

AGRICULTURE AND WATER POLICIES: MAIN CHARACTERISTICS AND EVOLUTION FROM 2009 TO 2019¹

PORTUGAL

This country profile reviews recent changes in agriculture and water policies. The content of the profile is based on a survey conducted in 2019 by the OECD Secretariat² and additional official sources.

A. Agriculture and Water Characteristics

- Portugal's agriculture mainly produces fruit, vegetables, wine and cattle (Eurostat, 2019).
- The agricultural sector is the largest water user, accounting for 80% of **total water abstractions** in 2018 (European Commission, 2019) and for 76% of **groundwater withdrawals** in 2010 (OECD, 2015).
- The most significant pressures on surface waters and groundwater bodies are **diffuse pollution from agriculture**, with 42% of surface water bodies being affected and 22% of groundwater bodies (European Commission, 2016). According to the 2012-15 report on the implementation of the Nitrates Directive, some improvements can be observed in reducing the eutrophication of surface water (European Commission, 2019). The nitrogen balance increased between 2000 and 2017 from 39 to 46 kg/ha, whereas the phosphorus balance went down from 9 kg/ha to 6 kg/ha during the same period (OECD, 2020a).

Table 1. Main challenges related to water in agriculture

Water use +++	Water pollution ++	Water-related risks +++
Agricultural water abstractions represent 80% of total water abstractions, and over three quarters of groundwater withdrawals	Key pollutants from the agricultural sector are nitrogen, phosphorus and pesticides	Portugal is particularly affected by droughts; some recurring flood events

Note: +: Minor issue; ++: Problematic issue; +++: Major issue. Source: European Commission (2019), OECD (2015, 2019).

¹ This document, as well as any data included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

² For more details, Gruère, G., M. Shigemitsu and S. Crawford (2020), "Agriculture and water policy changes: Stocktaking and alignment with OECD and G20 recommendations", *OECD Food, Agriculture and Fisheries Papers*, No. 144, OECD Publishing, Paris, <http://dx.doi.org/10.1787/f35e64af-en>.

