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An Overview of Adaptation Strategies for Climate Change Existing in the Baltic Sea Region

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1. Introduction

Prevention of adverse impacts of climate change can be achieved by reducing greenhouse gas emissions. In order to reduce severity and costs of climate change it is essential to prepare adaptation strategies and implement climate change adaptation measures at national, regional and local levels. [1]

This report is produced in the frame of project „Developing Policies and Adaptation Strategies to Climate Change in the Baltic Sea Region“ (ASTRA) which is part-financed by the European Union within the BSR Interreg IIIB Neighborhood Program. The project duration is from June 2005 till December 2007.

The main objective of ASTRA project is to assess regional impacts of the ongoing global change in climate and to develop strategies and policies for climate change adaptation. More information about the project is available at project web-site (www.astra-project.org).

The main goal of this document is to gather information about adaptation strategies existing in the Baltic Sea Region, to identify gaps and form a basis for the development of policy recommendations.

2. Methodology

Information about adaptation strategies existing in the Baltic Sea Region was collected from the ASTRA project partners in two phases. In Phase 1 two questionnaires have been developed and sent to project partners. First questionnaire aimed at gathering country level information, while second questionnaire gave a possibility to get the local or regional insight.

Both questionnaires consisted of 3 sets of questions. In the first part project partners had to provide data on existing framework policies and cross-sectoral strategies (for example, existence of the integrated climate strategy, strategy on emission reduction, etc.). In the second part sector based approach was used. Main attention was paid on building, energy, transport, industry, health, water, forestry sectors and agriculture. Third part of the questionnaire aimed at the overview of communication strategies on climate change adaptation strategies in order to raise the awareness of various stakeholders groups.

Gathered information was summarized and in the second phase of the assessment project partners were asked to provide more detailed information especially focusing on the documents directly related to the climate change adaptation.

Most of the data received had country-based origin, information was gathered from Estonia, Finland, Germany, Latvia, Lithuania, Poland, and Sweden (see Figure 1).

Additionally information about good practices in other countries concerning climate change adaptation policies and strategies was collected.

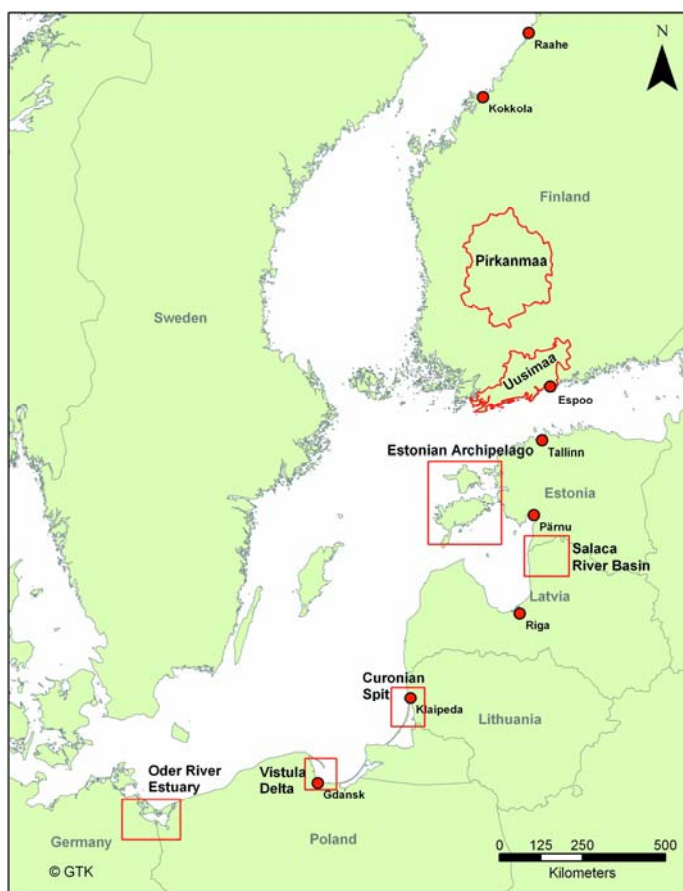


Fig. 1. A map of the Baltic Sea Region indicating analyzed countries and case study areas

3. Overview of existing adaptation strategies

3.1. Good practices in the world

Adaptation is considered as “essential in **South Africa** due to its particularly vulnerable status in terms of the negative impacts of climate change as well as response measures” [3]. One of the main objectives of the strategy is to offset South Africa’s vulnerability to climate change. Adaptation measures are foreseen in following sectors: extension of health protection and health promotion measures, water resource management and contingency planning, rangeland practices, agriculture, forestry, plant, animal and marine biodiversity. Significant attention is also paid to the formulation of actions that would offset the economic vulnerability of South Africa to climate change response measures.

