

# CASCADE

COMMUNITY SAFETY ACTION FOR  
SUPPORTING CLIMATE ADAPTATION  
AND DEVELOPMENT

## THE ROLE OF LOCAL GOVERNMENTS **IN ADAPTING TO THE CLIMATE**

OVERVIEW OF REGULATORY REQUIREMENTS AND  
SUPPORT MECHANISMS IN THE **BALTIC SEA REGION**



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**Compiled by:**

Heidi Tuhkanen, Evelin Piirsalu (SEI Tallinn)

Valdur Lahtvee (CBSS, Horizontal Action Climate (EUSBSR) Coordinator)

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# SUMMARY

The current overview of the climate adaptation related regulations and activities at the national, regional and local levels in Baltic Sea Region (BSR) countries is based on a document review using the latest national communications of the countries under the Framework Convention on Climate Change (submitted 2017-2018). Reports available online (Covenant of Mayors, various national climate related websites, the EC Adaptation Scoreboard reports and country specific studies) were used to complement the scarce data from the National Communications.

The EU strategy on climate adaptation aims for a more resilient Europe. The EU strategy promotes both national level strategies as well as actions which implement those strategies. According to an EC report on the implementation of the strategies, the progress related to local level adaptation strategy development has been slower than expected and varies from Member State to Member State and is likely dependent on the national legislation.<sup>1</sup> This report aims at looking into the legislation and how it plays out at the local level.

Obligation to prepare (mandatory) Climate Change Adaptation strategy or Action Plan for Local Government has been imposed only in one of nine countries in the region (Denmark). However, despite this fact, local level climate adaptation activity is found throughout the region and supported in a variety of ways. Alongside national level work, domestic and international projects and networks support local authorities in these activities providing them with guidance, support and funding. However, such support may be fragmented and limited in time.

The desk review revealed two knowledge gaps which will be the focus of future research conducted through targeted interviews of local and national level adaptation related authorities in the BSR countries. First, while municipalities do have some obligations to carry out climate risks assessments and/or take climate risks into account while planning it is unclear whether these obligations go beyond narrowly defined risks (e.g. floods) and to what extent they are conducted in an integrated manner involving other actors and sectors. Second, while funding, guidance and climate adaptation information for local authorities existed in most of the countries, their sufficiency was not as clear.

Based on the desk review we recommend three ways to strengthen local level adaptation work in the Baltic Sea Region countries:

- 1. Increasing the systematic support** from National level authorities for local authorities on adaptation planning.
- 2. Improving guidance**, access to stable funding, and information for local adaptation.
- 3. Integrating climate and disaster risk assessments** and sharing the information across sectors.

<sup>1</sup>European Commission. REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the implementation of the EU Strategy on adaptation to climate change. Brussels, 12.11.2018 COM(2018) 738 final

# INTRODUCTION

The current overview of the climate adaptation related regulations and activities at the national, regional and local levels in Baltic Sea Region (BSR) countries is based on a document review using the latest national communications of the countries under the Framework Convention on Climate Change (submitted 2017–2018). Reports available online (Covenant of Mayors, various national climate related websites, the EC Adaptation Scoreboard reports and country specific studies) were used to complement the scarce data from the National Communications.

This report is a part of the Policy Dialogue work of the CASCADE<sup>2</sup> project. Analysing and mapping the existing policies and regulations related to long-term climate risks assessment in the BSR is one of the key activities in the project. The objectives of the CASCADE project are to mainstream climate risk assessment into management and policy planning on the national and local level, to ensure coherence of relevant policies in the macro-region, as well to ensure sustainability and ownership of the project's results through anchoring the results on the relevant policy level, and with the relevant stakeholders.

The EU strategy on climate adaptation aims for a more resilient Europe. The EU strategy promotes both national level strategies as well as actions which implement those strategies. According to an EC report on the implementation of the strategies, the progress related to local level adaptation strategy development has been slower than expected and varies from Member State to Member State and is likely dependent on the national legislation.<sup>3</sup> This report aims at looking into the legislation and how it plays out at the local level.

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<sup>2</sup>Project "CASCADE Community Safety Action for Supporting Climate Adaptation and Development" (2019–2020) funded by the European Union Civil Protection and Humanitarian aid, [www.cascade-bsr.eu](http://www.cascade-bsr.eu).

<sup>3</sup>European Commission. REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the implementation of the EU Strategy on adaptation to climate change. Brussels, 12.11.2018 COM(2018) 738 final



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# COUNTRY PROFILES



## DENMARK

### NATIONAL LEVEL

#### CLIMATE LEGISLATION

In 2008, Denmark launched its first national climate adaptation strategy, [Danish strategy for adaptation to a changing climate](#) which put adaptation on the agenda at national and local level. The strategy presented a range of options for public authorities, businesses and individuals to prepare for a future changing climate and assess the risks of climate change impacts for Danish landscape and society. As no specific obligations were required, there were complaints that the strategy did not go far enough.

By 2012, the strategy was followed by a study related to [Mapping climate change – challenges and opportunities for action](#) and an Action Plan for a Climate-Proof Denmark - [How We Manage Cloudbursts and Rains](#). This action plan put the focus on local governments as it required municipalities to develop a local adaptation action plan in a short and medium-term perspective by the end of 2013. To assist local governments the plan sets up a national task force with detailed and specific expertise in local adaptation issues.

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## OTHER RELATED LEGISLATION

To support the smooth implementation of the action plan, the central government made several changes in the law and regulations thus providing a solid framework for climate change adaptation and making it possible to address climate change appropriately. For example, the Planning Act was amended with the option for local governance to make Climate Plans (Klimaplaner) with mandatory, locally specific regulations, positioned alongside the Local Plans (Lokalplaner) under the Municipal Plan (Kommuneplanen). This change of law responded to uncertainty among municipalities as to how far they could include climate adaptation related regulations in the municipal and/or local plans (Hellesen et al., 2010).

In parallel with plans and regulations, the national level in Denmark exerts strong influence on local government through the annual Financial Agreement for Municipalities (Aftale om Kommunernes Økonomi) between the Government (i.e. Ministry of Finance) and Local Government Denmark (Kommunernes Landsforening). The annual Financial Agreement provides the framework for local policy through mandating policy actions, economic compensation schemes and binding agreements on specific issues such as water management, environmental protection, schools and welfare services. While adaptation was not yet an issue in the Financial Agreement for Municipalities 2008-2011, it became one starting in 2013. The Agreement 2013 specified climate adaptation among mandatory priority tasks for the municipalities, whereby all municipalities were obligated to map risks of flooding and high-risk areas and to develop climate adaptation plans by December 2013. Moreover, the Financial Agreement allocated funding to investments in wastewater infrastructure.

## RISK ASSESSMENT

The Task Force on Climate Change Adaptation published the 'Mapping climate change – barriers and opportunities for action' report in 2012 outlining the sectoral and cross-sectoral climate risks/vulnerability. It covered 14 sectors: construction and housing, coasts and ports, transport, water, agriculture, forestry, fisheries, energy, tourism, nature, health, emergency preparedness, insurance, and spatial planning. The report was based on the scenarios used by the IPCC 4th Assessment Report and highlighted the relevant division of responsibilities between the authorities and private citizens.

In 2016, Ministry of Environment and Food conducted a detailed risk assessment regarding erosion and flooding was conducted for the entire Danish coastline. This is a basis for planning coastal adaptation initiatives.

## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

At the local scale, municipalities must translate overall strategies for adaptation into tangible actions. With the national 2012 Action Plan, all Danish municipalities are required to complete a comprehensive plan for local climate adaptation by the end of 2013, either as a supplementing plan to the Municipal Plan or as integrated in the Municipal Plan. Each plan includes a flood risk mapping and sets the priorities for local climate adaptation measures. The specific national action plan related to management of cloudbursts and rains (2012), required local authorities to take a short- and medium-term perspective.

### SUPPORT

A national task force was created to support the local level planning. Also, in response to local level uncertainty, the national action plan was amended to clarify how far they could include adaptation related regulation in the municipal or local plans. The national government also mandated policy actions and compensation schemes in the annual Financial Agreement for Municipalities 2013. It also allocated financing for infrastructure. However, it is unclear whether adaptation will continue to be in this agreement longterm.

There are several Danish web-based tools available to support the adaptation actions of different actors, such as:

- **Climatemeter** – a web-based tool for mapping of risks for flooding, rain falls and storm surges in various time perspectives from 5 to 100 years, modelled according to IPCC 2007 scenarios;
- **Tools for businesses, farmers and individuals** (BusinessWizard, AgriWizard and the Resilient House) – interactive guides for that helps to understand how businesses, farmers and individual house owners can adapt to problems related to climate change induced extreme weather events;

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- **Climate map** – an interactive map that shows how the climate will change in the future in different areas;
- **PLASK** – an Excel based dialogue and calculation tool for utility companies and municipalities to assist calculating the socio-economic benefits of climate change adaptation solutions.

## ACTIVITIES

Two out of 5 regions have carried out climate risk assessments for regional strategic planning for adaptation related to the sectors of health, water management, transport, and buildings. The municipalities, water utilities and hospitals in the Capital Region of Denmark cooperate formally in their efforts to implement their adaptation plans.

By 2014, all 98 Danish municipalities have finalized their action plans – though their scope and level of detail varied greatly. Due to the historic importance of water related impacts, water management related risks are reflected in the focus of municipal plans (80%). Copenhagen's Climate Adaptation plan (2011) covers the potential impact of extreme, water-related consequences of climate change to which the city is exposed. The city developed a specific Cloudburst Management Plan followed by a more detailed plan in 2015 covering a 20 year span. In 2017, they also developed a storm surge plan. Seven other local authorities also developed local cloudburst plans. Denmark currently has six signatories to the Covenant of Mayors for Climate and Energy in relation to adaptation. However, none of them have submitted adaptation measures into the Covenant website.

A study of the barriers and obstacles to local level climate adaptation in Denmark identified the main barriers to be compartmentalised policy structures, weak mainstreaming adaptation to sectors beyond water, conflicts between adaptation measures and other local interests (agricultural, employment) and the weaker support for adaptation, especially the longer-term measures (Jensen et al. 2016).

## REFERENCES

Overview of Denmark in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/denmark>

Danish Climate Change Adaptation information  
<http://en.klimatilpasning.dk/>

Danish Society for Nature Conservation [Danmarks Naturfredningsforening], 2009: Climate Adaptation Policy [Klimatilpasningspolitik]. Copenhagen: Danish Society for Nature Conservation.

European Commission. 2018. Adaptation preparedness scoreboard: Country fiche for Denmark. 11.2018.

Hellesen, T., Lund, D.H., Nellemann, V. & Sehested, K., 2010. Climate Policy in Danish Municipalities – an overview. Working Paper [Arbejdsrapport] no. 121, Skov & Landskab, Frederiksberg: University of Copenhagen.

IDA, 2012: Climate Proofing of Denmark – IDA's Climate Adaptation Strategy (Klimatilpasning af Danmark – IDAs klimatilpasningsstrategi]. Copenhagen: Ingeniørforeningen, IDA. Available at:  
<http://ipaper.ipapercms.dk/IDA/Politik/Klimatilpasning/?Page=3>

Denmark's Seventh National Communication on Climate Change Under the United Nations Framework Convention on Climate Change and the Kyoto Protocol and Denmark's Third Biennial Report Under the United Nations Framework Convention on Climate Change. December 2017.