B. Key Agriculture and Water Policies & Main Evolution from 2009 to 2019³

B.1. Cross-Cutting Agriculture and Water Policies & Governance

Table 2. Key agriculture and water policies and policy changes

Key Policies	<p>The existing EU legislation imposes a protective framework with standards for all water bodies in EU countries and addresses specific pollution sources, including agricultural pollution. The three main directives involved are the Water Framework Directive (WFD) (2000/60/EC) (on water resources management), the Nitrates Directive (91/676/EEC) and the Floods Directive (2007/60/EC). The 2005 Water Law transposed the WFD into Portuguese law and strengthened the water resources planning process.</p> <p>The Portuguese Environment Agency (APA) is the national water authority in the mainland since 2012, assuming previous responsibilities from the Institute of Water (INAG). The National Water Council (CNA) is the governmental advisory body on water resources. As regional departments of APA, Administrations of River Basin Districts (ARH) cover all river basins in the mainland. ARH has Advisory Committees (CRH). Autonomous Regions of Azores and Madeira have specific administrative bodies.</p> <p>The Inter-ministerial Commission for Water Coordination (CICA) was created, involving decision makers and entities with governance responsibilities at various levels, and representing all sectors relevant to the achievement of the objectives and implementation of the actions defined in the National Water Plan, Management Plans for Hydrographic Regions and other water policy instruments.</p> <p>In 2008, Portugal introduced a Water Resources Tax (WRT) on water abstractions and discharges.</p>
Main Evolution from 2009 to 2019	<p><i>Agricultural policies that affect water usage, water quality or mitigation</i></p> <ul style="list-style-type: none"> ▶ Implementation of regulations under EU financing programmes 2014-20, including: <ul style="list-style-type: none"> ○ Irrigation investment and agri-environmental support to efficient irrigation - infrastructure, equipment, water saving, metering (Rural Development Programme 2014-2020 (RDP)) ○ Direct support to farmers requiring mandatory compliance with standards for good agricultural and environmental condition of land (buffer strips along water courses, irrigation is subject to authorisation) and statutory management requirement concerning the placing of plant protection products on the market. ○ Support for Research and Innovation in water and energy efficiency, precision agriculture and digitalization (RDPs in articulation with Horizon 2020) ▶ National legislation of the Nitrates Directive, with new nitrates vulnerable zones and related action programmes, and revision of the Code of Good Agricultural Practices⁴. ▶ The National Irrigation Program (2018-23)⁵ contributes to climate change adaptation to combat desertification and make resource use more efficient, framed by the Public Irrigation Strategy (2014-20), an instrument that sets the intervention priorities. ▶ The Integrated Environmental Licensing System (SILiAmb) of the APA became operational in 2012 and serves to integrate and harmonise the licensing processes into one single platform. <p><i>Water policies and investments that affect agriculture production</i></p> <ul style="list-style-type: none"> ▶ Portuguese Law-Decree on water reuse establishes the legal regime for water reuse from waste water treatment plants and defines use requirements for multiple non potable uses (irrigation, industrial uses etc.). It is based on “Leading the transition: A circular economy action plan for Portugal”, adopted on december 2017 - foreseeing increased water efficiency and water reuse amongst its goals⁶ ▶ Creation of an inter-ministerial working group to review of National Strategy for Agricultural and Agro-Industrial Effluents (ENEAPAI) (updating targets and define new solutions)⁷
Consistency between Agriculture and Water Policies	<p>Changes in agriculture policy have aimed at reducing polluting pressures: licensing of livestock activity (NREAP) and effluent management plan, good practices of fertilisation with livestock effluents (PGEP); review of the Code of Good Agricultural Practices with provisions for phosphorus and new rules on CAP cross-compliance. Changes in water policy foster efficiency of water use and protection of water resource, new nitrates vulnerable zones and action programmes, reduce contamination of water bodies with agricultural effluents and minimise risks (floods, droughts and climate change).</p>

³ Agriculture and water policies are defined here as all policies that affect the interaction between agriculture production and water.

⁴ Portarias 164/2010 and 259/2012, Despacho 1230/2018

⁵ PNRegadios 2018-2023 - Resolução do Conselho de Ministros 133/2018

⁶ [Resolução do Conselho de Ministros n.º 190-A/2017](#)

⁷ Under development ([Despacho n.º 2054/2017](#)).

B.2. Policies to Manage Agricultural Water Use (Quantity)

