

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

AUSTRALIA

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

- Australia's agricultural sector mainly produces cereals, oilseeds, dairy, livestock and non-food crops (OECD, 2020c). Pasture for grazing and cotton and sugar production are the main agricultural water users (OECD, 2019a). The share of livestock in the total agricultural production increased between 2000 and 2018, from 45% to 51% (OECD, 2020c).
- The share of agriculture in total water abstractions decreased from 68% to 23% between 2000 and 2018. The share of irrigated land in the agricultural area remains stable at 0.6% in 2018 compared to 0.5% in 2000 (OECD, 2020c).
- Nutrient balances decreased slightly between 2000 and 2018. Nitrogen balance went down from 21 kg/ha to 20 kg/ha over the same period, while phosphorus balance went down from 1 kg/ha in 2000 to 0.8 kg/ha in 2018 (OECD, 2020a).

Table 1. Main challenges related to water use in agriculture

Water use ++	Water pollution ++	Water-related risks +++
Agricultural water abstractions represent 23% of total water abstractions in Australia. The share of agriculture in water abstractions decreased between 2000 and 2018.	Key pollutants tend to be regionally specific, e.g. Great Barrier Reef catchments in Queensland suffer from high levels of run-off from sediments, nitrates, phosphorus and pesticides; the Murray-Darling Basin (Australia's largest river system) faces mobilisation of sedimentary salts, and the mobilisation of naturally occurring heavy metals or metalloids in acid sulfate soils can be a problem in other cases.	Australia is the world's driest inhabited continent; it is characterised by highly variable climate patterns with recurrent droughts and flooding events.

Note: +: Minor issue; ++: Problematic issue; +++: Major issue. Source: ABS (2020), OECD (2019a, 2019b, 2020c).

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

<p>Key Policies</p>	<p>In 1994 and 2004, the adoption of nationally agreed water reform packages (including via the National Water Initiative - NWI) facilitated the expansion of water markets across connected valleys and eventually state borders in the Murray-Darling Basin. As a consequence, access to shared water resources are regulated by states and territories through water access entitlements, which are a tradable asset, and prices for water are determined by the market and are influenced by supply and demand drivers.</p> <p>The <i>Water Act 2007</i> (Cth) constitutes the legislative framework for the governance of the Murray-Darling Basin. It seeks to address the allocation imbalance between environmental and consumptive uses and provides for water charge and water market rules to regulate the water market across the Basin. However, the Northern Territory and Western Australia, which fall outside of the Basin, have not introduced statutory-based water rights.</p>
<p>Main Policy Evolution(s) from 2009 to 2019</p>	<ul style="list-style-type: none"> ▶ The adoption of the Murray-Darling Basin Plan (Basin Plan) in 2012 was a crucial reform for the management of water resources in the Murray-Darling Basin. The Basin Plan set sustainable diversion limits (SDLs), <i>i.e.</i> scientifically-derived limits on surface and groundwater extraction in the Basin. In order to attain the Basin Plan environmental objectives, 2,750 GL/y of water was to be recovered from irrigation for the environment through a combination of water efficiency infrastructure projects and the purchase of water entitlements in the water trade market. This recovery volume has now been reduced by 675 GL/y through the implementation of water infrastructure and river operation improvements (supply measures) as part of the SDL Adjustment Mechanism (605 GL/y) and a legislative amendment following the Northern Basin Review (70 GL/y). An additional 450 GL/y is also committed to be recovered through water delivery system upgrades that aim to improve water efficiency practices.⁴ ▶ Since 2016, the Australian Government has provided for a National Water Infrastructure Development Fund that co-invests with State and Territory Governments in water infrastructure. ▶ In October 2019, the Australian Government established the National Water Grid Authority (NWGA) as the Australian Government agency responsible for delivering a National Water Grid and administering the National Water Infrastructure Development Fund. The NWGA is pursuing targeted water infrastructure investments in partnership with State and Territory Governments to build drought resilience for primary industry.⁵
<p>Consistency between Agriculture and Water Policies</p>	<p>State and territory governments are principally responsible for the management of land and water resources, including improvements of coherence between water and agricultural policy. Whilst the Australian Government is not directly responsible for the day-to-day management and supply of water, it provides national coordination, leadership and support to ensure that Australian water resources are sustainable and managed efficiently and to develop new water resources.</p>

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

⁴ The Basin Plan is not yet fully implemented.

