Climate Change Adaptation in the Baltic States

Current Developments on National Adaptation Strategies

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Abbreviations

EU	European Union
IPCC	Intergovernmental Panel on Climate Change
NAS	National Adaptation Strategy
NSCCMP	National Strategy for Climate Change Management Policy (Lithuania)
UNFCCC	United Nations Framework Convention on Climate Change

Introduction

The climate is changing throughout the world. Irrespective of the success of mitigation measures, i.e. measures aiming at reducing greenhouse gases, adaptation to the changes already caused by the emissions of greenhouse gases will be necessary to meet the far-reaching consequences for environment, economy and society anticipated by experts. Modern climate policy is therefore based on two pillars: avoidance of greenhouse gases and adaptation to those consequences of climate change which are already unavoidable.

In 2009, the European Union (EU) outlined its approach to adaptation by publishing the White Paper *Adapting to Climate Change: Towards a European Framework for Action* (Commission of the European Communities 2009). The White Paper sets out a framework to reduce the EU's vulnerability to the impacts of climate change. Due to the varying severity and nature of climate impacts between regions in Europe, the White Paper so far leaves adaptation decisions to individual countries with no clear policy prescriptions.

In the Baltic States, climate change mitigation has been recognised as an important issue on national level and appropriate measures have been adopted. However, the portfolio of adaptation measures in Estonia, Latvia and Lithuania is much more limited. This becomes particularly evident when comparing the already taken action on adaptation by the Baltic States to other countries within the Baltic Sea Region, like Germany and Sweden (Peltonen/ Juhola 2010: 8).

Addressing climate change adaptation is necessary, not only in order to be consistent with EU targets and visions, but in particular in view of the fact that some regions of the Baltic States are already experiencing first changes in the natural environment. Within the coastal zones, for instance, climate-related changes like an acceleration of sea level rise, a further rise in the sea surface temperature and more extreme weather events can be expected to have a range of impacts (Policy Research Corporation 2009). The storm of January 2005, for example, affected all three Baltic States heavily (Bruneniece/ Klavins 2011: 492) and the vulnerability of Latvia, Lithuania and Estonia to coastal erosion and flooding will increase through climate change as the frequency and intensity of storms in the Eastern Baltic Sea region are predicted to rise (Policy Research Cooperation 2009[1]).

This background paper takes stock of current adaptation policies in the three Baltic States Estonia, Latvia and Lithuania. In the following, the ongoing activities regarding the formulation of national adaptation strategies (NAS) are presented for each of the three countries. This

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[1] The individual fiches of the three Baltic States, including information on coastal erosion and flooding can be downloaded at http://ec.europa.eu/maritimeaffairs/documentation/studies/climate_change_en.htm

includes relevant national documents, a description of the responsibilities in each country, and science-policy interactions. Particular attention will be paid to the challenges and barriers to developing NAS.

The elaborations are based on literature research as well as on personal interviews with relevant actors within the Ministries of Environment of the three Baltic States and have been approved by the respective contact persons in the ministries.

The paper concludes with a short outlook on the planned activities of the Baltic Environmental Forum in this policy field.

1 Adaptation to Climate Change

Adaptation has always taken place in human history but - as the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) outlines - new challenges are placed by the uncertainty, the speed of the changes to come, as well as by the fact that the extremes are likely to exceed previous conditions (IPCC 2001).

The IPCC defines adaptation as the "adjustment to reduce vulnerability or enhance resilience in response to observed or expected changes in climate and associated extreme weather events" (IPCC 2007: 720). Such adjustments can take place in natural or human systems and may both moderate harm or exploit beneficial opportunities. Adaptation thus includes both anticipatory and reactive actions in response to already observed and expected changes in climate. Adaptation practices can be differentiated along several dimensions, including for example the spatial scale, sector, action or actor (Peltonen/ Juhola 2010: 3). It should be highlighted that adaptation measures tend to be ongoing processes, reflecting many factors, and are seldom undertaken in response to climate change alone (IPCC 2007: 720).

The extent of climate change impacts upon different ecosystems, regions and sectors of the economy will depend not only on the sensitivity of the ecosystems to climate change, but also on the ecosystems' ability to adapt to climate change, including economic, social, geographic, cultural, institutional, governance, and environmental factors.