In order to gain better understanding of possible climate change impacts in the country the **Australian** Government initiated preparation and implementation of the

Australian Climate Change Science Program [4]. In May 2004 the National Climate Change Adaptation Program was announced in the Budget and is considered as Australian Government's initiative to stimulate preparation of different authorities, vulnerable industries and communities for the possible climate change impacts.

Key objectives of the four year programme are to advise Government on policy issues related to climate change impacts and adaptation, including key risks to and opportunities for Australia; to build capacity to support the development of effective and targeted adaptation strategies; to engage stakeholders and provide targeted and scale-relevant information and tools to industry sectors and regions and to integrate climate change impacts and adaptation considerations into key policies and programmes, including into risk management practices across vulnerable sectors. [5]

Most vulnerable sectors and regions have been identified based on the literature review and meetings with stakeholders. Ecosystems and biodiversity, agriculture and water supply, settlements and emergency services, as well as energy were named as most vulnerable sectors in Australia. Regional dimension was also considered as essential in the adaptation planning. Big attention was paid to the low lying coastal population and resort centres, tropical and sub-tropical population centres, alpine regions, centres with a high dependence on agriculture and/or eco-tourism, remote Indigenous communities, areas facing big water shortages and supply constraints. [4]

The overarching goal of the Government of **Canada's** Climate Change Impacts and Adaptation Program is to reduce Canada's vulnerability to climate change. The research program supports cost shared research to address gaps in our knowledge of Canada's vulnerability to climate change and to provide information for adaptation decision-making. The program also supports the Canadian Climate Impacts and Adaptation Research Network (C-CIARN). This network facilitates linkages between stakeholders and researchers, promotes new research techniques and methodologies, disseminates information, and provides a voice for an emerging impacts and adaptation research community. Vulnerability is assessed and adaptation measures are foreseen for water resources, agriculture, forestry, fisheries, coastal zone, transportation, human health and well-being. [6]

The **United Kingdom** Climate Impacts Programme (UKCIP) was set up in 1997 with an aim to help organizations to assess possible impacts of climate change and to get prepared. The current work plan of the Programme covers following objectives [7]:

- Understanding the impacts of climate change;
- Equipping for adaptation;
- Working in partnership;
- Providing information on impacts and adaptation;
- Learning from the international scene.

UKCIP is providing tools for better understanding of the importance and implementation of adaptation measures. A searchable database of adaptation case studies is currently under development. An adaptation guide for local authorities in the UK was published in 2003. The Programme provides a number of tools and data to help with climate change risk assessment and developing adaptation strategies. An "Adaptation Wizard" available on the web page is a computer tool designed with an aim to guide the user step-by-step through four sections: scoping the impacts, quantifying risks, decision-making and action plans, adaptation strategy review. [7]

A new UK Climate Change Programme was published in March 2006. Section 3 of the Programme is fully allocated for the adaptation issues. Two main approaches to adaptation are recognized: building of adaptive capacities and delivery of adaptation actions. At the moment the Government is developing a Climate Change Adaptation Policy Framework, “which will set out the appropriate responsibilities and activities across a range of organizations in a sector by sector approach” [8]. The list of sectors will be modified based on the results of consultation process with relevant stakeholders at different levels.

3.2. Experience in the Baltic Sea Region

Overview of the documents presented in the following sections is based on the analysis of information provided by ASTRA project partners. [9]

3.2.1. Documents focusing on climate change adaptation

Only few documents declared by the ASTRA project partners are directly focused on climate change adaptation. Overview of the policies and strategic documents showed that Finland could be considered as one of the most advanced countries among countries participating in ASTRA project concerning climate change adaptation strategies.