⁵ As part of the 2020-21 Federal Budget, the Australian Government announced an additional AUD 2 billion for new water infrastructure, taking the Australian Government's commitment to a National Water Grid to AUD 3.5 billion.

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

The key instrument to manage water demand is water markets. In April 2010, the Natural Resource Management Ministerial Council endorsed the National Water Initiative pricing principles.

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> <ul style="list-style-type: none"> ▶ Yes: <u>Under the Basin Plan, SDLs perform the role of targets within the Basin.</u> (Planning for the use of surface or groundwater is not done on a national scale as these are matters of responsibility of state governments.) ▶ <u>Water Resource Plans (WRPs) are critical to water management decision making in Australia's agricultural sector. WRPs set new rules on how much water can be taken from the Murray-Darling Basin, ensuring the sustainable diversion limit (SDL) is not exceeded over time. Each WRP sets out the rules for how water is managed at a local or catchment level. Basin state governments are responsible for complying with WRPs and accounting for water taken from the river system.</u> 	<p>Metering, monitoring and reporting</p> <ul style="list-style-type: none"> ▶ <u>Abstraction metering, monitoring and reporting are not undertaken nationally except for within the Murray-Darling Basin. Metering of abstraction is enforced and reported across the Basin by the relevant jurisdictions</u> ▶ The Murray-Darling Basin Authority (MDBA) completes five yearly reports that evaluate progress towards achieving the Basin Plan's environmental, social, cultural and economic outcomes. MDBA also maintains and publishes a register of the amount of water taken yearly in each region across the Basin, and assesses and reports on compliance with the sustainable diversion limits. ▶ In 2009, the National Framework for Non-Urban Water Metering was enacted. It is intended to be a nationally consistent framework for non-urban water metering
<p>Quantity targets accounting for climate change</p> <ul style="list-style-type: none"> ▶ Yes: <u>climate change was considered in the process of setting the Environmentally Sustainable Level of Take (SDLs) and informed the Basin Plan settings</u> 	<p>Scarcity pricing</p> <ul style="list-style-type: none"> ▶ Yes: Under the NWI, there are different prices across the Murray-Darling Basin, reflecting scarcity factors, geographical limitations and demands of the crops grown in those regions
<p>Water entitlements</p> <ul style="list-style-type: none"> ▶ Surface water: Establishment of water titles that are separate and unconnected to land titles. In most states and territories, water rights are split into a water entitlement, a delivery right and a site use approval ▶ Groundwater: Water rights regimes are less developed 	<p>Enforcement measures</p> <ul style="list-style-type: none"> ▶ <u>In 2018, the Council of Australian Governments endorsed the Basin Compliance Compact. It is an agreed work plan for Basin governments aiming to ensure that water rules are complied with and enforced across the Murray-Darling Basin</u> ▶ <u>The enforcement of SDLs began in 2019, with the first report assessing SDL compliance due to be published in early 2021</u>
<p>Proportion of cost recovery for surface water</p> <ul style="list-style-type: none"> ▶ Nearly all water basins cover operation and maintenance costs, some share of renewal and new capital costs, and environmental externality costs 	<p>Other policy instruments used to encourage water use efficiency</p> <ul style="list-style-type: none"> ▶ The Department of Agriculture, Water and the Environment funds water efficiency programs nationally ▶ <u>The MDBA has developed a Sustainable Diversion Limit Reporting and Compliance Framework. The framework sets out the steps for managing water use that exceeds sustainable diversion limits.</u> ▶ <u>Water markets allow water to be traded, both within a season and through the permanent transfer of water rights⁶.</u>

Note: Underline indicates changes since 2009

⁶ <http://www.agriculture.gov.au/water/policy/nwi/pricing-principles>

B.3. Policies to Control Agricultural Water Quality

Australia's National Water Quality Management Strategy (NWQMS) is a nationally agreed approach designed to facilitate water quality management for the productive and sustainable use of water resources and to protect aquatic ecosystems. While not mandatory, state and territory governments work with the Australian Government to develop and deliver the NWQMS.

All state and territory governments have established, in one form or another, water quality targets, objectives and plans in regulation, policy or both. In most cases, jurisdictional environment protection authorities have statutory responsibilities in the protection of water quality from agricultural activities with strict water quality standards in place for the protection of water for human consumption and exposure. Many regional natural resource management bodies, some of which are statutory authorities, have water quality objectives and targets and work with their communities on land management activities to maintain and improve water quality in waterways affected by runoff from agricultural land. Within the Murray-Darling Basin, a water quality management plan is a required component of the WRPs developed for each catchment by state and territory governments under the Basin Plan. These WRPs set water quality targets for irrigation water, and measures to achieve these targets and manage risks to water quality.