The integration of local knowledge with additional scientific and technical knowledge can play an important role when improving climate change adaptation (IPCC 2011: 14). According to the IPCC, however, there is high agreement that it is national systems that are at the core of countries' capacity to meet the challenges of weather and climate extremes occurring as consequence of climate change (IPCC 2011: 9). Therefore, effective national systems comprising multiple actors from national and sub-national governments, private sector, research bodies, and civil society, and a strategic approach to climate change adaptation on national level are of high importance.

2 Developments on European Level

In 2009, the European Commission published its White Paper *Adapting to climate change: Towards a European framework for action* (Commission of the European Communities 2009), considering that a more strategic approach is needed to ensure that timely and effective measures are taken and pursuing the aim of ensuring coherency across different sectors and levels of governance. This White Paper presents the framework for adaptation measures and policies to reduce the European Union's vulnerability to the impacts of climate change. It builds on the wide-ranging consultation launched in 2007 by the Green Paper on *Adapting to Climate Change in Europe* and further research efforts that identified action to be taken in the short-term.

The framework presented in the White Paper is designed to evolve as further evidence becomes available. It adopts a phased approach. The intention is that phase 1 (2009-2012) will lay the ground work for preparing a comprehensive EU adaptation strategy to be implemented during phase 2, commencing in 2013.

Phase 1 focuses on the following key actions:

1) building a stronger knowledge base on the impact and consequences of climate change for the EU;
2) taking climate change impacts into consideration in key EU policies;
3) employing a combination of policy instruments (market-based instruments, guidelines, public-private partnerships) to ensure effective delivery of adaptation;
4) supporting wider international efforts on adaptation by helping for example non-EU countries to improve their resilience and capacity to adapt to climate change.

The framework will respect the principle of subsidiary, i.e. the EU will not take action unless it is more effective than action taken at national, regional or local level. By complementing the activities of its member states, the European Union can support action by promoting greater coordination and information sharing between member states, and by ensuring that adaptation considerations are addressed in all relevant EU policies. The EU sees a particularly strong role for action on community level when the impact of climate change transcends the boundaries of individual countries (e.g. river and sea basins and bio-geographic regions).

In order to improve knowledge management and share existing information and research among member states, the EU has established a Clearing House Mechanisms as an IT tool and database on climate change impact, vulnerability and best practices on adaptation.

3 Adaptation Policy in Estonia

3.1 National Documents

When approved by the Estonian government in 2007, the *Estonian Environmental Strategy 2030*[2] and the *National Environmental Action Plan of Estonia 2007-2013*[3], serving as the implementation plan of the strategy, did not specify climate change adaptation as goal or activity of the Estonian environmental policy (Ministry of the Environment of the Republic of Estonia 2007 and 2008). On national level, the focus so far has been on greenhouse gases mitigation policy and crisis management, the latter one being regulated by the *Emergency Act* from 2009 and emergencies and crisis management plans under regulation of the Emergency Act (Ministry of the Environment of the Republic of Estonia 2009: 146).

Consequently, Estonia currently does not have a national adaptation strategy and works on an appropriate document have not been started yet. Up to now, the stakeholders to be involved in the development of a NAS have not been identified. There do exist, however, other indirect strategies and laws on climate change adaptation, e.g. the *Estonian Forest Development Plan until 2020*, the *Public Health Development Plan 2009-2020*, and the *HELCOM Baltic Sea Action Plan* yet. Furthermore, the topic of adaptation has recently been added to the updated draft version of the *National Environmental Action Plan of Estonia*, to the draft version of *Development Plan for the Ministry of the Environment 2012*-2015, to the *Nature Conservation Development Plan up to 2020,* and also to the work plan of the Climate and Radiation Department of the Ministry of the Environment.

For 2012, the Ministry of the Environment with financial support of EEA/Norway funds plans to coordinate the preparation of a national adaptation strategy including the collecting, analysing and prioritising of relevant data and the development of guidance for adaptation, also involving different state institutions in the process (Ministry of the Environment of the Republic of Estonia 2009: 145f.).