Table 3. Key instruments for the management of water use

<p>Quantified national future targets for the use of water resources in the agriculture sector</p> <p><u>Yes: RDP 2014-20 provides EUR 389 million for the priority "increasing of irrigated land that changes to more efficient irrigation systems", and sets targets around 18% (82 321 ha), fosters knowledge transfer and innovation actions, investment in infrastructure and equipment and good irrigation and soil practices</u></p>	<p>Metering, monitoring and reporting</p> <p>Metering and Monitoring: Yes, for the farmers supported by RDPs, the efficiency water irrigation actions oblige farmers to meter and monitor water consumption. Besides the RDPs, support to investment on irrigation implies a water meter installation</p> <p>Reporting: Yes, the Water Law requires water users to report to the competent authority the water volume consumed. For farmers, the water volume consumed is estimated from the crop areas and of related watering appropriations</p>
<p>Quantity targets accounting for climate change</p> <p><u>Yes: Some priorities in RDP 2014-20 (e.g. "increasing the efficiency of water use by agriculture") contribute to climate change targets</u></p>	<p>Scarcity pricing</p> <p><u>Yes: the WRT has been regularly updated. The tax is differentiated by sector (agriculture and others) and region (scarcity coefficients of the river basin)</u></p>
<p>Water entitlements</p> <p>As regional departments of the APA, Administrations of River Basin Districts (ARH) grant water use entitlements through water permits over a certain period of time to individual land owners or public and private water supply companies⁸</p>	<p>Enforcement measures</p> <p>ARH grants user entitlements and obligations through water abstraction permits over a certain period of time.</p>
<p>Proportion of cost recovery for surface water</p> <p>In 2002, agriculture covered 23% of Operation and Maintenance and Capital Costs compared to 82% for urban users</p> <p>Since 2008, the Water Resources Tax (WRT) is charged to all water users (amended and republished in 2017⁹). <u>The value of WRT is calculated based on the abstractions volume reported to ARH and in cases there is no information. It is based on the maximum volume titled in the permits or other criteria that supports the estimation of water consumption</u></p>	<p>Other policy instruments used to encourage water use efficiency</p> <p><u>In 2015, a new agro-environmental measure was added to RDPs to support the efficiency of water use for irrigation, which requires the certification of irrigators, with more demanding commitments, and therefore more efficiency in promoting water efficiency</u></p> <p><u>Sustainable National Strategy for Operational Programs of Fruit and Vegetable (2018): Water savings through the conversion or modernisation of irrigation systems; Water savings through wastewater reuse; Improvement of the quality of water resources; Use of rainwater; Improvement of energy efficiency and water-energy nexus; Good Environmental Practices</u></p> <p><u>RDP: Operational Groups, Advice, Investments in agricultural exploitation, Collective Infrastructure (Irrigation), Water Efficiency of the Mainland</u></p> <p><u>The National Plan for the Efficient Use of Water (PNUEA) aimed to promote better water use, especially in the urban, agricultural and industrial sectors, in order to minimise water scarcity risks and improve environmental conditions in water systems.</u></p> <p>Subsidies, Farm advice and research</p>

Note: Underline indicates changes since 2009

⁸ Decreto-Lei n.º 226-A/2007, de 31 de Maio

⁹ Decree-Law 97/2008, amended and republished by Decree-Law 46/2017.

B.3. Policies to Control Agricultural Water Quality

Table 4. Key instruments to improve water quality

<p>National water quality data collection tools</p> <ul style="list-style-type: none"> ▶ The National Water Resources Information System (SNIRH) presents data and information concerning water monitoring networks (surface and groundwater)¹⁰ ▶ <u>The SILiAmb presents information concerning the licensing process of water uses¹¹</u> 	<p>Main policy instruments</p> <p><i>Regulatory:</i></p> <ul style="list-style-type: none"> ▶ RBMPs highlights the need to valorise, protect and manage water in a balanced way ▶ Reduction of polluting pressures, including new legislation related to water and agriculture such as new <u>nitrates vulnerable zones (2010¹²) and action programs (2012¹³)</u> ▶ Review of the Code of Good Agricultural Practices (2018¹⁴), with provisions for phosphorus content ▶ <u>Licensing of livestock activity (NREAP) and effluent management plan - good practices of fertilization with livestock effluents (PGEP)</u> ▶ System for the use of sewage sludge on agricultural land (2009¹⁵) <p><i>Economic:</i></p> <ul style="list-style-type: none"> ▶ Payment of taxes for the use of water resources¹⁶ ▶ Subsidies from EU funds (CAP and others) ▶ The reprogramming of RPD 2014-2020 provides EUR 522 million for the priority "agricultural land subject to management contracts aimed at improving water quality", setting as targets about 30% (1 067 200 ha). It includes support for improving water management through innovation, transfer of knowledge and advice, good practices (agri-environment), specific modes of production, areas with constraints and investment <p><i>Information:</i></p> <ul style="list-style-type: none"> ▶ website: <u>REA State of the Environment Portal (2016)¹⁷</u>
<p>Spatial tools (e.g. topological, geometric, or geographic data analysis) to target policies in specific areas</p> <ul style="list-style-type: none"> ▶ Geographic Information System (GIS) tools and spatial analysis are used to comply with water quality targets and to model diffuse pollution in agricultural areas ▶ Results from GIS are used for simulations for diffuse pollution due to agricultural activities (nitrogen and phosphorus) and integrated in the elaboration of RBMPs 	<p>Enforcement measures</p> <ul style="list-style-type: none"> ▶ <u>RDP (e.g. Efficient use of water that requires the realization of a fertilization plan)</u> ▶ <u>Cross-compliance statutory management requirements (e.g. Control of plant protection products used on the holding: Application of plant protection products.)</u> ▶ <u>Good agricultural and environmental conditions (authorisation procedures for the use of water for irrigation)</u> ▶ <u>ARH controls water pollution through wastewater discharge permits over a certain period of time</u>