[https://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/8057126\\_denmark-nc7-br3-2-nc7-dnk-denmarks-nc7-and-br3\\_1january2018-12mb.pdf](https://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/8057126_denmark-nc7-br3-2-nc7-dnk-denmarks-nc7-and-br3_1january2018-12mb.pdf)

Anne Jensen, Helle Ørsted Nielsen, Maria Lilleøre Nielsen, CLIMATE ADAPTATION IN LOCAL GOVERNANCE: INSTITUTIONAL BARRIERS IN DANISH MUNICIPALITIES. Scientific Report from DCE – Danish Centre for Environment and Energy no. 104, 2016

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# ESTONIA

## NATIONAL LEVEL

### CLIMATE LEGISLATION

In 2015, the Estonian Environment Agency drew up a [report](#) of the climatic changes in Estonia which have occurred over the last century, as well as of the projections and assessments of the future climate in Estonia until 2100. The report formed the scientific basis for the assessment of the sectors influenced by the climatic condition in drafting the national development plan for adaptation to the impacts of climate change. The sectoral impacts of climate change in Estonia and vulnerability were thoroughly assessed during the period of 2014–2016.

The [Climate Change Adaptation Development Plan](#), adopted by the Government in 2017, enables the planning and managing of adaptation to the impacts of climate change up to 2030. The plan aims for 35% of society to acknowledge and account for climate change risks by 2030. The plan includes eight sub-goals covering: health and rescue, land use and spatial planning, natural environment, bio-economy, awareness, infrastructure, and energy and energy supply. In the second half

of 2019, the Ministry of Environment (MoE) will start drafting the National Adaptation Strategy for the new implementation period (2021+). While the need for local climate change adaptation plans is acknowledged in the Development Plan, it is not required from the municipalities.

The [General Principles of Estonian Climate Policy until 2050](#) specifies the long-term vision of Estonian climate policy and the sectoral and comprehensive policy directions, which set a clear path to the management of climate change. The majority of the climate change adaptation related input and analyses to the draft of the GPCP 2050 came from the same experts involved in the drafting of the Climate Change Adaptation Development Plan. Accordingly, the approaches to the goals of adaptation to climate change in the two documents are also largely similar.

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## OTHER RELATED LEGISLATION

The strategic development documents of Estonia include direct and indirect measures, which may help the society in adapting to the impacts of climate change. Most of the measures are concerned with climate change mitigation and the regulation of emergency situations (pursuant to the Emergency Act and Water Act). A lot of attention is paid to human health and development of environmental education in the [Estonian Environmental Strategy 2030](#). The [Estonian Nature Conservation Development Plan until 2020](#) and the [Development Plan of the Area of Government of the Ministry of the Environment 2019–2022](#) cover public awareness as well as development of environmental education and climate research. Unfortunately, in these documents awareness is discussed in the traditional sense of information campaigns and materials, which are not very efficient. The development plans adopted so far have also not addressed the indirect impact of the global impacts of climate change to Estonia.

## RISK ASSESSMENT

The [Emergency Act](#) governs the drawing up of risk analyses of emergencies and plans for responding in emergency situations, emergency-related trainings, notification of emergencies, management of responding to emergencies, as well as declaring of emergency situations and the measures applied during emergency situations. Although the risk analyses do not highlight the impacts of climate change or the importance of adaptation to climate change, the existing measures help to manage climate risks. That includes modernisation of storm drains, maintenance of dams, drawing up of detailed maps of at-risk areas and risk management plans, training of local governments on emergency-related issues.

The [Emergency Act](#) and its sub-regulations have established a list of events that could lead to an emergency and that are subject to a risk assessment. The law also designates the authorities in charge of preparing an emergency risk assessment for each event category. Climate or weather-related events are not directly mentioned in this list. However, potential climate change related risks fall under the following categories:

- **rescue event** (the regulation mentions natural reasons), under the Rescue Board responsibility
- **police event** (the regulation mentions massive immigration), under the Police and Border guard responsibility

- **medical event** (in case it has resulted in the death, injury or poisoning of many people) under the Health Board responsibility
- **'epizootic disease'** (meaning an infectious animal disease caused by a biological agent that endangers human life, health, property or the environment), under Veterinary and food board responsibility.

The law also provides the legal basis for ensuring the continuous operation of vital services, such as functioning of the power and gas supply, emergency medical care, water supply and sewerage. This may also be impacted by climate change if extreme weather phenomena become more frequent. Risk analyses of continuous operations and continuous operation plans must be drawn up to ensure vital services exist when they are needed.

The impacts of climate change are also discussed in the [Water Act](#) in connection with the assessment and management of the risks related to floods (updating of management plans). The Water Act establishes the obligation to draw up maps of flood hazard areas, to assess flood hazards, and to draw up flood hazard management plans (water management plans 2015–2021). The aim of these activities and plans is to manage the potential damaging consequences arising from floods to human health, property, environment, cultural heritage, and economic activities and decrease the likelihood of such damages in the future primarily by increasing awareness, as well as by identifying and assessing new, increasing risks. Implementation of the measures takes place at all levels. Integration of the management plans into the spatial plans could be organised within the framework of a pilot project, otherwise, integration of the management plans into the plans may simply remain a formality. The activities discussed in the Water Act are coordinated by the Ministry of Environment in cooperation with other relevant Ministries. Specific obligations have also been placed on landowners.

In accordance with the [Planning Act](#), the organiser of planning efforts shall take into consideration the strategies, risk analyses, valid plans, development plans and other documents and relevant information which influence the spatial development, including the emergency risk analysis which includes the approach to flood risks in densely populated areas. Detailed plans shall be prepared based on the general plan. Substantial consideration of the estimated increase in sea level and the increasing flood risk when making planning decisions, especially at the level of the detailed plan,

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depends on the awareness of the local government, often also on the political intention. The **Development Plan of the Area of Government** contains measures which further supports considering the risk analyses for emergencies in the planning activities of local governments, updating the emergency response handbooks, and practicing the cooperation between local governments and the Rescue Board in the form of joint work of crisis committees, organisation of trainings, exercises, and rescue work (natural process of social and administrative learning).

## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

Traditionally, the regional level has not been very relevant in Estonia as there is no regional level (country) government. Therefore, regions (counties) have no defined role in climate adaptation. However, in municipalities, risk assessments and crisis management plans must be in place and up-dated regularly. Four regional crises committees have been formed pursuant to the Emergency Act (Northern, Western, Southern, and Eastern Estonian) as well as permanent crises committees of local governments. Cities also participate in regional crisis committees.

Local climate change adaptation plans are not required from the municipalities; however, work is being done to plan for climate change and preparing for extreme weather conditions.

### ACTIVITIES

According to the EC Adaptation Preparation Scoreboard, climate adaptation is, however, considered in the county and local municipal level risk assessments, crisis management plans, development plans, and in drawing up of detailed plans and comprehensive plans.

At the moment no subnational or regional adaptation strategy has been adopted, but Tallinn has started the process of elaborating an adaptation strategy and action plan. Several local governments (Tallinn, Rakvere, Jõgeva, Tartu, Viimsi and Rõuge) have processes for working on climate adaptation and are signatories to the Covenant of Mayors. Tallinn expects for its Action plan to be adopted by the end of 2018, however, this is not yet available on the internet.

Adaptation plan development in other cities is not as active, though activities have been implemented through EU projects, such as ASTRA, BaltCICA, BalticClimate and BaltAdapt. This is especially true for cities, such as Pärnu, which have been impacted by weather conditions. Pärnu established a flood warning system within the ASTRA project. Since 2008, a 24-hour weather monitoring system has been used in Tallinn to inform citizens of extreme weather conditions, especially those that could cause floods.

So far, local governments have not been very active in drawing up the risk analyses of emergency situations. Some local governments, such as the cities of Tallinn, Pärnu and Keila, have drawn up risk analyses on their own initiative. They have performed risk analyses, which include extreme weather events, such as storms, floods and heavy rain. Local action plans have been developed to minimise the risks (flood boundaries, flood construction level, etc.).

## REFERENCES

Overview of Estonia in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/estonia>

European Commission. 2018. Adaptation preparedness scoreboard Country fiche for Estonia. 11.2018.

Estonian Climate Change Adaptation infopage  
<http://www.klab.ee/kohanemine/en/>

ESTONIA'S SEVENTH NATIONAL COMMUNICATION  
Under the United Nations Framework

Convention on Climate Change, December 2017.  
[https://unfccc.int/files/national\\_reports/annex\\_i\\_natcom\\_/application/pdf/37608415\\_estonia-nc7-1-nc7\\_est\\_30122017.pdf](https://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/37608415_estonia-nc7-1-nc7_est_30122017.pdf)

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# FINLAND

## NATIONAL LEVEL

### CLIMATE CHANGE LEGISLATION

Finland's [Climate Change Act \(609/2015\)](#) provides a framework for planning, implementing and assessing climate policies and improves cooperation among government offices in mitigation and adaptation. The law stipulates that the Government approves long-term and medium-term strategic mitigation plans and it will approve a national plan on adaptation at least every ten years. According to the Act, the national adaptation plan steers adaptation policy. In addition to governmental steering, municipalities play an important role in adapting to climate change. They oversee land use planning and responsible for emergency response to natural disasters.

Since 2001, Finland's national energy and climate strategies have been prepared to implement the international and EU commitments as well as national targets, and to define sectoral policies and measures. Since 2003, strategic climate policy work has been steered by ministerial working groups who are responsible for preparing and updating the national

strategies on energy and climate policy. The ministerial working group has a network of officials acting as its preparatory body, comprising representatives from other ministries. The network of officials is led by the Ministry of Employment and the Economy, which oversees the overall coordination of the strategy work.

The Ministry of Environment prepares the [Medium-term Climate Change Policy Plan](#) and the Government's annual climate change report, but involves all relevant ministries. The Finnish Government reports to the Parliament once in a year, among other things, on the progress of the agreed adaptation measures in the energy sector. Finland has a Climate Change Panel which is appointed as an independent body to bridge research and climate policy making to support planning and decision making. The current 15-member panel was appointed in January 2016 for a four-year term.

Finland was one of the first countries to prepare a national climate adaptation strategy in 2005 (National

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Strategy for Adaptation to Climate Change). In 2013, the [strategy was evaluated](#) and a study of the impact of the climate change and vulnerability of sectors was conducted. The [new Climate Change Adaptation Plan 2022](#) (2014) was prepared based on the evaluation. The evaluation found that overall progress had been made compared to an initial evaluation in 2009. The evaluation included recommendations for the revision of the strategy especially in terms of promotion of cooperation between authorities and other actors in different sectors and administrative levels, further promotion of regional and local adaptation measures, as well as broader research focused on adaptation as a broader societal change factor and which accounts for other drivers of change besides climate change. The evaluation also recommended clarification of the division of labour and responsibilities between the state, municipalities and private sector.

The main objectives of the Climate Change Adaptation Plan 2022 relate to cross sectoral integration of adaptation; actors have access to required climate change assessment and management methods; research and development work, communication and education and training have enhanced the adaptive capacity of society, developed innovative solutions and improved citizens' awareness on climate change adaptation. The plan looks longer term than 2022 and accounts for the international impacts of climate change. The plan includes 12 fields of action including regional and local adaptation studies, improved climate risk assessment and management, education, training and tools.

