation of adaptation measures, as in many cases it is yet uncertain what the localities should adapt to. Finally, the study highlights the issue of responsibility, already mentioned above, as something that hinders the uptake of adaptation.

In dealing with climate change, as with other environmental issues, society relies heavily on scientific processes in understanding the nature of the problem as well as on identifying solutions for it. This highlights the importance of the science-policy interface at the centre of decision-making with regards to adaptation. Climate change knowledge and information are crucial for sub-national actors, and even with locally relevant information they often have to make decisions with great amounts of uncertainty (Lange, Garrelts 2007). A recent study of flood management in Germany illustrates how uncertainty in terms of climate change and flooding can be dealt with in two different ways (Lange, Garrelts 2007). With regards to utilising climate science and information for regional or local climate change strategies, there are differences between countries. In the Finnish case, research efforts are moving from climate change scenarios towards more policy oriented research together with scenarios, which aids policy making. However, regional and local level decision-makers do not consider the knowledge available for them to be adequate (Westerhoff, Juhola Forthcoming).

Although the focus in this policy review is on adaptation, one should note that adaptation is often not treated in isolation by the local level decision-makers. Local level climate initiatives have traditionally placed more emphasis on mitigation in their local climate strategies, and often adaptation has been taken into account later on in the strategy process. Successful mitigation and adaptation strategies, it is argued, should be translated into local contexts with the involvement and participation from local authorities (Laukkonen et al. 2009). In terms of overcoming the difficulties of the mitigation-adaptation problematic, spatial planning can be a useful approach (Biesbroek, Swart & van der Knaap 2009). The authors highlight the river basin approach for integrating the two, and show how a holistic approach towards water management can contribute to both mitigation and adaptation. Furthermore, through the river basin approach adaptation and mitigation strategies can be further incorporated into the local planning processes.

4. The emergence and implementation of adaptation policy in Europe

As adaptation is a fairly new policy issue, there are relatively few assessments of developments across Europe (Swart et al. 2009, Massey, Bergsma 2008). So far, the most popular method of comparing national

policy has been to focus on the National Communications (NCs) that the signatories of the UNFCCC are obliged to submit. The NCs provide a good platform to compare national action across the countries because of their standardised reporting format, and because their submission is compulsory with regular intervals. However, it has to be kept in mind that many more activities are likely to take place than are reported in the NCs and at best they only present a snapshot of the then current situation, which is likely to be quickly out of date in a rapidly moving policy agenda.

One of the first studies assessed 30 OECD/Annex I of the UNFCCC countries based on their NCs (Gagnon-Lebrun, Agarwala 2007). The article provides a broad assessment of patterns in progress on analysing, prioritising and implementing measures of adaptation, showing that so far impacts of climate change and adaptation have received little attention in Annex I countries. Climate scenarios feature heavily in NCs and there is little discussion on actual measures aside from identification of generic options. Signs of progress can be seen in the Third and the Fourth NCs, in which adaptation is increasingly included.

The study identifies three categories of countries: those that are at early to advanced stages of impact assessments, those that have advanced on impact assessments but have yet to develop adaptation responses, and finally countries that have advanced impact assessments and are moving towards implementing adaptation (Gagnon-Lebrun, Agarwala 2007). Countries in the first category, including Hungary, Iceland, Latvia and Russia among others, have so far assessed impacts but adaptation has received limited attention or is discussed at a very general level. Latvia has reported extensively on historical climatic trends and has assessed the vulnerability of coastal zones in great detail, as well as identified a few adaptation options.

The second category of countries consists of those that have developed advanced impact assessments but have been slower in developing adaptation options based on those impact assessments, and most developed countries fall in this category (Gagnon-Lebrun, Agarwala 2007). Impact assessments are no longer limited to the national level with some countries having downscaled to finer spatial scales. Within this category, Estonia remains one of the few countries that have assessed economic vulnerability climate change. Denmark, alongside with Romania identify adaptation options at a fairly general level. Denmark has an example of a specific infrastructural project, which many other countries lack. Countries such as Austria, Czech Republic, Germany, Greece, Italy, Liechtenstein, Lithuania and Norway, identify synergistic policies with adaptation with Germany and Lithuania doing in this in more detail.