Only Finland declares the existence of the National Strategy for Adaptation to Climate Change, which preparation started in 2003. Finnish National Strategy for Adaptation to Climate Change was released by the Ministry of Forestry and Agriculture in 2005. This strategy describes the impacts of climate change in agriculture and food production, forestry, fisheries, reindeer husbandry, game management, water resources, biodiversity, industry, energy, traffic, land use and communities, building, health, tourism and recreation, as well as infrastructure. This is a multi-sectoral study on the need and possibility for climate change adaptation in Finland.

Adaptation issues are also mentioned in several documents declared by Polish and Lithuanian partners. Most of these documents are related to the protection and management of coastal areas, flood protection and forestry.

The necessity for the research on the adaptation to climate change is emphasized in the Lithuanian National Strategy for Implementation of the United Nations Framework Convention on Climate Change (UNFCCC) that was adopted in 1996. The topics of the required research were indicated in the document. However, only few particular adaptation measures were presented there, mainly in the field of forestry.

The strategy is currently revised and will be adopted by the Government of the Republic of Lithuania in 2007. In the new version of the document more attention is paid for the climate change adaptation issues and adaptation measures are foreseen for different sectors (landscape and biodiversity, energy sector, transport, industry, agriculture, forestry, waste management, social development and public health).

Lithuanian Baltic Sea Coastal Management Strategy (2001) stresses the priority to preserve the natural landscapes and the natural coastal formation processes, especially highlighting the present state of the seacoast dependence on the interaction between natural and anthropogenic factors. It is foreseen that coastal management has to be adjusted to the factors such as global change and increased frequency of winter storms that forces the coast destruction.

The necessity to secure biodiversity in the composition of the forestry, to protect forest from the possible influence of pests and illnesses, strengthen the fire protection measures as the reaction to climate extremes is emphasized in the Lithuanian Forest Increase Program for 2003-2020 (2003).

National Strategy on Coastal Areas Protection (2000) and Program on Coastline Protection for 2004-2023 (2003) exist in Poland. The aim of the Strategy is to protect coastline taking into account observed and expected climate change including sea level rise (3 scenarios are foreseen for 100-years period: 0,3 m, 0,6 m and 1,0 m). Economic and natural losses along the Polish coastline that might occur in 10-, 25- and 50-years periods are assessed according to the predicted scenarios. The above-mentioned Program defines the plan of work concerning coast protection for the years 2004-2023 with estimation of costs. Actions undertaken according to this document should stabilize coastline as in the year 2000 and should prevent losses of beaches.

Coast protection, especially in the intensively urbanized areas, taking into account predicted sea level rise is also foreseen in the Polish Sectoral Operational Program – Transport 2004-2006 (2002).

Big attention in Poland is paid to flood protection. National Plan on Flood Protection is currently under development. Unfortunately, it does not consider the climate change integrated effect yet. This situation will change when the Flood Directive will come into force and the Plan will be obliged to take effects of climate change into consideration in the long-term perspective.

Raising of effectiveness of flood and drought effect protection is one of the objectives listed in the Polish Water Management Strategy (1996, currently under revision). The Program for Oder River for 2006-2016 was developed after serious flood in 1997, when the economic losses reached about 3,4 billion Euros. The Program includes economical actions and investments to the areas belonging to Oder basin. Big attention is put on the flood protection infrastructure.

Polish Act on National Disaster State (2002) determines the manner of initiation and cancellation of state of natural disaster; it also determines rules for public administrations, as well as range of freedom restrictions during the state of natural disaster.

A big step towards adaptation to climate change was done in Germany in 2005. The report “Climate Change in Germany: Vulnerability and Adaptation of Climate Sensitive Sectors” published by the German Federal Environmental Agency is based on the results of a study conducted in 2003-2005 by the Potsdam Institute for the Climate Impact Research. The objectives of this study were “to document existing

knowledge on global change (and particularly climate change) in Germany and analyze its current and potential future impacts on seven climate-sensitive sectors (water management, agriculture, forestry, nature conservation, health, tourism and transport); to evaluate the present degree of adaptation and the adaptive capacity of these climate-sensitive sectors to global change; to draw conclusions on the vulnerability to global change of sectors and regions in Germany by considering potential global change impacts, degrees of adaptation and adaptive capacity; to discuss the results of the study with decision-makers from government, administration, economy, and society, in order to develop a basis for the development of strategies of adaptation to global change in Germany.” [2]