### **OTHER RELATED LEGISLATION**

Adaptation policies are also described in the revised [National Energy and Climate Strategy \(2017\)](#), which in practice is drawn up by each government, as well as mentioned in the [Integrated National Energy and Climate Plan \(draft 2018\)](#) which is to be finalised by the end of 2019.

The Environmental Impact Assessment (EIA) legislation (2017) requires an assessment of environmental risks, including vulnerability to climate change.

The Government Decision (2008) on revising the national land use guidelines addresses the challenges posed by climate change. The guidelines include the need to follow objectives concerning adaptation to climate change: in land-use planning, new construction should not be developed in areas that are prone to

flooding. An exception can only be made if need and impact studies indicate that the risks of flooding can be controlled, and that the construction work is in line with sustainable development. [National land use guidelines were further revised in 2017](#) to also contribute to the efforts to adapt to climate change and extreme weather events and their consequences. Current legislation on building and other statutes include requirements for taking climate change into consideration.

The [Flood Risk Management Act](#) (2010) and the [Government Decree on Flood Risk Management](#) regulate flood risk management and the management of river basins, while taking into account the needs relating to sustainable use and the protection of water resources. Flood risk information is provided through the operational Flood Centre managed jointly by the Finnish Environment Institute and the Finnish Meteorological Institute. The Finnish Environment Institute has developed a [guide for flood preparedness in buildings \(2014\)](#) which contains recommendations for determining the lowest building elevations in inland shore areas and along the Baltic Sea shore.

The [Government Resolution on the Security Strategy for Society \(2010\)](#) defines the operations vital to society and outlines the threat scenarios and disturbances that jeopardize these operations, the strategic tasks of the ministries for securing and guaranteeing that the operations will continue, the criteria for crisis management, implementation tasks and the principles of the exercises. Business actors, NGOs, municipalities and regional government authorities and security research all have a significant role in ensuring the preparedness of society and managing disturbances. The Security Strategy for Society is supplemented and followed up by other strategies and guidance documents relating to preparedness and management of disturbances in various sectors. Preparation for natural disasters like floods take place through preparedness planning, exercises, surveillance, information exchange, and other cooperation practices and situation reports, as well as by implementing, for example, the necessary flood protection measures at critical sites. An updated [Security Strategy for Society](#) (2017) is based on the first national risk assessment in 2015.

Furthermore, each Government determines, via a Council of State decision, the objectives for the security of supply. The most recent [Government Decision on the Security of Supply Goals \(857/2013\)](#) has the objective to ensure continuity of production and vital infrastructure under all circumstances to secure critical societal functions.

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## RISK ASSESSMENTS

In relation to climate risk, Finland has developed an [operational model](#) for weather and climate risk assessments to ensure consistency and sufficient breadth. Based on this model, it has also performed the [national level weather and climate risk assessment](#) which covers both transnational and cascading risks (2018).

Specifically related to flood risk, according to the [Flood Risk Management Act](#) (2010), the Finnish Environment Institute ensures that information on significant flood risk areas, flood hazard maps and flood risk maps, and approved flood risk management plans are made available to the public via information networks.

More broadly, to fulfil the Decision No. 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism, Finland has produced a national risk assessment in 2015 and the latest [national risk assessment from 2018](#) specifically includes a broad range of climate related threats for the first time. This assessment is based on existing risk assessments or equivalent products and processes produced by other actors in drafting the national risk assessment. In practice, the [national risk assessment](#) is a harmonised summary of proprietary risk assessments of different actors. They leverage other cross-sectoral actors' risk assessments and nationally significant threats are considered in regional (sub-national) level risk assessments (Finnish Ministry of Interior 2018).

## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

The National Climate Change Adaptation Plan 2022 calls for municipalities to integrate climate proofing reviews into emergency preparedness and security of supplies planning. The Plan tasks the joint regional offices (ELY-keskus) of the Ministry of Employment and Economy, the Ministry of Environment, the Ministry of Transport and Communications and the Ministry of Agriculture and Forestry to develop climate resilience guidance for municipalities.

Annex 1 of The National Climate Change Adaptation Plan 2022 (Actors responsible for an implementing the actions, timeframe and resources (2014-2018)) lists planned measures to support the objectives. In

order to support fulfilling the objective: "Adaptation has been integrated into the planning and activities of both the various sectors and their actors", the plan does not require, but rather **promotes, regional and local governments to draft adaptation studies**. These studies include demonstration projects and surveys. A second measure **promotes the incorporation of assessment of climate resilience into local government preparedness and emergency supplies planning**. Both measures involve local authorities as well as the association of local authorities. In order to support actors having access to necessary assessment and management methods, methods for use by local actors, including risk and vulnerability assessments are developed. As a separate measure, risk assessment and management competence of actors is promoted. Both measures involve local authorities through official duties and projects.

The reform of the regional government has been under preparation since April 2016. The reform will bring changes to the organisation of climate change related tasks in the regions. The regional Centres for Economic Development, Transport and the Environment (ELY Centres) guide environmental and land use planning and thus bear the main responsibility for the planning of flood risk area management in river basins and coastal areas.

The role of municipal authorities in both mitigation and adaptation is widely recognized in Finland. They have significant responsibilities in land-use and transport planning and in providing public transport and waste management services. Municipalities are responsible for planning how to manage floods caused by heavy rainfall in urban areas. Some Finnish municipalities continue to be major local energy suppliers or owners of energy supply companies. The municipalities can also influence the behaviour of people, for example, via information campaigns. In 2017, most of the municipalities were undertaking systematic climate actions and, although most of their focus has been on climate change mitigation.

Based on the Government Decision (2008) on revising the national land use guidelines, local master planning and detailed planning should account for the increasing possibility of storms, heavy rainfall and flooding in built areas. [National land use guidelines were further revised in 2017](#) also gives municipalities more power in planning. For new construction, climate change and adaptation are taken into consideration already during the planning stage through planning guidance. Local conditions that may affect construction are increasingly

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being considered through existing instruments, such as building ordinances and municipal instructions for building.

Legislation sets the foundation for preparedness and crisis management for all actors. According to the [Emergency Powers Act](#), the Government, the state administrative authorities, state businesses and other state authorities, as well as municipalities shall ensure, by means of emergency plans, prior preparation of emergency operations and other measures, that their duties will be performed with the least amount of disruption also in emergency conditions.

According to the [Rescue Act](#) (2011), the owner and occupants of a building and the business and industrial operators shall prevent and, when necessary, take measures to protect people, property and environment in dangerous situations. In addition, state and municipal authorities, agencies and enterprises are obliged under the Rescue Act to take part in the planning of rescue operations under the direction of rescue departments, and to act in accidents and dangerous situations so that rescue operations can be carried out in an effective manner.

### ACTIVITIES

By the end of 2015, regional flood risk management plans were published for every significant flood risk area (21 areas) and implementation of identified measures is ongoing. In response to the National Climate Change Adaptation Plan 2022 calls for municipalities to integrate climate proofing reviews into emergency preparedness and security of supplies planning, most of the municipalities had implemented systematic climate actions by 2017. These were mainly focused on mitigation, but adaptation was also included.

About half of all municipalities have a climate strategy and 60% of those cover climate mitigation and adaptation. By 2013, 16 out of 18 regions had published a climate strategy that includes some recognition of adaptation. Two regions have decided to include climate and energy issues directly in the regional program in order to give them more emphasis and thus to make resources more efficient. Also, by the end of 2015, regional flood risk management plans were published for every significant flood risk area (16 areas), and currently being implemented.

The Helsinki Metropolitan Area (Helsinki, Espoo, Vantaa and Kauniainen) has a [Climate Change Adaptation Strategy](#), (2012-2022) which includes measures for land use, traffic and technical networks, buildings and construction, water and waste management, rescue services and safety, health care and social services and research and information. Pori and Turku have also focused on climate adaptation and vulnerability to extreme weather events, while Lahti and Jyväskylä have focused on planning green infrastructure. Three Finnish cities are signatories to the Covenant of Mayors for Climate & Energy in relation to adaptation.

## REFERENCES

European Commission. 2018. Adaptation preparedness scoreboard: Country fiche for Finland. 11.2018.  
[https://ec.europa.eu/clima/policies/adaptation/what\\_en](https://ec.europa.eu/clima/policies/adaptation/what_en)

Overview of Finland in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/finland>

Finnish Climate Change Adaptation infopage  
<http://ilmasto-opas.fi/en/>

Finland's Seventh National Communication under the United Nations Framework Convention on Climate Change. 2017. Ministry of the Environment and Statistics Finland, Helsinki.  
[https://www.stat.fi/static/media/uploads/tup/khkinv/VII\\_Climate\\_Change\\_16102017.pdf](https://www.stat.fi/static/media/uploads/tup/khkinv/VII_Climate_Change_16102017.pdf)

## CASCADE



# GERMANY

## NATIONAL LEVEL

### CLIMATE CHANGE LEGISLATION

The three main cornerstones of German climate policy are: Germany's long-term climate adaptation strategy including the Adaptation Action Plans, and the Climate Action Plan 2050. The Climate Action Programme 2020 is geared towards the shorter-term targets for 2020.

At the end of 2014, German government adopted the Climate Action Programme 2020 in order to ensure that Germany achieves the goal it set in 2007 of cutting greenhouse gas emissions by 40 percent by 2020 compared with 1990.

In order to combat challenges opposed by climate change and to provide a political framework for climate change actions in Germany, the federal government adopted the [German Strategy for Adaptation to Climate Change \(DAS\)](#) in December 2008. DAS's overarching aim is to identify and reduce Germany's vulnerability to climate change impacts and increase its climate change adaptation capacity, thus ensuring that existing operational objectives in the different policy areas remain achievable, even in conditions resulting from

climate change. The Strategy is divided into 15 fields of action in the following areas: building, biodiversity, soil, the energy industry, the finance and insurance industry, fisheries, forestry, trade and industry, agriculture, human health, tourism, transport and transport infrastructure, water, flooding and coastal protection, and spatial, regional and physical development planning, and civil protection and disaster control.

In 2011 the federal Government together with Länder developed a joint [Adaptation Action Plan \(APA I\)](#), which sets a framework for the future actions towards greenhouse gas neutral society by 2050 and formulates guiding principles, milestones and measures for all areas of action. APA underpins the DAS with specific federal government activities and identifies links with other national strategy processes.

The supervision and inter-ministerial coordination of DAS efforts is carried out through the federal government's Inter-ministerial Working Group on Adaptation Strategy. The Länder also take part in the progress report work.

## CASCADE

Key DAS products and updates are adopted through federal cabinet decisions. The first DAS progress report was adopted by the German government in December 2015 and led to a regular reporting cycle including monitoring report every 4 years (2019), vulnerability analysis every 5–7 years (2021), evaluation report (2019), and progress reports and action plans every 5 years (2020).

The second Adaptation Action Plan (APA II) was published as part of the [2015 progress report](#). The measures in APA II are specific to fields of action or sectors as well as those that are of fundamental importance for all/much many fields of action. In many ways, the latter serve to make available to planners and decision-makers the country-wide, standardised groundwork for action needed over the long term. In this way, APA II marks the transition from one phase of primarily project-based, fixed-term measures to a phase in which designated tasks are established on a longer-term basis. This also partly applies to measures that are specific to fields of action or sectors and are intended to become part of the administrative operations of federal agencies in future. The measures presented in the report are the responsibility of the specific ministries and – subject to available budgetary resources – are earmarked for financing through the respective budgetary and financial planning strategies.