The final category of countries is those ones that are moving towards adaptation, although it is recognised that no developed country had yet formulated a comprehensive approach to implementing adaptation in 2006, although the UK might be coming close to (Gagnon-Lebrun, Agarwala 2007). Countries have either produced both national policy frameworks to build the foundations to mainstream adaptation across sectors, and/or specific adaptation projects that are examples of addressing specific climate change impacts risks. For example, Belgium, France, Poland, the Netherlands, Sweden, Switzerland and the UK have examples of specific actions on both project and policy levels. The UK is considered to be a good example of a forward looking institutional approach to facilitate mainstreaming adaptation with Finland, Spain and France having developed comprehensive national policy frameworks for adaptation mainstreaming. In addition to this, Finland developing indicators for measuring the impacts of climate change on their economies, and Finland has produced an indicator to measure the overall progress on adaptation (Ministry of Agriculture and Forestry 2009).

Another study assesses adaptation across European countries by focusing on the level of adaptation, adaptation objectives as well as aims of adaptation (Massey, Bergsma 2008). In the study, adaptation level was defined as the number of adaptation policies that each country has, consisting of policy concerns, policy recommendations and policy measures, see Table 1 for definitions of these.

Table 1. Definitions of adaptation (Massey, Bergsma 2008).

Adaptation level	
Policy concern	First level of adaptation action, consisting general statements on specific issue areas but there are no concrete plan of action.
Policy recommendation	Specific recommendations are put forward to address specific problems within a sector.
Policy measure	An actual implemented policy measure

The study finds that there is considerable variety in the total adaptation activities, i.e. the three categories summarised together, between countries, with the lowest score of four adaptation measures in Latvia compared to some 150 in Finland (Massey, Bergsma 2008). Approximately half of the countries had around 20 to 40 activities. Majority of the European countries are at the stage of identifying policy concerns with the leaders in this category being Belarus, Denmark, Norway, Poland, Sweden, Switzerland and Turkey.

In terms of the policy recommendations, Finland is a clear leader with close to 150 recommendations for different kinds of adaptation actions. This is mainly explained by the fact that the Finnish NAS outlines recommendations rather than policy concerns. Most of other countries have between five to ten policy recommendations. Policy measures have been identified and implemented with very varying degree within the European countries studied. Out of 29 countries, 20 have measures in place. The UK has implemented close to thirty national adaptation measures with Switzerland, Belgium, Italy, Germany and the Netherlands coming close with approximately over ten measures each. Many countries have no measures at all yet.

Adaptation objective was defined as the reason why adaptation was taking place. Massey and Bergsma, drawing on previous work, define four objectives that underlie any adaptation action (Massey, Bergsma 2008). Firstly, adaptation can be aimed at building adaptive capacity, including building awareness, and to increase capacity to take action. Secondly, adaptation action can be directed towards reducing risk and sensitivity, for example, of people, natural resources or property. Increased coping capacity during extreme or damaging events is the third objective identified by the authors. Although it is closely related to the second category, they can nevertheless, be differentiated from each other with the former focusing on pre-emptive, anticipatory action while the former on after the incident. Finally, adaptation action can be targeted towards capitalisation on the conditions brought on by the changing climate.

The study concludes that overall within Europe, thus far the objective of adaptation has focused on reduction of risk and sensitivity. This is the category that most adaptation actions are directed towards. However, there are some countries that have begun to address increasing adaptive capacity, most notably Belgium, the Netherlands and Switzerland. These three countries also mention capitalising on climate change thus far, being notable exceptions within Europe.

Finally, the study by Massey and Bergsma assessed the adaptation aims, or the targeted domains (Massey, Bergsma 2008). Here the focus is on what the adaptation action or measure is designed to deal with. Placing emphasis on the aims of adaptation enables one to see what sectors and resources are committed to adaptation activities. The assessment identifies ten different areas that adaptation, drawn from UNFCCC's NCs as well as the Finnish NAS. These are coastal zone management, landscape management, water management, extreme temperature, energy, biodiversity management, financial management, health and disease management, agriculture and food security and development co-operation.

The results show that adaptation aims predominantly fall under the prevailing themes of landscape water and biodiversity management for majority of the countries studied (Massey, Bergsma 2008). Interestingly, food production and security appear to be the main concern for adaptation after these categories in Southern Europe whilst remaining a minor issue in Western Europe. Biodiversity concerns are the highest in Northern Europe with relatively little attention paid to in Western Europe.

Although the study concluded that most countries are yet formulate concrete policies of adaptation, it does nevertheless highlight the different approaches that European countries have taken in developing their adaptation policy, and at which speed this action has been taken. Overall, the study also summarises the leaders and laggards in Europe, see Table 2 and Table 3.

Table 2 Leaders of adaptation levels in Europe.

Concerns	Recommendations	Measures
Belarus	Bulgaria	Belgium
Denmark	Czech Republic	Germany
Portugal	Finland	Italy
Norway	France	Netherlands
Sweden	Germany	Switzerland
Switzerland	Slovakia	United Kingdom

Source: (Massey, Bergsma 2008)

Table 3 Laggards of adaptation levels in Europe.