According to the Ministry of the Environment, adaptation needs to be part of regional and local development plans (Ministry of the Environment of the Republic of Estonia 2009: 145). In particular after the storm of 2005, several local governments have developed detailed adaptation and action plans as to how to deal with storms and floods (Ministry of the Environment of the Republic of Estonia 2009: 26). The storm gave a clear indication that there is a need to improve the readiness of regions in case of emergency, and the cities that were most influenced by the storm (Tallinn, Pärnu, Haapsalu) are also by far the most active

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2 See www.envir.ee/orb.aw/class=file/action=preview/id=1101230/inglisekeelne.pdf

3 See www.envir.ee/orb.aw/class=file/action=preview/id=1101231/inglise_keeles_tegevuskava.pdf

in implementing adaptation measures (Ministry of the Environment of the Republic of Estonia 2009: 146).

Currently, there are several projects ongoing or in preparation that address climate change adaptation (see chapter 3.3). The Ministry of the Environment expects as results from these projects relevant information for the development of the national climate change adaptation strategy.

3.2 Responsibilities

The Ministry of the Environment is the highest executive body in Estonia responsible for implementing the national environmental policy, including climate change policy. At the Ministry, the Climate and Radiation Department is responsible for the coordination of the reporting activities under the United Nations Framework Convention on Climate Change (UNFCCC), its Kyoto Protocol and EU legislation and also for the development and implementation of climate change mitigation and adaptation policies.

3.3 Science-Policy Interactions

In recent years, the main project for gaining information on adaptation to climate change in the Baltic Sea region has been the project "Developing Policies & Adaptation Strategies to Climate Change in the Baltic Sea Region" (ASTRA)[4], funded by the INTERREG IIIB Programme (Baltic Sea) of the European Commission (Ministry of the Environment of the Republic of Estonia 2009: 145). The project was carried out from 2005-2007 with the Institute of Ecology at Tallinn University, the Geological Survey of Estonia and Pärnu City as Estonian partners. Its main objective was to assess the regional impact of the ongoing global climate change in the Baltic Sea region and to develop strategies and policies for regional adaptation to climate change, providing a basis for the governments for handling threats arising from climate change in the Baltic Sea Region, such as extreme temperatures, droughts, forest fires, storm surges, winter storms and floods. Adaptation strategies for regional planning purposes were developed and policy recommendations for climate change adaptation delivered for different spatial scales from local to national and Baltic Sea Region levels.

From 2007-2008, the Estonian Ministry of the Environment financed a climate change related research project, called: "Trends in reducing greenhouse gas emissions and analysis of adaptation to climate change" (Ministry of the Environment of the Republic of Estonia 2009: 155).

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[4] Project ASTRA. Developing Policies and Adaptation Strategies to Climate Change in the Baltic Sea Region (2005-2007). For more information, see: www.astra-project.org

Currently, there are several projects on climate change adaptation already on-going or in preparation stage. The project "BalticClimate"[5], funded by the Baltic Sea Region Programme 2007-2013 of the European Commission, targets mainly at small and medium sized cities and rural areas in all Baltic Sea region countries to support their development. The project aims to identify how the climate change phenomenon will also present opportunities and chances and not only obstacles for the development of municipalities and regions when they are accounting for climate change information in their long term strategies and planning. The main objectives are to enable Baltic Sea region municipalities, regions and local actors to deal with the climate change issue in a cooperative, integrated and sustainable way and to make them more competitive for future challenges.

The project "Baltadapt"[6], funded by the Baltic Sea Region Programme 2007-2013 of the European Commission, aims at developing a Baltic Sea Region-wide climate change adaptation strategy. It reviews state of the art knowledge on climate change in the Baltic Sea Region, identifies the information needed for designing appropriate adaptation measures and reviews the impact of climate change on coastal zones.

Furthermore, the Estonian Ministry of the Environment is currently preparing a proposal to the EEA /Norwegian Grants financial mechanisms in which the ministry will be appointed as programme operator in the environmental programme with the Norwegian Climate and Pollution Agency (KLIF) as programme partner. In the frame of the programme, the Ministry of the Environment is planning to conduct an adaptation research project which will analyse and identify the impacts of climate change in Estonia and develop national measures for adaptation, including the aggregation of existing scientific information related to the impacts and potential measures of climate change adaptation. The most important part in this project is the prioritisation and economic analysis of proposed measures on climate change with the Estonian climate change adaptation strategy as compiled proposed document.

3.4 Challenges in the Development of a National Adaptation Strategy

Up to now, the focus of Estonian climate policy has been on climate change mitigation as in this field - unlike in the case of adaptation policy - there do exist concrete obligations for developing national measures from international agreements and the EU policy. Furthermore, apart from especially for the winter seasons predicted intensified flooding and storms the impacts of climate change in Estonia are regarded as relatively small. The foreseen rise in temperature and precipitation are even expected to have positive rather than negative effects on the Estonian economy (Ministry of the Environment of the Republic of Estonia 2009: 133).