In November 2016, the German government adopted the country's long-term climate action strategy – the [Climate Action Plan 2050](#) – as required under the Paris Agreement. The Climate Action Plan builds on the long-term climate targets previously adopted in 2010 and makes them more specific in the context of the Paris Agreement. This mitigation focused plan recognises the interlinkages between mitigation and adaptation.

A Competence Centre on Climate Impacts and Adaptation (KomPass) at the Federal Environment Agency helps design and further develop a national strategy for adapting to climate changes. KomPass is an information platform for specialized expertise on climate change impacts and adaptation and for Germany's adaptation activities.

### **OTHER RELATED LEGISLATION**

Tackling climate change, including its regional manifestations, remains a long-term and dynamic challenge in spatial planning. This is taken into account

in the Principles and Action Strategies for Spatial Development in Germany drafted by the Standing Conference of Ministers Responsible for Spatial Planning (MKRO).

### **RISK ASSESSMENT**

In September 2018 the [German Climate Preparedness Portal / Deutsches Klimavorsorgeportal - KLiVO](#) - was launched. KLiVO is the one governmental meta-information-platform that guides users to relevant and verified climate services. Users can self-define their individual needs, in terms of steps in the adaptation cycle, sector, region, climate hazard, user group. It also contains [resources](#) related to climate risk assessment.

To further integrate climate change adaptation requirements into planning processes, Climate-Change-Sensitive Regional Plan (Klimawandelgerechter Regionalplan) project was established. It aims to integrate risk and hazard maps into spatial planning and assess opportunities to make spatial and land-use planning goals more flexible.

## SUB-NATIONAL LEVEL

### **RESPONSIBILITIES**

Bundesländer (federal states) hold legislative powers in all areas that are not the exclusive competence of the Federal level. Environmental policy (including climate adaptation) fall under shared powers. All 16 Bundesländer (federal states) have developed climate adaptation strategies and have developed measures, some as a part of an integral climate change strategy or programme (i.e. 100% of territory covered).

The Bundesländer have addressed climate change adaptation in various ways:

- Implementation and assessment of research projects;
- Further development or revision of new political strategies and plans for measures with varying degrees of binding force;
- Initiation and implementation of (pilot) projects;
- Establishment of competence centres;
- Organising regional conferences.

# CASCADE

## SUPPORT

The German government is establishing a comprehensive portfolio of services addressing climate change and adaptation. In implementing the Global Framework for Climate Services (GFCS) at national level, the government set up the German Climate Service (Deutsche Klimadienst, DKD) in autumn 2015. The partners involved in the DKD supply the climate information and services needed to implement the DAS and its associated action plans. The German Climate Service is to be expanded by a portfolio of climate change adaptation services (KlimAdapt Germany). They will include the observation and assessment of climate change impacts, an analysis of vulnerabilities to identify risks, the development and assessment of climate change adaptation measures and instruments, the establishment of suitable frameworks for developing and enhancing adaptive capacities and the evaluation and implementation of adaptation activities.

An overarching activity that connects civil protection and spatial planning is the continuation of the Strategic Agencies' Alliance for Adaptation to Climate Change (in place since 2007). There is another partnership with the German Committee for Disaster Reduction (DKKV), whose members include a broad range of governmental institutions, research institutions, industry, non-governmental organisations and independent experts.

A substantial number of tools, guidelines and methodology handbooks were developed in the federal research projects for the various phases of the adaptation process. They can support regions and municipalities in determining climate changes and impacts, adaptation opportunities and implementation strategies (e.g. Tatenbank (a catalogue of projects on the impacts of and adaptation to climate change), Klimalotse (climate guide), Stadtklimalotse (urban climate guide), Klimanavigator (climate navigator)). Furthermore, a recent [study](#) by the German Environment Agency provides insight to the impacts of the German Adaptation Strategy on cities and communities.

## ACTIVITIES

The federal government is supporting local level adaptation through other organisations such as local authority associations, the Klimabündnis, and ICLEI, as well as providing funding support. Climate adaptation planning is relatively new and still gaining a foothold in Germany where it is viewed as voluntary and thus depends on local initiative and capacities. However, some cities have been active in planning through projects. For example, several cities were involved in the Stadtklima project where cities developed integrated urban development strategies which also considered adaptation. Stadtklima included the cities of Karlsruhe, Aachen, Essen, Saarbrücken, Stadt Bad Liebenwerda, Nürnberg, Jena, Syke, and Regensburg as partners.

Following Stadtklima, these cities have continued their work. For example, Essen has an integrated energy and climate concept and a structure which brings together capacities from science, the business sector and the local authority to support adaptation. Essen is monitoring its adaptation progress. Nuremberg has developed an adaptation strategy, updated its climate protection timetable with adaptation measures and developed a masterplan on green space. In another project, it has integrated adaptation into district level planning. In Jena, there is a city council resolution for integration of adaptation into planning. In Regensburg, has also integrated adaptation into the UNESCO world heritage management plan, as well as other urban planning documents and processes. project (2016-2021) to enhance their capacity to cope with climate change impacts. The federal government is trying to support local level adaptation through other organisations such as local authority associations and other bodies, such as the Klimabündnis and ICLEI, and providing funding support.

Other projects, such as Klimzug-Nord, which involved the metropolitan area of Hamburg, and the EU research project 'Bottom-up Climate Adaption Strategies towards a Sustainable Europe' (BASE), which involved Jena, worked on integration of adaptation as well. Also, Saarbrücken, participated in the INTERREG project "C-Change - Changing Climate, Changing Lives". In general, these projects which have mainstreamed adaptation have been viewed as successful (Weyrich et al 2016).

## CASCADE

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Also, research institutes, climate service providers including those from Germany are working with municipalities in the **LIFE LOCAL ADAPT** project (2016-2021) to enhance their capacity to cope with climate change impacts. The federal government is trying to support local level adaptation through other organisations such as local authority associations and other bodies, such as the Klimabündnis and ICLEI, and providing funding support.

These active Stadtklima cities have been studied to identify the barriers to adaptation that were encountered in the process. This study identified resources, governance and institutional constraints as the top two areas (out of nine) of barriers to adaptation work in these cities. Lack of awareness and communication; conflicting timescales and conflicts of interest; and attitudes, values and motivations are the third, fourth and fifth highest areas of barriers (Weyrich et al 2016).

## REFERENCES

European Commission. 2018. Adaptation preparedness scoreboard. Country fiche for Germany. 11.2018

Overview of Germany in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/finland>

German Climate Change Adaptation infopage  
<https://www.umweltbundesamt.de/en/topics/climate-energy/climate-impacts-adaptation>

German portal for climate information  
<https://www.klimanavigator.eu/>

German Climate Preparedness Portal - KLiVO (Klimavorsorgeportal) - <https://www.klivoportal.de>

Germany's Seventh National Communication on Climate Change A report under the United Nations Framework Convention on Climate Change 2017.  
[https://unfccc.int/files/national\\_reports/annex\\_i\\_natcom\\_/application/pdf/26795831\\_germany-nc7-1-171220\\_7\\_natcom\\_to\\_unfccc.pdf](https://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/26795831_germany-nc7-1-171220_7_natcom_to_unfccc.pdf)

Weyrich et al. 2016. Barriers to Climate Change Adaptation in Urban Areas in Germany. Report 26. Climate Service Center Germany, Hamburg.



Photo: Pixabay

# LATVIA

## NATIONAL LEVEL

### CLIMATE CHANGE LEGISLATION

Up until now, climate policy in Latvia has been set by the [Environmental Policy Guidelines for 2014–2020](#). However, Latvia recently (2019) adopted its [National Climate Change Adaptation Strategy \(CCA Plan\) for the period to 2030](#). The overarching goal of the CCA Plan is to reduce the risks and vulnerabilities of people, economy, infrastructure, buildings and nature in Latvia as a result of climate change and to promote the opportunities offered by climate change. The 4 focal points are: (1) people, (2) national economy, (3) infrastructure and construction, (4) nature. They unitedly form the framework for implementation of the Strategy in two directions:

- Reduction of negative effects, risks and vulnerabilities caused by the climate change;
- Promoting opportunities provided by the climate change.

Among the principles for the development and implementation of Latvia's CCA Plan also considers the following principles relevant for Local Governments:

- Preventive action – prevention of existing impacts, vulnerabilities and risks related to climate change is aimed at preventing potential future losses, taking into account that today's investments can offset much greater losses in the event of a future risk, as well as allows to use the potential benefits. The development of the strategy considers potential scenarios for future climate development and the associated risks and benefits;
- Integration in policy planning and decision making – an assessment of climate change impacts, risks, vulnerabilities and appropriate adaptation measures become an integral part of the planning and decision-making process in all relevant areas and levels of activity. Emphasis is placed on actions aimed at integration of adapting aspects of climate change, such as territorial development, spatial and policy planning.

## CASCADE

The Action 2.3 of the CCA Plan: Conservation and protection of tourism and landscape resources and values from the negative impacts of climate change foresees Integrating the aspects of climate change, mitigation and adaptation into the landscape planning, tourism planning and relevant documents (at national, regional, municipal level). Continue integrating landscape planning into territorial development and spatial planning.

The Action 5.4 of the CCA Plan: Integration of mitigation solutions of anticipated climate change impact and risk mitigation solutions into policy making and territorial development planning foresees following measures:

1. In the framework of the methodological guidance of the planning regions and local governments, integrate climate change, mitigation and adaptation issues into the development or updating of territorial development planning documents, including regular updating of the guidelines of sectoral policies and organizing educational and informative measures for specialists of planning regional and local governments.
2. Municipalities (large cities, coastal areas, etc.), vulnerable to the climate change are recommended to develop climate change adaptation policy strategies.
3. Make the necessary changes in environmental legislation, in particular the Law on Environmental Impact Assessment, providing for the climate impact assessment and adaptation to be considered within the EIA procedure.

Funding for identified priority measures is to be provided within the framework of state, local government and external funding, depending on the content of the measure. The CCA Plan recommends that municipalities, when preparing and updating development programmes and other development planning documents, including spatial planning documents, take into account the need for adaptation to climate change and develop and incorporate appropriate targeted measures, as well as further assess climate risk and adaptation aspects in the already planned measures also, generally considering adaptation as one of the horizontal actions.

No additional funding for adaptation to climate change is planned in the current budget framework. Adaptation measures are largely related to the activities already underway (e.g. civil protection, flood control, building

climatology, construction standards, etc.), and the CCA Plan provides a common view, coordination and effective operation.

### **OTHER RELATED LEGISLATION**

Latvian [National Energy and Climate Plan](#) for 2021-2030 sets out goals and implementation measures related to energy and climate goals of the EU. A [draft](#) is available online and the NECP will be finalised by the end of 2019. The draft NECP includes monitoring and reporting also including “information on adaptation to climate change.”

### **RISK ASSESSMENTS**

The [Civil Protection and Catastrophe Management Law \(2016\)](#) governs the civil protection system, which includes risk assessment and prevention, disaster management in all sectors and governmental levels. For example, Section 11 defines the tasks and rights of local government council and local government authorities. Climate change is not mentioned, but the focus is on risk assessment and prevention and thus there is a link to climate change risk assessment and adaptation.

Currently Latvia is developing the new **State Civil Protection Plan and Risk Mapping** (expected to be completed in March 2019), based on risk assessments and scenarios, including on Climate Change.