Note: Underline indicates changes since 2009

*Strategy for reduction of contamination of water bodies with agricultural and agro industrial effluents - ENEAPAI 2030 was announced by the Government on 29 September 2020.

¹⁰ <https://snirh.apambiente.pt/>

¹¹ <https://siliamb.apambiente.pt/pages/public/login.xhtml>

¹² Ministerial Ordinance 164/2010, 16th March 2010

¹³ Ministerial Ordinance 259/2012, 28th August 2012

¹⁴ "Despacho" 1230/2018, 5th February 2018

¹⁵ Decree-Law 276/2009, 2nd October 2009

¹⁶ Decree-Law n° 97/2008

¹⁷ https://rea.apambiente.pt/dominio_ambiental/agua

B.4. Policies to Manage Climate-Induced Water Risks

Table 5. Water risks and responses

	Droughts	Floods
Reported Trends	There has been an increase in the frequency and intensity of drought episodes which is expected to continue due to climate change.	Flood events have declined, but smaller floods can cause damage to agriculture due to the occupation of flood beds by agriculture.
Key Policies	The RDPs provide support to agriculture and rural areas to address drought risks, such as investment in dams and irrigation facilities, farm management practices that retain soil moisture, the use of varieties adapted to drought and farm advisory services and educational programmes. National drought warning system in force	The National Ecological Reserve programme (REN) seeks to prevent rural land use changes – especially in flood plains – that could increase the risks of flooding (e.g. banning farming on land with a high risk of erosion). The RDP contributes to reducing flood risks indirectly through the promotion of environmental farm practices such as soil conservation and afforestation to help slow water flows across land, and upgrading irrigation facilities to improve water retention.
Main Changes from 2009 to 2019	Creation in 2017 of the Standing Committee on Prevention, Monitoring of the Effects of Drought and the Working Group which is responsible for prevention, monitoring and contingency plans for drought situations. ¹⁸	Flood Risk Management Plans provide assessment and management of flood risks in order to reduce the consequences of floods.
Factoring of Climate Change in Policies	2-3/5: The current policy focus is on combatting desertification (in the south) and developing policy measures to improve irrigation water use efficiency.	

Bibliography

- Eurostat (2019), *Agriculture, forestry and fishery statistics: 2019 edition*, Publications Office of the European Union, Luxembourg, <https://doi.org/10.2785/743056>.
- European Commission (2016), Portugal 2nd RBMPs (2016-2021), https://ec.europa.eu/environment/water/participation/map_mc/countries/portugal_en.htm
- European Commission (2019), *The EU Environmental Implementation Review 2019 Country Report: Portugal*, https://ec.europa.eu/environment/eir/pdf/report_pt_en.pdf.
- OECD (2011), *OECD Environmental Performance Reviews: Portugal 2011*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/10.1787/9789264097896-en>.
- OECD (2015), *Drying Wells, Rising Stakes: Towards Sustainable Agricultural Groundwater Use*, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/9789264238701-en>.
- OECD (2019), OECD Survey on Monitoring Progress in Agricultural Water Management.
- OECD (2020a), “Nutrient balance” (indicator), <https://doi.org/10.1787/82add6a9-en> (accessed 20 August 2020).
- OECD (2020b), “Freshwater abstractions”, <https://stats.oecd.org> (accessed 20 August 2020).

¹⁸ RCM n°. 80/2017 of 7 June