

# AGRICULTURE AND WATER POLICIES: MAIN CHARACTERISTICS AND EVOLUTION FROM 2009 TO 2019<sup>1</sup>

## ITALY

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 Secretariat<sup>2</sup> and additional official sources.

### A. Agriculture and Water Characteristics

- Italy's agriculture mainly produces wine, olives, cereals, fodder crops, vegetables, horticultural plants and fruit (Eurostat, 2019).
- Agriculture is the largest consumer of freshwater. Between 2000 and 2012, irrigation accounted for the highest share of water abstracted in Italy (50% on average during this period). Irrigated lands represent 17.4% of the total agricultural area (whereas the OECD average is 4.5%) although the intensity of water use in agriculture decreased between 2000 and 2010: total water use for irrigation fell by 20%, while total irrigated areas fell by 8% and agricultural production remained at a similar level as in 2000 (OECD, 2013).
- Diffuse pollution from agricultural sources represents the most significant pressure on both surface and groundwater bodies (37% and 30% respectively) (European Commission, 2019). The nitrogen balance decreased between 2000 and 2015 from 71 to 66 kg/ha, and the phosphorus balance went down from 7 kg/ha to -1 kg/ha during the same period (OECD, 2020a).

**Table 1. Main challenges related to water in agriculture**

Water use ++	Water pollution ++	Water-related risks ++/+++
Irrigation accounts for the highest proportion of water used in Italy. Illegal abstraction is a problem, but it has been declining since 2009	Key pollutants from the agricultural sector are nutrients (coming from fertilisers and manure) and pesticides	Droughts are increasingly becoming a structural phenomenon in Italy

Note: +: Minor issue; ++: Problematic issue; +++: Major issue. Source: OECD (2013, 2019).

<sup>1</sup> 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.

<sup>2</sup> 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 2019<sup>3</sup>

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

**Table 2. Key agriculture and water policies and policy changes**

<b>Key Policies</b>	<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).</p> <p>The 1989 Water Resources and Soil Conservation Act sets out the principles of integrated water resources management and develops a structured water policy, while organising competences between the central government and regional/local administration.</p> <p>Irrigation entities (Consortia) are responsible for the management of collective irrigation.</p>
<b>Main Evolution from 2009 to 2019</b>	<ul style="list-style-type: none"> <li>▶ “Guidelines for the regulation by the regions of the methods for quantification of water volumes for irrigation”<sup>4</sup> promotes water metering and the application of water prices based on water volumes used for agriculture.</li> <li>▶ “Regulation containing the criteria for defining the environmental and resource cost of the different water uses”<sup>5</sup> defines the criteria to include the principle of cost recovery of water services, including environmental and resource costs, based on the polluter pays principle. The regulation ensures an adequate cost recovery contribution of different water uses, including agriculture.</li> <li>▶ “Guidelines for Ex-ante environmental assessment of water abstraction related to the environmental quality objectives of surface and groundwater bodies”<sup>6</sup></li> <li>▶ “Guidelines for the methodology for determining the minimum vital flow to guarantee the maintenance of ecological flow in watercourses”<sup>7</sup> to support the achievement of the environmental quality objectives of water bodies defined pursuant to WFD.</li> <li>▶ In 2014, the Ministry of Agriculture, Forestry and Fisheries funded a project to develop a tool to support decisions for irrigation water use. It updates the data in the IRRIFRAME (IT support service for agricultural irrigation decisions) by integrating new weather data of the new irrigation districts and in connection with SIGRIAN (National information system for the management of water resources in agriculture)<sup>8</sup>.</li> <li>▶ SIGRIAN, realized by CREA (Council for Agricultural Research and Economics) in collaboration with Regions and Autonomous Provinces, at the initiative of the Ministry of Agriculture, Forestry and Fisheries, collects all the information of managerial, infrastructural and agronomic nature related to collective and self supply irrigation at national level, as stated in Ministerial Decree 31/07/2015 of - Ministry of Agriculture, Forestry and Fisheries. The Strategic plan for innovation and research in the agricultural food and forestry sector of the Ministry of Agriculture was launched in 2015.<sup>9</sup> It promotes transfers of knowledge and innovation in the agricultural and forestry sector in rural areas, and the development of guidelines for the Precision Agriculture. Guidelines were approved in 2017</li> </ul>
<b>Consistency between Agriculture and Water Policies</b>	<p>The National Strategy for Climate Change Adaptation and National Climate Change Adaptation Plan was launched in 2015, which covers water risks in all sectors including those in the agricultural sector.</p> <p>The National law “Provisions for the protection and enhancement of biodiversity of agricultural and food interest”<sup>10</sup> was established to raise awareness for promoting positive behaviours to protect the biodiversity.</p> <p>Agri-environmental measures have been adopted, using the second pillar (Rural development plans) of the Common Agricultural Policy (CAP) to reduce the water used for irrigation and to protect water quality.</p> <p>In March 2014, Agriculture Action Plan for the implementation of WFD was drawn up. The Plan aims to improve Agriculture-Environment coordination between the CAP 2014-2020 and the 2<sup>nd</sup> cycle of WFD to achieve the quality objectives of water bodies and the protection of biodiversity, both for the first pillar (conditionality, greening) and the second pillar. The At this scope the Agriculture Action Plan also indicates the measures applicable to the agricultural sector for the implementation of the basic and supplementary measures of the River Basin Management Plans (RBMPs)<sup>11</sup></p>