National planning increasingly accounts for risk assessment and prevention which will integrate climate risk management (assessment, prevention and adaptation) and civil protection. According to Civil Protection and Catastrophe Management Law (2016) and its **subordinate Cabinet of Ministers regulations**, the civil protection commissions of 36 municipal cooperation territories have to develop their own civil protection plans that includes indicated risks, scenarios, matrices, mapping, prevention, preparedness, response and recovery measures for each risk.

[Regulations Regarding Preliminary Flood Risk Assessment, Flood Maps and Flood Risk Management Plan](#) were adopted in 2009. According to the regulations, updated assessments by the end of 2018 and each further six years were to include long-term studies on the climate impacts on flood occurrence. [Flood risk management plans](#) have been elaborated for all territories under significant flood risk.

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Another potential regulatory tool is insurance. Insurance industry is rapidly developing in Latvia with schemes related to disasters in agriculture and forestry (based on PPP principle), business (trade, commerce) and individuals. However, it should be noted that whether and how insurance incentivises actors to adapt is scheme specific. It can also provide a disincentive for adaptation.

## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

Traditionally, the regional level has not been very relevant in Latvia and they have no defined role in climate adaptation. However, they do have some defined tasks and rights enumerated to them under the Civil Protection and Catastrophe Management Law (2016).

The Latvian plan for Adaptation to Climate Change does not assign main responsibility of any measures to the municipalities. However, they are listed as an involved party in measures of the following types of measures in the all the strategic objectives (1-5). The strategic objectives most relevant to management of urban areas are

**Strategic Objective 1:** People's lives, health and well-being, regardless of gender, age and social status, are protected from the adverse effects of climate change

**Strategic Objective 3:** Infrastructure and Building are Climate Resistant and Planned for Potential Climate Risks

**Strategic Objective 5:** Provides information based on scientific reasoning, including monitoring and forecasting, that facilitates the integration of climate change adaptation into sectoral policies and spatial development planning documents, as well as public information

- Integrating climate change forecasting and mitigation solutions into spatial development planning and sectoral policies (responsible ministry VARAM – env ministry and funds include the existing budget or EU funds or NFI unless otherwise mentioned.

### ACTIVITIES

According to a recent report, there is evidence that adaptation strategies are being developed at subnational (regional or local) levels, at the initiative of individual municipalities, which is being supported by the Environment Ministry through municipal level networking.

Historically, the first strategy of climate change adaptation in Latvia was adopted in Salacgrīva region in 2011. The Daugavpils City, Valka county and Smiltene county have joined the new “Adapt” section of the Covenant of Mayors. There are no specific adaptation plans, but Riga and Ventspils, have drawn up their local action plans to minimise the greatest risks (e.g. flood boundaries, flood construction level) and these actions are included in flood-risk management plans.

## REFERENCES

European Commission. 2018. Adaptation preparedness scoreboard: Country fiche for Latvia. 11.2018.

Overview of Latvia in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/latvia>

Latvian Climate Change Portal  
<https://klimatam.lv/> ; <http://www.2gradi.lv/en/>  
**(national level)**

Latvian Climate change analysis tool  
<http://www2.meteo.lv/klimatariks/>  
**(national level)**

LATVIA'S SEVENTH NATIONAL COMMUNICATION and THIRD BIENNIAL REPORT under the United Nations Framework Convention on Climate Change, December 2017.  
[https://unfccc.int/files/national\\_reports/national\\_communications\\_and\\_biennial\\_reports/application/pdf/9308541\\_latvia-br3-nc7-1-latvia\\_nc7\\_29122017.pdf](https://unfccc.int/files/national_reports/national_communications_and_biennial_reports/application/pdf/9308541_latvia-br3-nc7-1-latvia_nc7_29122017.pdf)

## CASCADE



# LITHUANIA

## NATIONAL LEVEL

### CLIMATE CHANGE LEGISLATION

In order to ensure the implementation of the international agreements and the targets defined for Lithuania by EU legal acts, the Parliament approved the [National Strategy for Climate Change Management Policy](#) in 2012 which lays down the targets and objectives for climate change mitigation and adaptation by 2050. The Strategy implements the EU legal acts of the Climate change and energy package till 2020 replacing the National Strategy for the Implementation of the UNFCCC until 2012.

The Strategy sets the short-term (until 2020), indicative mid-term (until 2030 and until 2040) and long-term (until 2050) goals and objectives for mitigation and adaptation. For the implementation of goals and objectives of the Strategy, the [Inter-institutional Action Plan on the implementation of the Goals and Objectives for 2013–2020](#) of the Strategy has been approved in 2013 by the Government Resolution No 366 and it is updated annually. The purpose of the Action Plan is to provide financing for climate change mitigation and

adaptation measures foreseen for the implementation of the goals and objectives of the Strategy and to ensure an inter-institutional cooperation. In 2014, the Action Plan with measures for 2015-2017 was adopted by the Resolution No 833 of the Government of the Republic of Lithuania, followed by the latest amendment in 2016 by the Resolution No 846 of the Government of the Republic of Lithuania with measures for 2017-2019. By 2020, the Inter-institutional Action Plan will be part of an integrated National Energy and Climate Plan (NECP) 2021-2030. A [draft version of the NECP](#) (2018) is available online.

The implementation of the Plan is coordinated by the Ministry of Environment. The Ministries of Finance, Energy, Transport and Communications, Economy, Education and Science, Agriculture and the Interior, as well as municipalities, the Research Council of Lithuania, state research institutions and universities, companies, entities, organisations and other persons participate in the implementation of the measures

## CASCADE

within their competence and allocating funds for their implementation of the measures. While drawing up **sectorial development programmes, inter-institutional action plans or other planning documents** for their respective management areas, the ministries shall mainstream the targets and objectives for climate change mitigation and adaptation set out in the Strategy, to provide for specific measures to implement those targets and objectives and to ensure close interinstitutional cooperation.

The strategic goal of Lithuania's Strategy is to reduce vulnerability of natural ecosystems and domestic economic sectors by implementing measures for maintaining and increasing their resilience to climate change and ensuring favourable conditions for social life and economic activities. The implementation of the strategic goal of adaptation to climate change follows directions:

- Taking an integrated approach to climate change impact on the territories at the regional level which encourages compromises and solutions that take into account varying needs, involves other processes of regional drivers of change (e.g., demographic change) and may optimise the sectoral and inter-sectoral interaction of adaptation measures, applicable for that region.
- Accounting for alignment and synergies between mitigation and adaptation measures, and the avoidance of conflicts.
- The contribution of country-specific scientific research to adaptation to support domestic and international cooperation between governmental, municipal and financial institutions, funds, and universities. Adaptation to climate change should become a separate component of the scientific climate research.
- A strong knowledge basis about the climate change impact and consequences, which is composed of the ongoing scientific research methods and results, data, projections, experience, as well as the collection, transmission and exchange of information between the parties.

The specific short-term by 2020 climate change adaptation goals and objectives are set in the following sectors: agriculture, soil; forestry, ecosystems, biodiversity, landscape; water resources; energy, transport, industry; public health. Indicative medium-term (by 2030 and 2040) and long-term (by 2050) adaptation to climate change goals and objectives are the following:

The first goal is related to continuous monitoring and survey of the most vulnerable economic sectors and ensuring resilience of such sectors, especially agriculture, to climate change. The second goal is related to promotion of cooperation with other countries in relation to climate change adaptation. An update of the Strategy which aims to set legally binding adaptation goals and objectives for the period 2021-2030 is planned by the end of 2019.

The National Climate Change Committee has been established for advisory purposes on the development of the Lithuanian climate change policy and coordination of its implementation. The Committee includes 21 representatives of ministries, municipal authorities, research and study, industrial and non-governmental organisations.

The Ministry of Environment is the main coordinating institution responsible for development of climate change mitigation and adaptation policy and its implementation, while other Ministries, municipalities and other institutions are responsible for mainstreaming objectives into relevant programmes and strategies.

The Ministry of Environment of Republic of Lithuania administrates a **Special Programme for Climate Change**. The Special Programme for Climate Change enables the collection of additional funding for climate change management measures. The funds which are managed by the Ministry of Environment can fund climate mitigation and adaptation measures nationally and internationally. The project selection involves the Lithuanian environment investment fund (LEIF).

## RISK ASSESSMENTS

According to an EC report, the Ministry of Environment published a in 2015 on sector-specific climate vulnerabilities and related risk assessments. They identified the following as priority sectors: energy, transport, industry, agriculture, landscape, spatial planning, ecosystems and biodiversity, fisheries and aquaculture sector, forestry, tourism, groundwater resources, and waste management.

The Lithuanian National Risk Assessment initially performed in 2013 and updated in 2015 and coordinated by The Fire and Rescue Department under the Ministry of Interior comprises the evaluation of all threats in Lithuania and covers climate related threats.

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## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

The municipalities are responsible for coordinating the adaptation work and supporting local actors in their adaptation work. Their collaboration with the Ministries in this is considered part of the national strategy and action plan, according to an EC report. Several municipalities developed adaptation action plans to improve adaptive capacity and infrastructure resilience. The Association of Local Authorities published [guidance](#) for the Lithuania's municipalities on climate mitigation and adaptation was developed in 2018.

### ACTIVITIES

Lithuania's climate change adaptation practice also includes various studies and individual projects that are not purely Lithuanian but involve the whole Baltic region. In 2016-2017 Lithuania's municipalities participate in the project: "Climate change mitigation and adaptation at the local level". The project is funded under the Norwegian Financial Mechanism Program LT10 "Capacity-building and institutional cooperation between beneficiary state and Norwegian public institutions, local and regional authorities". The main goal of the project is to strengthen the capacity of Lithuanian municipalities in the climate change management and adaptation. During the project methodological guidance for municipalities "Climate change mitigation and adaptation guidelines for municipalities" was prepared. Lithuania has taken part in several transboundary projects, including Astra, Baltadapt, BaltCICA, BalticClimate, Baltclim, RADOST. In these projects the adaptation options to be applied at local level are analysed and elaborated. Flood risk has received the most attention at the sub-national level, as the projects have mainly focused on coastal management and flood risks. In addition, Lithuania takes part in the implementation of the EU Strategy for the Baltic Sea Region (EUSBSR).

[Panevezys district \("rajonas"\)](#) and Klaipeda (ASTRA project) have performed comprehensive vulnerability studies. The counties of Klaipeda and Taurage have programmes to prepare for and mitigate flood impacts. Also, the Lithuanian Hydrometeorological Service prepared a [climate scenario study](#) for Vilnius covering the time period until 2100. Lithuanian municipalities have not prepared adaptation strategies or plans under the Covenant of Mayors initiative.

## REFERENCES

European Commission. 2018. Adaptation preparedness scoreboard: Country fiche for Lithuania. 11.2018.