The Reef 2050 Water Quality Improvement Plan (2017-22), updated in 2018, sets targets for improving water quality and land management practices upstream (e.g. reducing loads of pesticides, sediments and nutrients). Mobilisation of sedimentary salts in the Murray-Darling Basin system is an ongoing challenge and is being managed under the Basin Salinity Management 2030 Strategy and catchment water resource plans. Western Australia has a 'State Water Quality Management Strategy' to implement the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, a key guideline under the NWQMS.

Table 4. Key instruments to improve water quality

<p>National water quality data collection tools</p> <ul style="list-style-type: none"> ▶ State and territory governments are primarily responsible for the monitoring of water quality and deploy a range of data collection techniques ▶ Part 7 of the Water Regulations set out the detailed requirements of the water information framework established by the Water Act. It defines who must give specified water information to the Bureau of Meteorology (the Bureau), and the time and format in which it must be given. The Regulations require listed organisations to give the Bureau specified water information, including information on water quality, that is in their possession, custody or control⁷ ▶ In partnership with industry, the Bureau publishes a National Industry Guideline for Water Quality Metadata. The purpose of the guideline is to encourage consistent collection of water quality metadata to improve the interoperability, quality and future usefulness of water quality data ▶ <u>In 2019, the revised Australian and New Zealand Guidelines for Fresh and Marine Water Quality was launched to provide an updated water quality monitoring framework to assist jurisdictional regulators with their water quality sampling, analysis and reporting requirements⁸</u> 	<p>Main policy instruments</p> <ul style="list-style-type: none"> ▶ <i>Regulatory</i>: Discharge licences for particular pollutants and polluters and ongoing monitoring scheme to ensure compliance ▶ <i>Economic</i>: Competitive grants, subsidies and tenders. Regional natural resource management bodies provide grants or co-funding under regional natural resource management plans to support land managers undertake sustainable farm planning ▶ <i>Information</i>: Australian governments develop general and sector-specific guidelines and guidance material to inform land managers of their impacts and obligations in protecting water resources as well as good practice land and water management procedures
<p>Spatial tools (e.g. topological, geometric, or geographic data analysis) to target policies in specific areas</p> <ul style="list-style-type: none"> ▶ <u>Yes: in relation to activities under the Reef 2050 Water Quality Improvement Plan, spatial technologies are used to inform modelling of pollution loads and monitor pollution transport in the catchment</u> 	<p>Enforcement measures</p> <ul style="list-style-type: none"> ▶ Licencing arrangements and associated penalties for breaches of licence conditions

Note: Underline indicates changes since 2009

⁷ <http://www.bom.gov.au/water/>

⁸ <https://www.waterquality.gov.au/anz-guidelines>

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

Table 5. Water risks and responses

	Droughts	Floods
Reported Trends	Increase in the frequency of extreme heat events and increase in the severity of drought conditions during periods of below-average rainfall in recent decades. The drying in recent decades across southern Australia is the most sustained large-scale change in rainfall since national records began in 1900.	Rainfall intensities have increased since the 2000s. As Australia's population continues to grow, more people and infrastructure are exposed to the risk of flooding.
Key Policies	The Australian Government employs a range of policy measures which directly and indirectly support drought adaption and mitigation in agricultural industries, such as: funding, infrastructure development, taxation measures, concessional loans, climate forecasting and mapping, targeted drought-relief community programmes, emergency rebate scheme and drought resilience programme.	When floods do occur, the Federal (national) government supports affected farmers and communities with financial assistance in cooperation with state and territory governments. State and territory governments are responsible for establishing flood adaptation and mitigation policies such as responsible development inside or outside of flood zones, encouraging natural growth in riparian zones, and reducing land clearing to assist soil infiltration and prevent erosion.
Main Changes from 2009 to 2019	The 2018 National Drought Agreement (NDA) provides a framework to enable consistency of drought policy and reform objectives and complementarity of drought preparedness, response and recovery programs.	-
Factoring of Climate Change in Policies	3/5: The Australian Government accounts for climate change through the Basin Plan. The MDBA is currently establishing a climate change research program that aims to understand the future impacts of climate change.	

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