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

<sup>4</sup> Ministerial Decree 31/07/2015 of Ministry of Agriculture, Forestry and Fisheries

<sup>5</sup> Ministerial Decree 24/02/2015 n. 39 of Ministry of the Environment, Land and Sea Protection

<sup>6</sup> Directorial Decree n. 29/STA of Ministry of the Environment, Land and Sea Protection

<sup>7</sup> Directorial Decree n. 30/STA of Ministry of the Environment, Land and Sea Protection

<sup>8</sup> SIGRIAN was developed by CREA (Council for Agricultural Research and Economics) in collaboration with Regions and Autonomous Provinces and by the initiative of the Ministry of Agriculture, Forestry and Fisheries. It collects all the information of managerial, infrastructural and agronomic nature related to collective and self-supply irrigation at national level, as stated in Ministerial Decree 31/07/2015 of Ministry of Agriculture, Forestry and Fisheries.

<sup>9</sup> Decree n. 7139 of 01.04.2015, <https://www.politicheagricole.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/9065>

<sup>10</sup> n. 197, 1 December 2015

<sup>11</sup> <http://pianoacque.adbpo.it/wp-content/uploads/2015/05/Piano-di-Azione-Agricoltura.pdf>

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

Since 2009, a series of plans and decrees concerning the management of water quantity have been adopted:

- Over the period 2004-2014, the Ministry of Agriculture invested EUR 1.1million to improve water management efficiency, modernise irrigation infrastructure, and reduce agricultural water pollutants from irrigated areas. 2016-2020 period, the Ministry of Agriculture set aside about EUR 1million of national and European funds to finance irrigation investment at farm and off farm level. The investments are allocated for building new reservoirs, modernising the existing irrigation networks, drainage and irrigation canals, adopting monitoring and remote control systems, improving water energy efficiency, and the reuse in agriculture of treated wastewater.
- In 2015, the Ministry of Agriculture implemented the Ministerial Decree “Guidelines for the regulation by the regions of the methods for quantification of water volumes for irrigation”, which promotes the use of water metering and the application of water prices based on the volumes used.

**Table 3. Key instruments for the management of water use**

<p><b>Quantified national future targets for the use of water resources in the agriculture sector</b></p> <p>Yes</p>	<p><b>Metering, monitoring and reporting</b></p> <p>SIGRIAN (national information system for the management of water resources in agriculture) reference database for the collection of data for quantifying irrigation volumes and also information related to permits</p>
<p><b>Quantity targets accounting for climate change</b></p> <p>Yes (funds allocated for water storage and interventions for the reuse in agriculture of treated wastewater)</p>	<p><b>Enforcement mechanisms</b></p> <p>Yes: Use of water metering and application of water prices based on the volumes used</p>
<p><b>Water entitlements</b></p> <ul style="list-style-type: none"> <li>▶ System of licences for water withdrawals</li> <li>▶ Mix of privately and publically owned water rights 100%</li> </ul>	<p><b>Scarcity pricing</b></p> <p><u>Yes (application of water prices based on the volumes used). It is differentiated by region</u></p>
<p><b>Proportion of cost recovery</b></p> <ul style="list-style-type: none"> <li>▶ <u>100% of Operation and Maintenance costs</u> (borne by Consortia, which distribute these expenses among farmers according to technical and economic indices).</li> <li>▶ <u>No capital costs (excluded by law)</u> collective water infrastructures are public water infrastructures whose cost of investments, according to national law, is covered by public budgets</li> </ul>	<p><b>Other policy instruments used to encourage water use efficiency</b></p> <p>Subsidies, Water supply cost recovery, Farm advice and research, Limited support for new irrigated areas, Improvement in water use efficiency in other irrigation districts</p>