Overview of Lithuania in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/lithuania>

Lithianian Climate change info page  
<http://am.lrv.lt/lt/veiklos-sritys-1/klimato-kaita>

LITHUANIA'S SEVENTH NATIONAL COMMUNICATION under the United Nations Framework Convention on Climate Change. Vilnius 2017.  
[https://unfccc.int/files/national\\_reports/national\\_communications\\_and\\_biennial\\_reports/application/pdf/142035\\_lithuania-nc7-1-7th\\_national\\_communication.pdf](https://unfccc.int/files/national_reports/national_communications_and_biennial_reports/application/pdf/142035_lithuania-nc7-1-7th_national_communication.pdf)

## CASCADE



# NORWAY

## NATIONAL LEVEL

### CLIMATE CHANGE LEGISLATION

In 2007, an inter-ministerial working group was appointed to promote coordination and dialogue in the national climate adaptation work. The working group was led by the Ministry of Climate and Environment and in 2008 the Government presented a five-year platform to enhance society's resilience to climate change, to reduce vulnerability and strengthen Norway's ability to adapt. The inter-ministerial working group was supported by a programme-secretariat that was established in the Directorate for Civil Protection (DSB). A committee consisting of experts from government agencies, research institutes and civil society published an Official Norwegian Report (NOU) on Norway's vulnerability and adaptive needs in 2010. As follow-up of NOU, the Norwegian Parliament adopted the first [White Paper on climate change adaptation \(Meld.St 33 \(2012-2013\)\)](#) in 2013, outlining national policies and guidance for adaptation in Norway. This is considered Norway's National Adaptation Strategy. A key principle of the White Paper is that all sectors – private and public – are responsible for assessing and addressing the impacts of climate change on their areas of competence.

In June 2017, the Norwegian Parliament adopted a [Climate Change Act](#) (Lov om klimamål), which establishes by law Norway's emission reduction target for 2030 and 2050. It is mitigation focused. However, according to the act, the government shall submit to the Parliament updated information on mitigation progress, but also how Norway prepares for and adapts to climate change.

Regulation from 28.09.2018 nr. 1469 on **Principles for climate and energy planning and climate adaptation** (Statlige planretningslinjer for klima- og energiplanlegging og klimatilpasning) state that Climate adaptation is a sectoral issue that requires coordination and cooperation across sectors, and between municipal, county and state agencies.

# CASCADE

## OTHER RELATED LEGISLATION

In accordance with the principle of responsibility, the issue of climate change adaptation is addressed in several sectoral policy documents published recently. Among these are:

- The White paper Nature for life – Norway's national biodiversity action plan (Meld.St. 14 (2015–2016)).
- The White paper Risk in a Safe and Secure Society – on public security (Meld.St. 10 (2016–2017), executive summary in English)
- The White paper Friluftsliv – natur som kilde til helse og livskvalitet (Meld.St 18 (2015–2016) Outdoor recreation – nature as a source of improved health and life quality, in Norwegian only)
- The White paper Hvordan leve med farene, om flom og skred (Meld.St 15 (2011–2012) How to live with the hazards – floods and landslides, in Norwegian only)
- The White paper National transport plan 2018–2029 (Meld. St 33 2016-2017, English summary)

All government agencies and local and regional authorities carry a responsibility for climate change adaptation within their field. The Norwegian Environment Agency supports the Ministry of Climate and Environment in the work on climate change adaptation and is the coordinating agency. The Environment Agency assists the Ministry in the follow-up of the White Paper on climate change adaptation. Furthermore, it contributes to ensure that the Government's climate change adaptation work is being implemented in the public administration as well as in society in general and supports the Ministry in its international climate change adaptation work. The government has also created a committee to assess legislation and make recommendations for improved frameworks for managing stormwater and urban flooding at the municipal level.

The Environmental Impact Assessment framework and various guidelines and policies is revised as of 2017 and ensures that vulnerability due to climate change is included in environmental impact assessments.

## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

The county authorities should, in their regional plans, assess how the county can facilitate climate change adaptation in all areas of society, in line with the purpose of the Planning and Building Act. The county governor is important in following up the government's policy on regional and local level. It plays an important role in supporting and guiding the municipalities in their work on adaptation, particularly related to risk and vulnerability analysis and land use planning. The county authorities should initiate cooperation and learning on climate adaptation in networks, including regional forums, across municipal and regional boundaries. National bodies will, with the assistance of county council, county governor and other governmental bodies at regional level, obtain, systematize and facilitate the knowledge for use in planning and make it available to current users. Municipal, county and state agencies shall use available knowledge of climate, expected changes and consequences of these, in addition to knowledge of measures for adaptation.

The county also coordinates and cooperates civil protection efforts, both prevention and preparedness, on the regional level. The county governors have to ensure that climate change has been taken into consideration and followed up, both in planning and risk and vulnerability assessments. The county municipalities also play an important role regarding guidance and coordination in relation to municipal and regional plans.

The municipalities have the overall responsibility for community development within their geographical catchment areas. They have obligations and exercise authority under various acts of legislation, and their responsibility for planning is regulated by the [Planning and Building Act](#). All plans under the Planning and Building Act shall include a baseline situation for the planning. If there is uncertainty related to the available knowledge base that is relevant to the outcome of the plan, this should be clearly stated. In this way, the Government will require municipalities to use relevant knowledge about current and future climate change as a basis for their planning activities and exercise of authority. This Act is a framework which includes tools and requirements for local, regional and national planning such as the **Central Government Planning Guidelines**, which define certain areas of interest to be

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implemented in local and regional planning. Another tool is the national expectations regarding regional and municipal planning, issued every 4th year by the ministry.

This information is also relevant to responsibilities related to civil protection and nature management. Pursuant to the Act of 25 June 2010 No. 45 relating to the Municipal Preparedness Duty, Civil Protection Measures and the Norwegian Civil Defence (Civil Protection Act), municipalities have a duty to identify the adverse events that could occur in their municipality, assess the likelihood of these events occurring and assess how they could affect their municipality. The results of this work must also be assessed and compared in a comprehensive risk and vulnerability analysis. Municipalities must draw up contingency plans based on this analysis, have a municipal crisis team, and carry out exercises and other skills enhancing measures to ensure they are able to handle adverse events.

In 2009 the Ministry of the Environment set up the website [www.klimatilpasning.no](http://www.klimatilpasning.no) to coordinate this type of information and make it easily accessible for regional and municipal authorities. The website, which is managed by the Norwegian Climate Adaptation Programme, is also intended as a tool for municipalities and others who find it difficult to start on adaptation work and contains a set of practical guidelines. Furthermore, the Norwegian Centre for Climate Services (NCCS) was officially established in 2013 for providing information on the current and future climate and play a part in translating climate science into practical adaptation work. The development of a national centre for climate services involves the Norwegian Meteorological Institute, the Norwegian Water Resources and Energy Directorate and the Bjerknes Centre for Climate Research including Uni Research. The Meteorological Institute has overall responsibility for the centre.

Networks and regional cooperation have been shown to be effective learning tools for strengthening the adaptive capacity of municipalities and enabling them to exchange experience. Cities of the Future is an example of an ongoing cooperation focusing on climate change adaptation. In 2008, Norway's 13 largest cities and urban areas were invited by the Ministry of the Environment to join to join a network to work on both climate mitigation, adaptation and working on urban sustainability. This includes cooperation with the Ministry of Local Government and Regional Development, the Ministry of Petroleum and Energy and the Ministry of Transport and Communications, the Norwegian Association of Local and Regional Authorities and the business sector.

Cities of the Future ended in 2014 and was replaced by a new network "In front", which involves 11 of the largest cities and urban areas.

## ACTIVITIES

So far 10 of the cities have included specific objectives or strategies relating to adaptation in the social element of their municipal master plans and 10 have included provisions concerning climate change adaptation in the land-use element. All 13 of the Cities of the Future have developed action programmes that also cover adaptation.

## REFERENCES

Overview of Norway in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/norway>

The Norwegian Climate Change Adaptation Portal  
<http://www.klimatilpasning.no/infosider/english/>

Norwegian climate and energy measures in various sectors  
<http://www.miljokommune.no/Temaoversikt/Klima/Eksempel-pa-klima--og-energitiltak-1/>

Norwegian Ministry for Climate and Environment. Norway's Seventh National Communication Under the Framework Convention on Climate Change. Status report as of January 2018.  
[http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/529371\\_norway-nc7-br3-1-nc7\\_-\\_br3\\_-\\_final.pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/529371_norway-nc7-br3-1-nc7_-_br3_-_final.pdf)

Norwegian Ministry for Climate and Environment. Climate change adaptation in Norway. Meld. St. 33 (2012–2013) Report to the Storting (white paper.)  
<https://www.regjeringen.no/contentassets/e5e7872303544ae38bdbdc82aa0446d8/en-gb/pdfs/stm201220130033000engpdfs.pdf>

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# POLAND

## NATIONAL LEVEL

### CLIMATE LEGISLATION

The first steps towards development of a strategy for adaptation to climate change (**Strategic Adaptation Plan until 2020 (SPA 2020)**) were taken in 2010. Adaptation issues are covered in integrated strategies, in the Medium-Term Development Strategy to 2020 and in the Long-Term Development Strategy to 2030. Since not all adaptation issues were included in these documents, the Ministry of Environment launched the “The Development and Implementation of a Strategic Adaptation Plan for the Sectors and Areas Vulnerable to Climate Change” (**KLIMADA**) project, and as a result - in 2013, the Ministry of Environment published the [Polish National Strategy for Adaptation to Climate Change](#) with a perspective until 2030 (NAS 2020).

The SPA 2020 paper outlines the priorities for adaptation measures to be taken by 2020 in the area's most sensitive to climate change such as water management, agriculture, forestry, biodiversity, health, energy, construction and spatial management, urban areas, transport, mountain areas and coastal areas. These actions, undertaken both by public and private entities, are accomplished through policy implementation, infrastructure investment, and technology development. These include technical ventures such as the construction of the necessary flood and coastal protection infrastructure as well as regulatory changes. This new strategy forms part of the EU's Adaptation Framework with the objective to improve the EU's resilience to deal with the impact of climate change, with special attention paid to better preparedness for extreme weather events and to the current and future multi-annual financial framework.

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In 2015 the Working Group on Adaptation to Climate Change was set up within the framework of the national network "Partnership: Environment for Development". It addresses:

- implementation of Strategic Adaptation Plan for sectors and areas sensitive to climate change by 2020 with a vision to 2030 (SPA 2020);
- support for the monitoring and reporting process of regional and local adaptation measures,
- establishment of forum for cooperation and exchange of experience between national and regional units and international cooperation,
- support for a project on adaptation to climate change in cities above 100 thousand inhabitants (planned to be implemented within POIiŚ 2014–2020).

Poland is not planning on developing a National Adaptation Plan, but rather coordinates adaptation implementation of its strategy through support and incentives.

### **OTHER RELATED LEGISLATION**

Issues related to adaptation to climate change were included in the [Responsible Development Strategy](#) adopted by the Council of Ministers on 14 February 2017, which manages the development processes of Poland. The need for adaptation measures are addressed in the chapters on Environment, Small and Medium Enterprises and Territorial Sustainability. A chapter on climate change (in the field of mitigation and adaptation) is planned in the document "State Ecological Policy" (PEP) prepared by the Ministry of Environment.

The [National Fund for Environmental Protection and Water Management](#) (NFOŚiGW) proposes, as part of its financial offer, support for adaptation actions in Poland in its priority program: Counteracting environmental threats with the elimination of their effects. In the first section of above programme "Adaptation to climate change", it is possible to finance preventive measures to adapt to climate change, in line with the Strategic adaptation plan for sectors and areas sensitive to climate change until 2020, with an outlook until 2030, in particular:

- infrastructural activities (flood embankments, water reservoirs, polders, rainwater retention systems – including in urban areas);
- activities to develop and implement a threat monitoring and early warning system, including

the development of monitoring and warning systems for extreme climatic events;

- implementation of measures and methods for analysing threats caused by climate change, including local and regional adaptation plans and strategies;
- financing of projects implemented from the Operational Programme Infrastructure and Environment 2014–2020 and the next financial perspective of the EEA FM and NMF – support of the NFOŚiGW in the form of a loan.

