

This country profile was compiled by the OECD Secretariat and reflects information available as of June 2013. Further information and analysis can be found in the publication: OECD (2013) *Water and Climate Change Adaptation: Policies to Navigate Uncharted Waters*, OECD Studies on Water, OECD Publishing. <http://dx.doi.org/10.1787/9789264200449-en>. Country profiles for all OECD member countries are available for download at: www.oecd.org/env/resources/waterandclimatechange.htm. These profiles will be regularly updated and it is planned to expand coverage over time to include key partner countries.

Estonia

Climate change impacts on water systems

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|-----------------------------|---|--|-------------------------------|--|--|
| Observed changes and trends | <ul style="list-style-type: none"> Annual mean temperature increased by 1.0 °C to 1.7 °C during the second half of the 20th century. Since 1966, an increase in precipitation during the cold half of the year and also in June. A significant increase in precipitation (around 29%) has occurred in winter. Significant decrease in the duration of snow cover and sea ice during the second half of the 20th century. Apparent increasing trend in the inter-annual variability of the number of extreme wet, extreme dry and total number of extreme days over the past 50 years. Overall, a clear indication of a rising trend in extreme precipitation events during the period 1957-2006. | | | | |
| Projected impacts | <ul style="list-style-type: none"> The negative impacts of climate change in Estonia are expected to be less significant relative to other European countries. Increase in groundwater recharge, depending on the hydro-geological conditions of catchments. Groundwater recharge is expected to be the most intensive in the Pandivere Upland, which is the most important groundwater catchment area in Estonia. The safe yield of wells abstracting from the upper aquifers will be augmented in Upper Estonia, which is expected to make the public water supply cheaper. Earlier snowmelt causing shifts in the hydrological regime. Maximum river runoff will be reduced and will occur earlier. Lower water content of the soil and earlier appearance of drought conditions. Drier climatic conditions in spring and in the first half of summer. Shifting runoff regime, with decreases in spring runoff and increases in winter runoff, will have varied impacts on water resources management. More evenly distributed river flow will be beneficial for hydropower production. Increased flow in winter will improve water quality of rivers and benefits fish farm management. However, lower flows in the spring may deteriorate water quality and have a negative impact on aquatic habitats. Increase in the temperature and the water balance of Lake Peipsi. Increase in water temperature result in an earlier and longer eutrophication period, impacting on water quality. Increase in extreme weather events. Earlier and lower spring floods and more frequent winter floods. Shifting flood regimes may have an impact on infrastructures designed for past climate conditions with stable winters and higher spring floods. | | | | |
| Primary concerns | Water quantity | Water quality | Water supply and sanitation | Extreme weather events | Ecosystems |
| | ✓ (seasonal hydrological regime changes) | ✓ (quality of groundwater) ¹ | ✓ (drinking water quality) | ✓ (coastal and inland floods, extreme precipitation and temperatures) | ✓ (increased sensitivity of ecosystems to human and climate pressures) ² |
| Key vulnerabilities | <ul style="list-style-type: none"> Drinking water quality degradation. Eutrophication, with impacts on freshwater ecosystems. Coastal areas, due to sea level rise and erosion. The impact of winter and spring floods on inland water bodies, especially in densely populated areas. | | | | |

1. Deteriorating groundwater quality as heavy rains will cause increased leaching of pollutants into aquifers.

2. For instance, algae blooms will increase with the rise in water temperature.

Sources: European Climate Adaptation Platform (2012), *Estonia Countries Overview*, <http://climate-adapt.eea.europa.eu/countries/Estonia> (accessed 28 August 2012); Ministry of the Environment (2009), *Estonia's Fifth National Communication under the UNFCCC*, http://unfccc.int/national_reports/annex_i_natcom/submitted_natcom/items/4903.php (access 20 June 2012); Ministry of the Interior (2011), *Review of Emergency Risk Assessment*, www.siseministerium.ee/29960. (accessed 28 August 2012).

Key policy documents

| Document | Reference to water? | Type | Year | Responsible institution |
|--|---------------------|-----------------------------------|-------------------------------------|-----------------------------|
| Emergency Act and Emergency Risk Assessment ¹ | Y | Legal act | 2009/2011 | Ministry of the Interior |
| Water Act ² | Y | Legal act | 2009 | Ministry of the Environment |
| National Adaptation Strategy | | National adaptation strategy | Under development, planned for 2016 | Ministry of the Environment |
| Nature Conservation Development Plan up to 2020 | Y | National strategy | 2012-20 | Ministry of the Environment |
| National adaptation plan | | National adaptation plan | Under development, planned for 2016 | Ministry of the Environment |
| River basin management plans and flood risk management plans | Y | River basin adaptation plans | Under development, planned for 2015 | Ministry of the Environment |
| National vulnerability assessment | | National vulnerability assessment | Under development, planned for 2016 | Ministry of the Environment |
| Various projects in the Baltic Sea ³ | Y | Transboundary responses | Under development | |

- Entered into force on 24 July 2009, the Emergency Law requires the establishment of risk assessments and crisis management plans in case of storms and floods at least once every two years. The first Emergency Risk Assessment was compiled in 2011. These plans are prepared in co-operation between different institutions, ensuring better communications and clarity of roles and responsibilities, www.siseministeerium.ee/29960.
- Estonia adopted the requirements of the EU Directive 2007/60/EC on the assessment and management of the flood risk in November 2009.
- Various projects with a transboundary component include: BaltAdapt, www.baltadapt.eu; BaltClim, www.bef-de.org/unsere-themen-en/projects/baltclim; BaltCICA, www.baltcica.org.

Policy instruments

| Areas | Policy mix | Regulatory instruments | Economic instruments | Information and other instruments |
|-----------------------------|------------|---|-----------------------------|---|
| Water quantity | | • Water Act along with the implementing acts. | • Pollution charges, fines. | <ul style="list-style-type: none"> • The Emergency Act: Requires emergency risk assessments and crisis management plans in the case of storms and floods. • Rescue Centres: Improved crisis communication for extreme weather events. In 2009, a nation-wide radio communication system was implemented to facilitate information exchange between agencies. • Risk analysis of extreme events by cities: Local plans take into account new flood risks. |
| Water quality | | • Water Act along with the implementing acts. | • Pollution charges, fines. | |
| | | • Public Health Act, along with the implementing acts. | | |
| Water supply and sanitation | | • Water Act along with the implementing acts. | • Pollution charges, fines. | |
| | | • Public Water Supply and Sewerage Act, along with the implementing acts. | | |
| Extreme weather events | | • Water Act, along with the implementing acts. | | |
| | | • Rescue Act, along with the implementing acts. | | |
| | | • Emergency Act, along with the implementing acts. | | |
| Ecosystems | | • Water Act, along with implementing acts. | • Fines. | |

Main research programmes

- Meteorological and Hydrological Institute of Estonia: Provides data and climate information on weather observations and scenarios, weather events and climate change science, www.emhi.ee/index.php?nlan=eng.
 - On-line Sea Level Information System hosted by the Marine Systems Institute at Tallinn University of Technology provides information about sea level status, trends, projections, and water temperatures in different coastal regions of Estonia. National monitoring program (monitoring different water, air quality and biodiversity parameters), <http://on-line.msi.ttu.ee/kaart.php>.
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Principal financing mechanisms and investment programmes

- Environmental Investment Centre provides grants for various activities concerning water management and climate change, drawn from two sources of financing – the Cohesion Fund and the Environmental Programme (the ambient air protection, water and nature protection programmes).
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