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5 Project BalticClimate (2007-2013). For more information see: www.balticclimate.org
6 Project Baltadapt (2007-2013). For more information see: www.baltadapt.eu

Although adaptation policies do not just aim at reducing harmful outcomes of climate change, but also enable sectors and institutions to take advantage of opportunities or benefits from climate change (IPCC 2007: 727), the before mentioned aspects might have contributed to the fact that a strategic approach on national level regarding climate change adaptation is missing so far. The lack of a strategic approach is perceived as the biggest barrier in developing a national adaptation strategy by the Ministry of the Environment. The ministry expressed the importance of addressing adaptation on national level to ensure that efficient adaptation measures will be implemented in all sectors and on all administrative levels. Corresponding measures and actions are currently partly included in the updated versions of the strategic documents mentioned above.

A barrier in developing a more strategic approach has also been the lack of analysis on the risks resulting from climate change for Estonia. The existing scientific research focuses on rather detailed aspects, not providing a general overview or prioritisation of impacts. The studies cover mostly marine and coastal areas; an analysis of climate change impacts on human health would be necessary.

The responsible actors in the Ministry of Environment expressed the desire for experience exchange on the process of developing climate change adaptation strategy documents with EU member states that have already developed a NAS. Also information on the exploration of potential climate change impacts and vulnerabilities is urgently needed. The ministry expects additional impulses for adaptation strategies from the EU clearing house on climate change impacts, vulnerability and adaptation that is planned to be operational by 2012.

Summing up, the main challenges in the development of a NAS in Estonia are the following:

- a relatively minor importance attached to climate change adaptation so far and a missing strategic approach regarding this issue;
- a need for more analysis on Estonia's vulnerability and potential risks resulting from climate change.

4 Adaptation Policy in Latvia

4.1 National Documents

Latvia does not yet have a national adaptation strategy, but has started the preparations for a respective document. A systemic approach was begun in 2008 by the approval of the *Report on Adaptation to Climate Change* by the Latvian Government (Bruneniece/ Klavins 2011: 481). This advisory report names risks related to climate change (e.g. more often and powerful storms, floods, dryness, human health problems, loss or movement of animals and plants etc.) as well as advantages of climate change (e.g. a longer vegetation period and an increasing volume of precipitation which will allow to achieve higher and a more stable power generation from own hydro power plants). The report considers the costs and benefits arising from climate change impacts and policy response alternatives (Bruneniece/ Kalnins 2011: 495). Furthermore, it gives an overview on relevant research at international and national level and details the most important international policy initiatives related to adaptation. It describes adaptation needs and gives preliminary recommendations for future adaptation measures to be taken (Swart et al. 2009: 226).

The report serves as basis for the development of Latvia's NAS. It was planned that within one year after the adoption of the European Commission's *White Paper on Adaptation to Climate Change* - until 1 April 2010 - the Latvian Ministry of the Environment would have developed a concept on adaptation to climate change (Ministry of the Environment of the Republic of Latvia 2009: 129). This, however, has not been done yet.

In its *Fifth National Communication to the UNFCCC*[7], Latvia lists a range of projected impacts of climate change due to changes in the frequency and strength of storms, floods, wind speed etc. (Ministry of the Environment of the Republic of Latvia 2009: 121ff.).Yet, further details on sectoral impacts of these projected changes and their associated adaptation options are still missing (UNFCCC 2011b: 21).

4.2 Responsibilities

In Latvia, the preparation process of a national adaptation strategy is led and coordinated by the Ministry of Environmental Protection and Regional Development. Inside the ministry, the responsibility lies with the Climate Policy Division of the Climate Policy and Technology Department.

It was envisaged that the NAS itself will be developed by two working groups which have been set up for this purpose: one inter-governmental expert group, consisting of

[7] See: http://unfccc.int/resource/docs/natc/lva_nc5.pdf.

representatives of several ministries, and one expert group consisting of scientists, specialists from different agencies and representatives of companies and the insurance sector (Swart et al. 2009: 226ff.). Due to a lack of institutional capacity and financial resources for relevant research, the two working groups temporarily had to stop their work. It is foreseen that they will resume work in 2012.