Note: Underline indicates changes since 2009

### B.3. Policies to Control Agricultural Water Quality

**Table 4. Key instruments to improve water quality**

<p><b>National water quality data collection tools</b></p> <ul style="list-style-type: none"> <li>▶ SINTAI (Information System for the Protection of Water in Italy): an open source online dataset, containing information related to the protection of surface and groundwater from pollution.</li> <li>▶ <u>The Environmental national agency annually publishes “The Environmental Data Yearbook” - the most comprehensive and complete official publication of national environmental data and information.</u></li> </ul>	<p><b>Main policy instruments</b></p> <ul style="list-style-type: none"> <li>▶ <u>Regulatory: Inter-ministerial Decree on Criteria<sup>12</sup> and general technical rules and standards for the regional regulation of agronomic use of livestock manure and wastewater (including manure storage, storage capacity).</u></li> <li>▶ An Action Program of Vulnerable Areas by Nitrates of Agricultural Origin at regional level has been adopted</li> <li>▶ <i>Information:</i> several regions have developed tools to communicate management of agronomic utilization of breeding effluents. For example, the Emilia Romagna Region through its regional regulations on the agronomic use of farming effluents, digestate and wastewater, has adopted database systems for the management of information relating to the use of effluents, implementing the livestock effluent management system in the SIAR database<sup>13</sup>.</li> </ul>
<p><b>Spatial tools (e.g. topological, geometric, or geographic data analysis) to target policies in specific areas</b></p> <p>Spatial tools are used in some areas</p>	<p><b>Enforcement measures</b></p> <p><i>Unspecified</i></p>

Note: Underline indicates changes since 2009

<sup>12</sup> n. 5046, 25/2/2016

<sup>13</sup> See art. 27 o Regional Regulation 3/2017 (<https://ambiente.regione.emilia-romagna.it/it/acque/approfondimenti/normativa/regolamento-di-giunta-regionale-n-3-del-15-dicembre-2017-201cregolamento-regionale-in-materia-di-utilizzazione-agronomica-degli-effluenti-di-allevamento-del-digestato-e-delle-acque-reflue201d>)

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

**Table 5. Water risks and responses**

	Droughts	Floods
<b>Reported Trends</b>	Droughts are increasingly becoming a structural phenomenon. It is increasingly extending to the Centre-North of the Country (2017-2018). The frequency is higher in the Southern Regions, the North West and the islands.	Italy is highly exposed to landslides and floods. The areas with high hydraulic hazard in Italy amount to 12,405 km <sup>2</sup> (4.1% of the national territory), areas of medium danger amount to 25.398 km <sup>2</sup> (8.4%). In 2016, 31 flood incidents were registered all over the national territory (ISPRA, 2018).  An increase of heavy rainfall events with considerable quantities concentrated in a short time have been overserved in a recent decade. In 2019, Italy had extremely strong thunderstorms with exceptional intensity on the 12- and 24-hour intervals. Italy also had persistent and abundant rains throughout the country in November 2019, with average areal totals between 2 and 3 times higher than expected (ISPRA, 2020)
<b>Key Policies</b>	Limited support for new irrigated areas, and improvement in water use efficiency in other irrigation districts.  Promotion of water saving practices, both on-farm and in collective off-farm water infrastructures.	Reorganisation of the National Protection Agency that addresses floods.  The Floods Directive was implemented in Italy in 2010 by establishing a framework for the assessment and management of flood risks, in order to reduce the negative effects deriving from floods.  Reports developed by the Institute for Environmental Protection and Research provides risk indicators and it is an official reference framework for landslide and flood risk in Italy, an important tool to support national mitigation policies by identifying intervention priorities, allocation of funds, programming mitigation measures and planning civil protection measures.
<b>Main Changes from 2009 to 2019</b>	National Observatories for water uses have been established by the Ministry of Environment to increase resilience to adverse weather events and climate change	-
<b>Factoring of Climate Change in Policies</b>	3/5: Climate change is a key policy issue with regard to water resources, but with an emphasis that varies across regions: in the North, climate change is taken into consideration through the building of dams to address droughts, and in the South, it is tackled through the prism of water use efficiency and recycling.	

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