Furthermore, a programme called "Preventing and eliminating the effects of emergency threats" is meant for financing of undertakings focused on eliminating the effects of environmental hazards, natural events (floods, fires, droughts) and accidents (events resulting from human activities), and the purchase of equipment used in rescue operations, as well as the development of methods and tools for analysing the following threats:

- mitigation of effects of environmental accidents and hazards on environmental and water management facilities, coastal areas and natural bodies;
- purchase of specialized equipment necessary for effective rescue operations
- and forecast, prevent, reduce and eliminate the effects of natural hazards and major accidents;
- implementation of measures and methods to analyse failures and threats to the environment.

### **RISK ASSESSMENTS**

The National Water Management Authority coordinates implementation of the EU Floods Directive (2007/60/EC). All EU obligations have been incorporated into Polish regulations.

For climate-risk assessment, Poland has developed a guide on investment preparation as regards climate-change mitigation, CCA and resilience to natural disasters. Furthermore, the Ministry of the Environment and Ministry of Infrastructure published a 'Guide to investment preparation respecting climate change mitigation and adaptation as well as resilience to natural disasters' in 2015 in order to guide investors. The guide provides methodologies and guidance related to how climate issues should be accounted for in various project stages, including SEA/SEA (mitigation, adaptation and resilience); cost-benefit analysis including externalities; climate sensitive risk analysis; and options analysis and assessment.

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## SUB-NATIONAL LEVEL

### RESPONSIBILITIES

On the role of local governments, the SPA2020 states following: " A particular role in the implementation of SPA 2020 will fall to cities in which the adverse effects of climate change are accumulated, which points to the need to take account of adaptation in programming development actions, e.g. through the development of urban adaptation plans (especially for the largest cities). The implementation of integrated adaptation actions (e.g. through the preparation of local strategies/plans of adaptation to climate change) should also include other territories..."

### ACTIVITIES

The Ministry of Environment encourages and informally coordinates sub-national level actors to prepare action strategies and plans. The Ministry of Environment has developed guidance for preparation of urban adaptation plans in 2014. It shows methodology and checklist for the process of climate change adaptation plan development at local level. In 2016, a project (2016-2019) was launched to develop City Adaptation Plans for 44 cities with a population of over 100,000 ([MPA Project – Urban Adaptation Plans](#)). It aimed to assess the vulnerability and risks of each city to climate change, and to plan adaptation solutions, including soft and hard measures with respect to the identified hazards using a single methodology. At the same time, another several other projects related to this issue were launched, including the Polish-Norwegian project [CLIMCITIES](#), implemented by IOŚ-PIB, preparing adaptation strategies for five cities with populations over 50 thousand residents. The city of Warsaw has created a Climate Change Adaptation Strategy in the ADAPTCITY project (2018).

## REFERENCES

EC. 2018. Adaptation preparedness scoreboard: Country fiche for Poland. 11.2018

Overview of Poland in Climate-ADAPT platform  
<https://climate-adapt.eea.europa.eu/countries-regions/countries/poland>

Polish Climate Change Adaptation Portal  
<http://klimada.mos.gov.pl/en/>

Poland's Seventh National Communication and Third Biennial Report under the UNFCCC, Warsaw 2017  
[https://unfccc.int/files/national\\_reports/non-annex\\_i\\_parties/biennial\\_update\\_reports/application/pdf/8193245\\_poland-br3-nc7-1-nc7-br3\\_poland.pdf](https://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf)

Peer Review Poland 2016: Programme for peer reviews in the framework of EU cooperation on civil protection and disaster risk management 2015-2016  
[https://ec.europa.eu/echo/sites/echo-site/files/poland\\_peer\\_review\\_report\\_-\\_en.pdf](https://ec.europa.eu/echo/sites/echo-site/files/poland_peer_review_report_-_en.pdf)

## CASCADE



# SWEDEN

## NATIONAL LEVEL

### CLIMATE LEGISLATION

In 2009 the Swedish Parliament adopted a coherent policy for climate and energy (Govt. Bill 2008/09:162, 2008. An [Integrated Climate and Energy Policy](#)), which includes the initial steps for Swedish society to adapt to a changing climate. It lays the foundation for a medium-term process to progressively identify the effects of climate change, assess the risks, and develop and implement adaptation measures. The strategy commits to concrete steps in the further development and implementation of adaptation measures. It follows an integrated approach that takes account of the interactions between sector and regional activities and strives to incorporate consideration of the possible impacts of climate change in all relevant policies.

The Swedish Government adopted in March 2018 the country's first [National Adaptation Strategy](#). The strategy proposes a series of measures to strengthen society's adaptation to a changing climate in Sweden. The strategy outlines mechanisms for coordination, monitoring, evaluation and review of adaptation to climate change. The new climate adaptation strategy

clarifies the authorities' responsibility and proposes that a national expert advice board on climate change is to be established at the Swedish Meteorological and Hydrological Institute (SMHI) office.

There is no national adaptation plan. Rather, the 21 regional County Administrative Boards have developed regional adaptation plans and these boards and relevant national authorities develop action plans within their own areas of responsibility. Thus, the Swedish climate change adaptation work is heavily organised by sector. During 2016 the previous network of authorities behind the National Portal for Climate Change Adaptation became the National Network for Adaptation, with a wider remit and the aim to increase the resilience of society to climate change. Eighteen national authorities with responsibilities for adaptation participate in the network, as well as the regional CABs. The secretariat for the network is provided by SMHI. In 2012, SMHI was also tasked to form the [National Knowledge Centre for Adaptation](#), to assist municipalities, regions, authorities and other stakeholders in their adaptation efforts.

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Following the climate and energy bill in 2009, the Government has financed measures of some SEK 100 million per year to improve knowledge about the impacts of climate change and to address these impacts, for example by implementing prevention measures against landslides and flooding. In the budget proposal for 2018, the government proposes that the allocation "Adaptation to climate change" to be raised to SEK 214 million. It will then also include funding for actions preventing landslides in a particularly vulnerable area of Sweden.

### **OTHER RELATED LEGISLATION**

The Government also distributes assignments related to various measures to sector agencies. Most adaptation issues are, however, multidisciplinary, meaning that work on climate adaptation is largely performed in collaboration between different actors and sectors at the national, regional and local levels. Examples of intersectoral work are the work on Agenda 2030 and the Swedish Environmental Quality Objectives. Many Swedish authorities play an important role in adaptation work through their respective sectoral responsibilities and are working on preventive measures, building knowledge and improving resilience.

Several national authorities have developed or are developing action plans for the sectors that fall under their responsibility. Prioritised sectors have been food production, human health, national environmental objectives and planning/construction. So far, sectors that have received funds for developing such plans include forestry, human health, construction/land use and reindeer herding/Sami culture. Twelve tools to assist with adaptation work have also been developed, including ones to handle uncertainties in adaptation work, nature-based methods to prevent flooding and designs to prevent beach erosion.

### **RISK ASSESSMENTS**

An ordinance adopted by the Government in June 2018 requires 32 national authorities within different sectors (such as agriculture, biodiversity, construction, defence, energy, fisheries, forestry, health, industry, and water), as well as the County Administrative Boards shall undertake climate risk and vulnerability assessments and develop action plans. The National Adaptation Strategy states the need for prioritising specific risk areas and identifying specific risk areas in relation to erosion, landslides and floods in terms of probability, potential consequences

and specific circumstances. Since 2018, a Government proposal in the Bill 2017/18:163 has made it compulsory for local authorities to undertake comprehensive climate risk assessments and use them as a basis when creating master plans.

Also, Sweden's municipalities are obliged to carry out risk and vulnerability assessments as a basis for coping with extraordinary events and crises. Sweden has a well-established and functioning framework for disaster risk reduction (DRR), including work in forums for crisis preparedness. The work is coordinated by the Swedish Civil Contingencies Agency (MSB). Cooperation is promoted on all levels and between sectors and actors working with land use planning, risk management, natural disasters and climate adaptation, in order to reduce risks and enhance preparedness. MSB also conducts the national risk assessments as a basis for their work. Risk identification is based on a range of risks that the national authorities and county administrative boards (regional authority) have identified in their risk and vulnerability assessments covering a broad spectrum of events. Their goal is to reconcile the top-down and bottom-up approaches. Climate is mentioned in relation to critical infrastructure, natural hazards, such as flooding and heat waves.

## SUB-NATIONAL LEVEL

### **RESPONSIBILITIES**

Since 2009, the county administrative boards have been responsible for coordinating regional climate adaptation. They also support the adaptation work of the local authorities, who have the main responsibility for climate adaptation at the local level. The CABs report annually to the Government about the actions taken to adapt to climate change. Since 2013 they have also had to develop regional action plans, in cooperation with relevant stakeholders, to guide the local and regional climate adaptation efforts. Many of them also serve as strategic documents.

The National Adaptation Strategy (2018) stated that responsibilities at various governmental levels should be clarified. As a response, two amendments to the Planning and Building Act (2010: 900) went through in 2018 to improve the preparedness of the municipalities for climate change. Now municipalities are required to in the Municipal Comprehensive Plan detail specifically the risk of damage to the built environment from floods,

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landslides and erosion caused by climate change, as well as on how such risks can be reduced or eliminated.

In order to strengthen the climate adaptation, work locally, it is required that the municipalities in the masterplan give their views on the risk of damage to the built environment that may be caused by climate-related floods, rains, landslides and erosions. The municipalities will also give their views on how such damage can be reduced or prevented. According to the climate adaptation strategy, Boverket (National Board of Housing, Building and Planning) is the coordinator of climate change in relation to new and existing buildings, which means that the authority has become the municipality's obvious contact area on these issues.

Sweden's municipalities are obliged to carry out risk and vulnerability assessments as a basis for coping with extraordinary events and crises. Such analyses also cover events that will be affected by climate change.

### ACTIVITIES

Climate impact assessment studies have been carried out for all 21 regions since 2015 and all now regional adaptation plans. Some of the CABs have updated their adaptation plans since 2016. There is considerable coordination and exchange activity between the 21 CABs, partly through the National Network for Adaptation (*Myndighetsnätverket för klimatanpassning*).

Much of the responsibility for climate adaptation action lies with the municipalities. The municipalities are responsible for water supply, waste management, urban planning and disaster risk reduction. The engagement around adaptation questions at municipal level is but there is still substantive work to be done at the municipal level. There is a positive trend regarding municipal climate adaptation work. However, the progress of the municipalities varies widely. Large municipalities have generally made more progress compared to small and medium-sized municipalities, and coastal municipalities have gradually established their climate adaptation work compared with inland municipalities.

Some local authorities have also developed adaptation action plans for their municipality. Concrete adaptations have been started, above all, in municipalities hit by extreme weather events. This has involved measures in the areas of physical planning and building. Some municipalities have also raised the minimum level for construction, built levees and invested in pump systems to protect against flooding. Some have begun to modify

water and sewerage systems to avoid the harmful effects of heavy downpours.

In built areas where the risk of natural disasters is particularly high, municipalities can apply for state funding for preventive actions. The funding is administered by the Swedish Civil Contingencies Agency Natural disaster in this context refers mainly to landslides or flooding.