Concerns	Recommendations	Measures
Bulgaria	Estonia	Croatia
Finland	Hungary	Finland
France	Ireland	Hungary
Italy	Italy	Poland
Latvia	Norway	Romania
Poland	Portugal	Slovakia
Romania		Slovenia
United Kingdom		Spain
		Turkey

Source: (Massey, Bergsma 2008)

5. Adaptation strategies and policies in the Baltic Sea Region

Baltic Sea Region countries have naturally been involved in adaptation activities. It is interesting, particularly within the scope of this project, to examine the region in more detail. Although majority of the countries have begun their individual preparations for adaptation, there has been relatively little joint action on adaptation at the national level with government co-operation within the region. There have, however, been several initiatives within EU regional programmes that have enable adaptation to become an issue for discussion at the sub-national level. Majority of these adaptation activities within the Baltic Sea Region have been the result of adaptation specific projects, see for example (Hilpert, Mannke & Schmitdt-Thome 2007).

So far, there are no comprehensive studies of the Baltic Sea Region as a whole, although some examples exist. The study discussed in the previous section also divided Europe into socio-economic and physiographic regions (Massey, Bergsma 2008)². According to the analysis, adaptation level (i.e. adaptation measures, recommendations and concerns), the BSR, in comparison to other European regions, performs quite well. Within the BSR, Lithuania, Estonia and Latvia have a more limited portfolio in comparison to Sweden and Germany. Poland and Finland do not outline any policy measures for adaptation.

Countries within the BSR place most emphasis on reduction of risk and sensitivity as do most of the other European regions. In terms of adaptation objectives, Finland and Poland have the most equal coverage of all objectives, although reduction of risk is the most focused on objectives in both. Germany places the most emphasis on reduction on risk out of the BSR countries with relatively little emphasis on the other objectives. Sweden and Denmark are clear leaders on suggesting measures to capitalise on climate change in the region. Poland places most emphasis on building adaptive capacity. There are no statistics for adaptation objectives on the three Baltic States, i.e. Estonia, Latvia and Lithuania.

In terms of adaptation aims, the BSR region represents similar findings as other European regions. Within the BSR, the main aims in the region appear to be landscape, water, coastal zone biodiversity management, as well as food production and security (Massey, Bergsma 2008). Relatively attention is paid to disease and financial management and development co-operation within the region. Also, interestingly extreme temperatures receive little attention with only Sweden, Germany, Denmark and Finland addressing those. Food production and security is of specific concern to Estonia and Lithuania, whilst Finland places most emphasis on landscape management together with Latvia. Sweden and Germany have the most diverse portfolios with both Poland and Sweden stressing water management.

It is also useful to focus on individual countries in relation to their adaptation activities. All of the Baltic Sea Region countries have taken some action on adaptation; see Table 4 for a summary of activities.

² The BSR countries in this study were Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden. Norway and Denmark were considered as part of the North Sea Region. For more details of the study, see http://www.ivm.vu.nl/en/Images/report084BC4AEBE-95C5-7B5C-8BE34D3225C94C18_tcm53-86995.pdf

Table 4 National adaptation policy within the BSR. Source: (Swart et al. 2009)

Country	Stage of national adaptation policy
Denmark	The government introduced the strategy in 2008. The Danish Strategy places emphasis on autonomous adaptation in all spheres, including enterprises and individuals. Implementation is to be supported by information initiatives, a research strategy and facilitation in planning and development. The strategy also outlines the challenges faced by the most vulnerable sectors.
Estonia	Estonia's NAS is expected to be completed in 2009.
Finland	NAS process was begun in 2003 and published in 2005. The NAS outlines vulnerable sectors and suggests further improvement of knowledge base and recommendations for adaptation measures. The NAS is to be implemented by each Ministry within their sector. So far, the Environment Administration has made most progress. The NAS was evaluated in 2009 and it was concluded that the need for adaptation has been recognised by many sectors and some adaptation measures have already been implemented.
Germany	The NAS was adopted in December 2008. The NAS aims to integrate the work that is already been conducted in various ministries and establish a transparent mid-term review. Major knowledge gaps are identified and responsibilities of all levels of government are identified. The NAS also has inbuilt systems for monitoring and evaluation.
Norway	Scoping study for adaptation was published in 2004. In 2008, the government published a draft consultation on three main objectives; mapping of vulnerability, enhance understanding about adaptation and climate change, and stimulate information and capacity building. A cross-cutting report (13 Ministries) published in 2007 detailing the vulnerabilities of the country.
Latvia	An informative report was submitted to the government in 2008, which will serve as a base for the NAS. A NAS is under preparation by two working groups and will focus on integration of adaptation into existing policies.
Lithuania	Lithuania does not have an adaptation plan as of yet.
Sweden	Sweden has not produced a NAS but has drafted a Climate Bill that effectively aims to integrate and coordinate responses between vulnerable sectors. The Climate Bill is based on the report by the Climate and Vulnerability Commission that summarises all the challenges that Sweden faces and offers a concrete set of proposals.