4.3 Science-Policy Interactions

Several research projects and programmes related to the impacts of climate change have contributed to the development of Latvian adaptation policies and will also support the development of the NAS. One of the most important research programmes contributing to adaptation policy development has been the national research programme "KALME"[8] which focused on the impacts of climate on water. Furthermore, research projects related to the impacts of climate change on forests, agriculture or geological coastal processes in Latvia have been carried out (Swart et al. 2009: 228), among them the EU funded LIFE-Nature project "Protection and Management of Coastal Habitats in Latvia"[9].

Among international research projects on climate policy, a contribution to the development of adaptation policies has in particular been made by the project "Developing Policies and Adaptation Strategies to Climate Change in the Baltic Sea Region" (ASTRA)[10], implemented from 2005-2007.

In 2009, the international project "Baltic Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region" (BaltCICA)[11] was launched with Latvian participation. In the frame of BaltCICA, a small regional adaptation strategy in the Salacgriva region has been prepared and was adopted in August 2011. Possible adaptation options have been developed and appraised, and their implementation will be initiated with particular focus to coastal erosion, flooding, water quality and water availability.

The project "Baltadapt"[12] within the Baltic Sea Region Programme 2007-2013 of the EU aims at developing a Baltic Sea Region-wide climate change adaptation strategy.

The project "BalticClimate"[13], as well funded by the Baltic Sea Region Programme 2007-2013 of the European Commission, aims at enabling Baltic Sea region municipalities, regions and

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8 National Research Programme KALME. Climate Change Impact on Water Environment in Latvia (2006-2009). For more information, see: http://kalme.daba.lv/en.

9 Project Protection and Management of Coastal Habitats in Latvia (2002-2006). For more information, see http://piekraste.daba.lv/EN/.

10 Project ASTRA. Developing Policies and Adaptation Strategies to Climate Change in the Baltic Sea region (2005-2007). For more information, see: www.astra-project.org.

11 BaltCICA. Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region (2007-2013). For more information on the mentioned case study, see: www.baltcica.org/casestudies/latvia.html.

12 Project Baltadapt (2007-2013): For more information see: www.baltadapt.eu.

13 Project BalticClimate (2007-2013). For more information see: www.balticclimate.org.

local actors to deal with the climate change issue in a cooperative, integrated and sustainable way and to support their development.

4.4 Challenges in the Development of a National Adaptation Strategy

As described above, some steps in the development of a national adaptation strategy have already been taken. However, there is uncertainty on a possible structure of the NAS, topics that should be covered and suitable adaptation measures for Latvia. Furthermore advice on methods and approaches is needed in order to appropriately analyse adaptation options and actions.

A major barrier in the development of a NAS is the lack of institutional and human capacity which is also reflected in the fact that the two working groups in charge of this task had to lay down their work temporarily.

The Climate Policy Division expressed interest in more information regarding insurance systems that cover climate risks in sectors such as agriculture, forestry and real estate.

Summarising, the main challenges in the development of a NAS in Latvia are the following:

- lack of knowledge on methods and approaches how to analyse adaptation options and chose possible actions and adaptation measures;
- structure of the strategy document (design and topics covered);
- lack of human and institutional capacity.

5 Adaptation Policy in Lithuania

5.1 National Documents

Like in Estonia and Latvia, no national climate change adaptation strategy exists so far in Lithuania. However, more attention has been drawn to climate change recently.

In January 2008, the Government of the Republic of Lithuania approved the *National Strategy for the Implementation of the UNFCCC until 2012*[14] (Ministry of the Environment of the Republic of Lithuania 2010: 105). Specific measures not only for mitigation but also for adaptation to climate change are described in the strategy[15]. Measures to ensure relevant adaptation to climate change and to minimise the adverse impact on human health and the environment are divided into the following groups:

- measures aimed at ensuring more effective monitoring of climate change,
- measures to ensure the assessment of vulnerability of the landscape, ecosystems and biological diversity, and the planning of adaptation options,
- measures to reduce the impact of the energy, industry, transport, agricultural and forestry sectors on the climate,
- measures to reduce the impact of climate change on human health, to develop research and to raise public awareness in combating climate change

(Ministry of the Environment of the Republic of Lithuania 2010: 105ff).