On the Covenant of Mayor's website, Växjö has posted about its work related to adaptation in [spatial planning](#), [indoor climate regulation](#), and [water flows related to building guidelines](#).

## REFERENCES

EC. 2018. Adaptation preparedness scoreboard: Country fiche for Sweden. 11.2018

Overview of Sweden in Climate-ADAPT platform <https://climate-adapt.eea.europa.eu/countries-regions/countries/sweden>

Swedish Portal for Climate Change Adaptation <http://www.klimatanpassning.se/en>

Government Offices of Sweden. Ministry of the Environment and Energy. Sweden's Seventh National Communication on Climate Change [http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom\\_/application/pdf/6950713\\_sweden-nc7-1-swe\\_nc7\\_20171222.pdf](http://unfccc.int/files/national_reports/annex_i_natcom_/application/pdf/6950713_sweden-nc7-1-swe_nc7_20171222.pdf)

# CONCLUSIONS

All of the nine BSR countries (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Norway, and Sweden) have climate adaptation related legislation. This is encouraged by the European Commission for Member States through the EU Adaptation Strategy. However, how this national legislation translates into local level planning and implementation differs from country to country. The results of the document review are presented in the following sections.

All the nine countries studied in the BSR have a **national climate adaptation strategy**. However, this does not mean that they have a National Adaptation Plan (NAP) for guiding the implementation. Norway, Poland and Latvia have strategies and rely on other mechanisms for encouraging strategy implementation. For example, rather than developing a NAP, Poland coordinates adaptation implementation of its strategy through support and incentives to encourage subnational level planning. In other countries, there is a strategy, but the plans are required to be created at sub-national level only. For example, in Sweden, they are created at the County Administrative Board Level and in Germany at the Bundesländer level (regional).

Most of the countries have either formally or informally **defined the role of local government** in terms of adaptation. In three countries (Denmark, Norway and Sweden) the local government role is defined in the national strategic documents. However, this does not mean that local governments are responsible, but rather involved. The lack of requirements for local adaptation plans may relate to the need to follow such mandates with the allocation of funding to the local level. It could also stem from coordination through at higher levels (e.g regional or county). For example, in Sweden, adaptation plans are required for the county level, but municipalities are required to account for specific climate related risks (floods, landslides, erosion) in the Municipal Comprehensive Plan.

This is not to say that the other countries' strategies do not mention local governments in their strategies or plans. In some countries (Finland, Latvia, Lithuania, and Poland), the role of local governments is recognised and the national plans or strategies encourage, but do not require, local level plans. For example, in the Finnish NAP, the plan promotes regional and local governments to engage in adaptation related work: studies, resilience assessment, etc. and the aim is to integrate adaptation into the planning across various sectors and actors. In Latvia, the local government is involved in implementation of adaptation measures in all the five strategic objectives, especially those dealing with societal health and wellbeing, climate resilient infrastructure and building, and the integration of adaptation into sectoral policies and spatial development planning documents and public information. In Poland, the **Strategic Adaptation Plan until 2020 (SPA 2020)** states that "a particular role in the implementation of SPA 2020 will fall to cities in which the adverse effects of climate change are accumulated, which points to the need to take account of adaptation in programming development actions, e.g. through the development of urban adaptation plans (especially for the largest cities)", however, this is seen as encouragement rather than a requirement.



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Only one country **requires local level adaptation strategies** or action plans. In Denmark, municipalities were required since 2013 to complete a comprehensive climate adaptation plan. Flood risk mapping is required as a basis for the plan and the plan can be either integrated into the Municipal Plan or a supplemental plan. The resulting mandatory local level plans vary greatly in terms of the level of detail and scope. Since then, several Danish local authorities have also created plans related to specific types of climate impacts, such as cloudbursts and storm surges. However, they too face challenges to mainstream adaptation beyond water management related issues.

Despite the lack of requirements for local level adaptation plans in most of the countries, adaptation strategies and plans are either completed or underway in many of the major cities in each of the countries. In several cities, the planning or actions have focused mainly on flood risks. In most of the countries, adaptation work takes place through domestic or European transborder cooperation projects. However, project-based work may not be comprehensive. Furthermore, in many countries, non-capital cities tackled adaptation in a less comprehensive manner. However, in Poland, the [MPA Project – Urban Adaptation Plans](#) project was launched in 2016 to develop adaptation plans for 44 cities with a population over 100 000 people. As the work is not systematic in most countries, the documentation of it is neither systematic nor centralised.

Local governments in most of the countries are involved in **networks** (domestic and international) which support them on adaptation related work. In Latvia, local government networking around adaptation issues is supported by the Ministry of Environment, while in Norway, it is supported by the county governments, e.g. through the Cities of the Future (older) and “In Front” (newer). In Sweden, the counties themselves have an adaptation related network (National Network for Adaptation). In Finland, Germany, Lithuania and Norway the associations of local authorities are also a platform for supporting adaptation related work. Though many of the countries have cities which have signed up the Covenant of Mayors Adaptation component and have integrated adaptation and mitigation plans, only Växjö in Sweden has submitted adaptation related examples to the Covenant website.

Some of the countries have **information portals** for local governments on CCA information in national languages. For example, in Germany there is the [German Climate Preparedness Portal / Deutsches Klimavorsorgeportal - KLIVO](#), which is a governmental meta-information-platform that guides users to relevant and verified climate services. Users can self-define their individual needs, in terms of steps in the adaptation cycle, sector, region, climate hazard, user group. It also contains resources related to climate risk assessment. In Finland, the online Climate Guide , provides information on climate impacts, mitigation and adaptation as well as a “response wizard” which guides users to further resources. The Climate Guide and its information is maintained by public authorities. In some countries, information was created on project base and is not running/updated/managed by national authority and/or they may not be targeted at local governments. Due to language barriers, it is difficult to compare the portals.

Most of the countries have **adaptation related guidance** for local governments available in their local language. The guidance was developed by a variety of actors. Here also, language barriers limit the comparative analysis of the guidance. In Latvia, it is developed by the Association of Local Governments, while in Poland, guidance on the preparation of urban adaptation plans is developed by the Ministry of Environment. In Finland, guidance comes from a variety of sources: a national information platform (Climate Guide) provides municipalities with guidance and the Association of Local Authorities disseminates information, as well analyses the general situation with local authorities. The national adaptation plan, however, tasks the joint regional offices (ELY-keskus) to develop climate resilience guidance for municipalities. Some guidance has also been developed in various projects. In Lithuania, a Norwegian funded project, aimed at building capacity of Lithuanian municipalities in the climate change management and adaptation, specifically through development of climate related guidelines for municipalities.

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### KNOWLEDGE GAPS

In terms of **climate risk assessment**, all the countries either have a national level risk assessment or are currently working to conduct one.<sup>4</sup> However, it is unclear how many require comprehensive climate risk assessments at the local level. In Sweden, since 2018, local authorities have been required to perform comprehensive climate risk assessments and use them as a basis when creating local level planning documents, such as Master Plans. They are also required to carry out risk and vulnerability assessments as a basis for coping with extraordinary events and crises. In Sweden, this has resulted in integration of adaptation measures into planning. Similarly, in Norway, the Planning and Building Act requires municipal responsibility for community development and to use relevant knowledge about current and future climate change as a basis for their planning activities and exercise of authority. It is, however unclear based on the desk review, how comprehensive these risk assessments are.

It is clear that flood risk assessment and management are areas of heavy activity at the local level, especially along the coast. There also seems to be inclusion of some climate related risks in the security or disaster related risk assessments more often conducted at the local or regional levels. For example, in Latvia national planning increasingly accounts for risk assessment and prevention which integrates climate risk management (assessment, prevention and adaptation) and civil protection. Also, the civil protection commissions of 36 municipal cooperation territories must develop their own civil protection plans which includes indicated risks, scenarios, matrices, mapping, prevention, preparedness, response and recovery measures. However, it is not clear from the desk review how comprehensively they incorporate climate risks and whether these risk assessments performed for security or civil protection purposes are also utilised for adaptation and planning in other sectors at the local level.

Another issue which was challenging to assess was the support for the local level. As was mentioned in the conclusions, the sufficiency of the climate adaptation platforms and guidance materials in the local languages were difficult to assess in the desk review. Similarly the **funding allocated to local level adaptation** was challenging to assess. In Germany, the federal government supports local level adaptation through other organisations such as local authority associations and other bodies, such as the Klimabündnis and ICLEI, and providing funding support. Sweden has a national fund which also finances adaptation measures. In Denmark, national level funding has supported local adaptation planning in the past. However, in a few other countries, the climate adaptation projects are financed or supplemented by European Structural and Investment Funds or EU projects, which risks fragmentation as well as continuation of adaptation planning.

These knowledge gaps will be filled using a follow-up series of interviews with local and national level adaptation related authorities in the BSR countries performed starting in Autumn 2019.

<sup>4</sup>EEA. 2018. National climate change vulnerability and risk assessments in Europe, 2018. EEA Report No 1/2018.



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### RECOMMENDATIONS

Based on the desk review, local level adaptation work in the Baltic Sea Region countries can be strengthened through:

1 Increasing the systematic support from National level authorities for local authorities on adaptation planning.

According to the European Commission, work on local adaptation strategies has been slower than expected and varies greatly from EU Member State to Member State. More systematic activity around flood risk management has been implemented at the local level due to the work at all levels to implement the EU Floods Directive. Learning from the experience of implementing this directive could be applied to adaptation implementation at all levels more broadly.

This does not mean that separate adaptation plans must be required by national strategies. First, mainstreaming adaptation into comprehensive plans or detailed plans is an effective way of implementing adaptation. This can also be done through other legislation, such as Building and Planning Acts, as long as the scope is not too narrow. Second, requirement for a climate risk assessment (rather than an adaptation plan) may be a more effective way of creating the demand for strategies or action plans. This is because once the risks are known, it is logical to create a plan of action to address them.

2 Improving guidance, access to stable funding, and information for local adaptation.

Local authorities have varying needs related to leadership, resources, and awareness raising<sup>5</sup>. Systematic improvement of local level adaptation efforts requires both climate related information targeted to the local level actors, but also guidance on how to use this information in support of climate risk assessments and selections amongst potential adaptation options. Many cities are working on climate adaptation in international projects. These projects are providing them with the guidance, funding and information they need. However, this comes with risks. First, project related work has limited funds. Once the project ends, that line of work is also at risk of ending. Second, processes within a country are less likely to be harmonised and comparable when methodologies are project based. This can lead to varied results, as is true in the current situation. Thirdly, the learning from one local government is less likely to spread to other local governments in the same country when the work is not connected to higher governance levels.

<sup>5</sup>Weyrich et al. 2016. Barriers to Climate Change Adaptation in Urban Areas in Germany. Report 26. Climate Service Center Germany, Hamburg.



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### 3 Integrating climate and disaster risk assessments and sharing the information across sectors.

Authorities at all levels need to perform risk assessments related to numerous issues and for various reasons. Based on the desk study, it is unclear whether there are links between the risk assessments that are performed for the purpose of ensuring civil protection and emergency response are linked to the climate related risk assessments that are required for e.g. climate resilient planning to mitigate the risk creation in land use and building. Improved links between these risk assessment and results use processes that can potentially improve the comprehensiveness and the efficiency of the risk assessments as well as their use for more integrated planning and risk management. These risk assessments should also involve a variety of sectors and actors at the local level.