6. Regional adaptation measures

As can be seen from the previous section, many of the countries in the region have produced a national strategy for adaptation. What is of interest here also, is the extent to which these national level strategies affect the sub-national scales of governance, and whether there are initiatives at the sub-national level that focus on adaptation. Although the governance of adaptation naturally follows the traditions of government and governance in the countries studied, it is still worthwhile to examine general trends of regional level adaptation in Europe.

A recent guideline produced for regional level adaptation strategies (RAS) analyses 31 regional strategies, and so far provides one of the few analyses of the sub-national level within Europe (Ribeiro et al. 2009). These initiatives were identified in six EU countries (France, Germany, the Netherlands, the UK, Sweden and Spain). There are several methodological issues that the authors highlight in terms of their study. For example, information on strategies at the regional level is very hard to come by, as there is no centralised agency that collects this, often not even at the national level. Adaptation is often one component of a more comprehensive climate strategy whilst the overall emphasis remains on mitigation. Finally, many of the regional strategies are found in administrative units where population sizes are large, and the size of the populations are close to the population size of smaller EU Member States.

An analysis of the case study sample, it is argued that there are two kinds of sub-national approaches, either a local strategy that focuses on the city level or a regional one that covers a wider geographical area. Landscape, water and health sectors are the most prominent sectors that are covered in the RAS. Overall,

there is little guidance from the national level in terms of what the RAS should include, and are in fact subcontracted to consultants, particularly in the UK. RAS are also not very clear on the roles and responsibilities of stakeholders in terms of drafting and implementing the outcomes, and the methods for bringing stakeholders together vary from telephone and internet consultations to sectoral working groups with citizen participation.

The study uses the same approach to assessing adaptation as Massey and Bergsma (2009). In terms of the adaptation level, most strategies have passed the concern stage demonstrated by the actual existence of a plan. Thus, the emphasis is on recommendations with some plans advocating actual implementation measures. In terms of the types of responses in the strategies, forty percent is placed on reduction of risk and sensitivity. Many of the plans recognise the limits of government support for building adaptive capacity and outline measures for doing this within the region, and this is especially in Spain, where building of adaptive capacity is given specific focus.

There are several conclusions from the study that are relevant here (Ribeiro et al. 2009). With regards to the geographical scope of the strategies, they either focused on sub-national governments with varying degrees of autonomy or on large cities and urban agglomerations. These have often been spurred on by developments at the national level, i.e. a publication of a NAS, suggesting that there is a national level plan can have a positive influence on regional actors. Despite this, there are relatively few concrete adaptation plans at the regional level in Europe, and many of the regional level plans also place much emphasis on mitigation as the two climate concerns are usually addressed together in the strategy.

There is generally one responsible body that prepares the strategy with varying degrees stakeholder engagement (Ribeiro et al. 2009). Often in the absence of detailed regional level data, the regional plans often rely on a patchwork of scientific background information of what is available to the responsible body. Finally, and perhaps most importantly, little attention so far is paid to the implementation of the regional plans. Most plans do not address policy instruments, nor assign specific responsibilities on different administrative sectors. Similarly, costs are often left without proper discussion and issues of monitoring and effectiveness are left out.

7. Conclusion

This working paper has discussed the development of adaptation policy in Europe. The developments in Europe have been rapid with many countries now having progressed to the implementation phases of their strategies. Majority of the NAS so far focus on reducing risk and sensitivity with less emphasis on building adaptive capacity and capitalising on the changing climate. National level action on climate change adaptation has been complemented, and sometimes superseded by regional or local initiatives. Although regional strategies are likely to be found in countries that have published a national strategy, there still appears to be little coordination between scales of governance, as well as in terms of allocation of roles and responsibilities. The regional level initiatives, as well as some national level ones, seem to suffer from a lack of precise implementation measures, and sometimes from the lack of adequate funding. As the adaptation policy field is a rapidly moving one, it is likely that these problems will increase as more strategies are being formed, and there is need for more in-depth studies of the implementation of adaptation.

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