3.2.2. Other climate change related documents

Five out of seven ASTRA project countries analyzed in this report have declared the existence of integrated climate strategy or documents on emission reduction in their country. In most cases these documents are connected with the implementation of Kyoto Protocol, but not with adaptation issues. For example, National Climate Strategy (Finland, 2001, 2003, 2005); National Climate Protection Program (Germany, 2005); Climate Change Mitigation Program 2005-2010 (Latvia, 2005); National Strategy for Implementation of the United Nations Framework Convention on Climate Change (Lithuania, 1996); The Climatic policy of Poland – Greenhouse Gases Reduction Strategy by 2020 (Poland, 2003).

Although ASTRA project partners provided a list of sector based documents, mainly focusing on building, energy, transport, industry, health, water, forestry sectors and agriculture, the aspect of climate change and adaptation is not covered in these documents.

3.2.3. Communication strategies

Existence of communication strategies on climate change adaptation strategies in order to raise the awareness of different stakeholders groups was declared by Germany, Latvia and Poland.

Several institutes and authorities communicate climate change in Germany, e.g. Federal Environmental Agency, Council for Sustainable Development. In 2002-2004 German Energy Agency carried out campaign “Action Climate Protection”.

In Latvia thematic seminars and meetings are organized by Climate and Renewable Energy Department under the Ministry of Environment.

One of the most important documents on climate change communication in Poland is National Strategy on Ecological Education. The necessity to improve information and education system in the range of climate protection is also mentioned as one of the objectives of Ecological Policy and Climatic Policy of Poland.

However, it is essential to put more attention to the communication of adaptation issues at international, national, regional and local levels. This would stimulate

understanding by different stakeholders of the importance of climate change adaptation, as well as integration of adaptation issues into the process of strategic and spatial planning at different levels.

4. Strategies elaboration, adaptation and implementation

Most of the framework policies and cross-sectoral strategies existing in the Baltic Sea Region are elaborated by national Ministries of Environment. However, in certain cases other institutions also participate in the elaboration process, e.g., Ministry of Economy (Lithuania and Poland), Maritime Institute in cooperation with Maritime Office (Poland).

National Ministries of Economy, Culture, Communications, Agriculture, Transport, Finance, Regional Development and Local Governments, Foreign Affairs, Health, as well as different science and research institutions participate in the development and later in the implementation of the listed strategic documents.

Overview of the adaptation strategies for climate change existing in the Baltic Sea Region showed that biggest part of the assessed documents were initiated and elaborated using top-down approach. Public consultations and participation was organized only in the cases when it was legally required.

5. General conclusions

At the initial stage countries that are more advanced in the field of adaptation to possible climate change impacts (e.g., Australia, Canada, South Africa, United Kingdom) carry out assessment of the vulnerability. Measures foreseen in the climate change adaptation strategies cover most vulnerable sectors and regions.

Assessment carried out in this report gave a possibility to gather information about climate change adaptation strategies existing in the Baltic Sea Region. Only Finland declares the existence of the National Strategy for Adaptation to Climate Change, which preparation started in 2003. This strategy describes the impacts of climate change in agriculture and food production, forestry, fisheries, reindeer husbandry, game management, water resources, biodiversity, industry, energy, traffic, land use and communities, building, health, tourism and recreation, as well as infrastructure.

Adaptation issues are also mentioned in several documents declared by Polish and Lithuanian partners. Most of these documents are related to the protection and management of coastal areas, flood protection and forestry.

Most of ASTRA project countries have declared the existence of integrated climate strategy or documents on emission reduction in their country. In most cases these documents are connected with the implementation of Kyoto Protocol, but not with adaptation issues. National documents focusing on building, energy, transport,

industry, health, water, forestry sectors and agriculture do not cover climate change and adaptation issues.

Biggest part of the assessed documents was initiated and elaborated using top-down approach. Public consultations and participation was organized only in the cases when it was legally required. Information of different stakeholders groups and their involvement in the development and implementation process has to become an essential element of the adaptation strategy to climate change.

Assessment of the documents also showed that there is a number of different institutions and organizations participating in the development and implementation of the strategic documents in analyzed countries. Therefore, it is essential to ensure coordination and cooperation between involved institutions.

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