The *National Strategy for the Implementation of the UNFCCC until 2012* furthermore sets deadlines and responsible authorities, included in the annex on measures attached to the strategy (Ministry of the Environment of the Republic of Lithuania 2010: 14). The implementation of the strategy is organised and coordinated by the Ministry of the Environment with the Ministries of Energy, Finance, Transport and Communications, Health, Education and Science, Economy, Agriculture and other institutions involved depending on their competences (Ministry of the Environment of the Republic of Lithuania 2010: 12).

Lithuania's second main document concerning climate change is the *Law on Financial Instruments for Climate Change Management*[16] (Republic of Lithuania 2009). Passed in July 2009, it addresses the rights, duties and liability of the persons engaged in the economic activities resulting in greenhouse gas emissions, the sphere of competence of state institutions and bodies, and the EU Emission Trading Scheme. It also lies down provisions for

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14 National Strategy for the Implementation of the UNFCCC until 2012, see www.am.lt/VI/en/VI/index.php#a/202.

15 See information provided by the European Environmental Agency: http://www.eea.europa.eu/themes/climate/pam/details?id=2596.

16 See www3.lrs.lt/pls/inter3/dokpaieska.showdoc_e?p_id=353938&p_query=&p_tr2=.

the still to be developed *National Strategy for Climate Change Management Policy (NSCCMP).*

According to the Ministry of the Environment, there are no plans to develop a separate Climate Change Adaptation Strategy. Instead, the *NSCCMP* for the period 2013-2050 will cover both mitigation and adaptation and inter alia set climate change adaptation objectives and tasks. It shall be drafted by May 2012 and is planned to enter into force in 2013.

5.2 Responsibilities

The main national institution involved in the development of the *NSCCMP* is the Lithuanian Ministry of the Environment. It coordinates the process among other ministries and the Lithuanian Parliament (Seimas). The responsible unit within the Ministry of the Environment is the Climate Change and Hydrometeorology Division. It formulates climate change policy, organises the implementation of international commitments in the field of climate change and represents the country in international and EU forums (Ministry of the Environment of the Republic of Lithuania 2008: 9).

Besides the Ministry of the Environment, other ministries and the Seimas, also the National Climate Change Committee takes part in the development of the Lithuanian *NSCCMP*. The National Climate Change Committee was established in 2004, the composition of the committee and its regulations were updated in 2009. The objectives of the committee are to organise the implementation of the provisions of the UNFCCC, to coordinate compliance with the requirements of the Kyoto Protocol and EU legal acts related to the UNFCCC, and to evaluate the efficiency of the creation of the national legal basis in this area (Ministry of the Environment of the Republic of Lithuania 2008: 9). The National Climate Change Committee consists of 21 representatives from ministries, other governmental or municipal institutions, science and education institutions, NGOs and industry.

5.3 Science-Policy Interactions

In 2007, the Institute of Ecology of Vilnius University on behalf of the Ministry of the Environment carried out *The study of climate change impact to the land ecosystems, biodiversity, water resources, agriculture and forestry and human health and the strategic plan for the mitigation of consequences* (Ministry of the Environment of the Republic of Lithuania 2010: 99).

The project "ASTRA"[17], which was completed in 2007, analysed climate change impacts on the seashore and coastal eco-systems, dune deflation and erosion patterns and provided recommendations for adaptation. For Lithuania specifically, inundation schemes as well as a report indicating high-risk zones were prepared for the city of Klaipeda. The Lithuanian

[17] Project ASTRA. Developing Policies and Adaptation Strategies to Climate Change in the Baltic Sea region (2005-2007). For more information, see: www.astra-project.org.

partners involved in this project were the Environmental Centre for Administration and Technology, Vilnius University, the Institute of Geology and Geography and the City of Klaipeda.

In the frame of the project "BaltCICA"[18], adaptation options for the city of Klaipeda and the district of Klaipeda shall be developed and the process of implementation shall be initiated.

The project "BalticClimate"[19] aims at increasing the competitiveness of small and medium sized cities and rural areas in the Baltic Sea region by enabling them to deal with the climate change issue in a cooperative, integrated and sustainable way.

The project "Baltadapt"[20] reviews state of the art knowledge on climate change in the Baltic Sea Region, identifies the information needed for designing appropriate adaptation measures and reviews the impact of climate change on coastal zones. The aim of the project is to develop a Baltic Sea Region-wide climate change adaptation strategy. The Baltic Environmental Forum (BEF) Lithuania is partner in Baltadapt.

