

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](http://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.

## Portugal

### Climate change impacts on water systems

Observed changes and trends	<ul style="list-style-type: none"> <li>• Overall decrease in annual runoff.</li> <li>• Increase in the difference between regions in terms of water availability.</li> <li>• Decrease in surface water quality due to temperature increase as well as non-point source pollution resulting from increased rainfall.</li> <li>• Decrease in groundwater quality (e.g. saline contamination).</li> <li>• Increase in flood risk due to increased rainfall intensity.</li> </ul>				
Projected impacts	<ul style="list-style-type: none"> <li>• Increase in temperature of 3 °C to 7 °C for the summer season in continental Portugal, affecting in particular inland Northern and Central regions. Temperature increase is estimated to be more moderate in the islands, in the order of 1 °C to 2 °C in Azores and 2 °C to 3 °C in Madeira.</li> <li>• Reduction in annual rainfall on the continent by 20% to 40%, relative to current levels due to a shorter rainy season.</li> <li>• Progressive reduction in river runoff and aquifer recharge over the course of the century. By 2100, annual mean runoff shifts in various basins include: Reduction by 15 to 30% in the Vouga and Mondego Basins; shift between +5% and -10% north of River Duoro; reduction of 10 to 30% in the Tejo River Basin.</li> <li>• Reduction in the availability of water supplies.</li> <li>• Water quality degradation due to higher water temperatures and reduced river flow in the summer, particularly in the South.</li> <li>• Seawater intrusion into groundwater.</li> <li>• Increase in the magnitude and frequency of flood, especially in the North due to the concentration of precipitation in winter and the estimated general increase in the frequency of heavy precipitation events.</li> <li>• Increased frequency and intensity of heat waves and increased drought risk.</li> <li>• Displacement of wetlands.</li> </ul>				
Primary concerns	Water quantity	Water quality	Water supply and sanitation	Extreme weather events	Ecosystems
	✓			✓ (floods and droughts)	
Key vulnerabilities	• Water shortage during dry seasons in the south and increased flood risks in the North.				

Sources: Portuguese Environment Agency (2010), *Fifth National Communication to the UNFCCC on Climate Change*, [http://unfccc.int/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/items/4903.php](http://unfccc.int/national_reports/annex_i_natcom/submitted_natcom/items/4903.php) (accessed 20 June 2012); Santos, F.D. et al. (2001) *Climate Change in Portugal: Scenarios, Impacts, and Adaptation Measures: Executive Summary and Conclusions*, Project SIAM, [www.siam.fc.ul.pt/SIAMExecutiveSummary.pdf](http://www.siam.fc.ul.pt/SIAMExecutiveSummary.pdf) (accessed 9 July 2012).

### Key policy documents

Document	Reference to water?	Type	Year	Responsible institution
National Climate Change Adaptation Strategy <sup>1</sup> (EN AAC)	Y	National adaptation strategy	2010	Executive Committee of the National Commission for Climate Change
National Adaptation Strategy to the Impacts of Climate Change in Water Resources (EN AAC-RH)	Y	National water sector adaptation strategy	Under development	National Water Authority (INAG)
National Water Plan	Y	National adaptation plan	Under development	
National Water Plan	Y	National water sector adaptation plan	2010	INAG
Climate Change In Portugal: Scenarios, Impacts, and Adaptation Measures (SIAM) I and II Project	Y	National risk assessment	1999-2002 2002-06	Centre for Climate Change Impacts Adaptation and Modelling (CCIAM)
Regional Strategy for Climate Change <sup>2</sup>		Sub-national responses		

1. Resolution of the Council of Ministers No. 24/2010.

2. Government Resolution No. 123/2011, 19 October 2011.

### Policy instruments

Areas	Policy mix	Regulatory instruments	Economic instruments	Information and other instruments
Water quantity				<ul style="list-style-type: none"> <li>• National Plan for Efficient Use of Water (PNUEA): Approved in 2005, promotes the efficient use of water, particularly in the urban, agricultural and industrial sectors and to help minimise the risk of water shortages and improve environmental conditions in aquatic environments.</li> <li>• River Basin Management Plans: The main instruments for water management, defining for each water body the quality status to be achieved in the short and medium term, as well as the programmes of measures to achieve those objectives.</li> <li>• Strategic Plan for Water Supply and Wastewater Treatment.</li> <li>• Flood Risk Management Plans.</li> </ul>
Water quality				
Water supply and sanitation				
Extreme weather events				
Ecosystems				

### Main research programmes

- Climate Change in Portugal: Scenarios, Impacts, and Adaptation Measures (SIAM): Initiated in 1999, SIAM was the most comprehensive and integrated assessment on the impacts and vulnerability associated to climate change in Portugal. The second phase of SIAM project (SIAM II) began in 2002. It focused on the Sado estuary and included the Azores and Madeira.

### Principal financing mechanisms and investment programmes

- Portugal received funding through the European Economic Area (EEA)/Norwegian financial mechanisms to fund the first phase of its work on adaptation.
- Portuguese Carbon Fund (PtCF): A review of legislation for the PtCF may consider channelling some of these funds to adaptation. The PtCF is government's financial instrument to acquire Kyoto Protocol emission credits to ensure Portugal fulfils its Protocol commitments. The fund has a EUR 354 million endowment up to 2012.