5.4 Challenges in the Development of the National Strategy for Climate Change Management Policy

The Ministry of the Environment has encountered different challenges when starting the process of developing the *National Strategy for Climate Change Management Policy* (NSCCMP)[21].

In the area of adaptation to climate change exists uncertainty on how to identify the sectors particularly affected by climate change impacts. Once identified the sectors, there is need for information on how to integrate adaptation measures into sectoral policies.

The responsibility for coordinating the development of NSCCMP lies with the Ministry of the Environment. Pursuing an integrated approach, the Ministry of the Environment aims at ensuring the involvement of different sectors and actors. Different authorities on national, regional and local level as well as the private sector and the general public shall be involved. Managing this process and at the same time ensuring other actors to assume responsibilities as well is perceived as one of the biggest difficulties by the Ministry of the Environment. Particularly among the general public, the Ministry of the Environment observes a relatively low level of awareness regarding climate change adaptation.

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18 Project BaltCICA. Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region (2007-2013). For more information on the mentioned case studies, see: www.baltcica.org/casestudies/klaipedacity.html and www.baltcica.org/casestudies/klaipedadisctrict.html.

19 Project BalticClimate. (2007-2013). For more information see: www.balticclimate.org.

20 Project Baltadapt (2007-2013): www.baltadapt.eu

21 The described challenges result from interviews with responsible actors in the ministry.

It is unclear how to integrate the own strategy into the international as well regional context. The Ministry of the Environment particularly stresses the need for guidance regarding the strategy document. Advice and good practice examples on a possible design, objectives and key instruments is desired.

Summing up, the main challenges in the development of a *NSCCMP* in Lithuania are the following:

- effective coordination of the process and cooperating with relevant stakeholders (state authorities, the private sector, the general public);
- identification of priority sectors;
- multi-level governance of adaptation policy (linking the NSCCMP process to EU policies, involvement of the regional and local governments);
- establishment of links between adaptation policy and existing/new sectoral policies (integrating adaptation measures in other sectors);
- building of knowledge and awareness (particularly in the general public);
- structuring of the strategy document (design, aims, key instruments).

6 Outlook

Currently, none of the Baltic States has developed a national adaptation strategy yet. However, as described above, Estonia, Latvia, and Lithuania have taken first steps in addressing climate change adaptation on national level.

In the frame of the new project "BaltClim"[22], the Baltic Environmental Forum wants to support national adaptation strategies to climate change in the Baltic States. Implemented by the BEF network and the Institute for Ecological Economy Research (IÖW) in close cooperation with the Baltic Ministries of Environment, BaltClim will develop roadmaps for Estonia, Latvia, and Lithuania. These roadmaps shall lay down the way to the final adaptation strategies and will show options for actions as well as for overcoming barriers and obstacles. The roadmap will define thematic priorities and first steps for each of the three target countries.

The project is supported by the European Commission and the German Ministry for the Environment, Nature Conservation and Nuclear Safety with means of the Advisory Assistance Programme for Environmental Protection in the Countries of Central and Eastern Europe, the Caucasus and Central Asia.

[22] Project BaltClim (11/2011 - 01/2013). For more information see www.bef-de.org/unsere-themen-en/projects/baltclim.

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7.1 Persons Contacted

Name	Organisation/ Institution
Reeli Jakobi	Ministry of the Environment of the Republic of Estonia, Climate and Radiation Department
Kristīne Zommere-Rotčenkova	Ministry of Environmental Protection and Regional Development of the Republic of Latvia, Climate Policy and Technology Department, Division for Climate Policy
Stasilė Znutienė	Ministry of the Environment of the Republic of Lithuania, Pollution Prevention Department, Head of the Climate Change and Hydrometeorology Division

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The Baltic Environmental Forum (BEF) Group consits of five independet non-governmental organisations around the Baltic Sea.

Baltic Environmental Forum Estonia
(MTÜ Balti Keskkonnafoorum)
www.bef.ee

Baltic Environmental Forum Latvia
(Biedrība Baltijas Vides Forums)
www.bef.lv

Baltic Environmental Forum Lithuania
(VšĮ Baltijos aplinkos forumas)
www.bef.lt

Center for Transboundary Co-operation - St. Petersburg
(Центр Трансграничного Сотрудничества - Санкт Петербург)
www.ctcspb.ru

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