AGRICULTURE AND WATER POLICIES: MAIN CHARACTERISTICS AND EVOLUTION FROM 2009 TO 2019[1]

KOREA

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[2] and additional official sources.

A. Agriculture and Water Characteristics

- Korea's agriculture mainly produces rice, dairy, livestock and vegetables. From 2000 to 2018, the share of livestock in the total agricultural production increased from 25% to 40% (OECD, 2020c).
- Korea is one of the most water stressed countries in the OECD, with a very low availability of water per capita (OECD, 2018a). Agriculture accounts for more than half of the country's water use (53% of total water abstractions in 2018) and close to half of groundwater use (OECD, 2015). Irrigated lands represent 44% of the total Korean agricultural area in 2018 (MAFRA and Korea Rural Community Corporation, 2018; OECD, 2020c).
- Agricultural activities account for more than 90% of diffuse biological oxygen demand (BOD) and total phosphorus pollution, and more than 65% of total water pollution(OECD, 2017). Nutrient surpluses are well above the OECD averages, resulting especially from the land use change of agricultural farmland including urbanisation, and an agricultural practice that overuses livestock manure and chemical fertilisers in the farmland. The nitrogen balance nonetheless decreased between 2000 and 2017 from 254 to 212 kg/ha, and the phosphorus balance went down from 50 kg/ha to 46 kg/ha during the same period (OECD, 2020a).

Table 1. Main challenges related to water in agriculture

Water use	Water pollution	Water-related risks
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Agriculture represents a large share of water abstractions, including from aquifers, with limited freshwater resources	Key pollutants from the agricultural sector is the overuse of fertilisers on farmland, including chemical fertiliser, food waste compost and livestock manure etc.	Frequent droughts and floods; increasing damages to agriculture due to disasters

Note: +: Minor issue; ++: Problematic issue; +++: Major issue. Source: OECD (2015, 2017, 2018a, 2019, 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 2019[3]

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

Table 2. Key agriculture and water policies and policy changes

Key Policies	Responsibilities for water management, especially large facilities (dams, reservoirs) are split between several Ministries (mainly the Ministry of Agriculture, Food and Rural Affairs (MAFRA), Ministry of Environment (MOE), Ministry of Land, Infrastructure and Transport), while the River Law and the Civil Law govern water rights. MOE has proposed the Water Environment Management Master Plan in 2006, which presents the government's policy directions for 2006-15. The Plan aims to promote ecologically healthy water environment to ensure high quality. MAFRA establishes the "*plan for rationalising rural water use"* every 10 years.
Main Evolution from 2009 to 2019	► Changes in water resources policy: the water management system was updated in 2010 in response to climate change. ► Change in the national water management policy (Integrated Water Resources Management - IWRM) by uniting the water management system that was divided between quantity and quality.
Consistency between Agriculture and Water Policies	*Unspecified*

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

Table 3. Key instruments for the management of water use

Quantified national future targets for the use of water resources in the agriculture sector MAFRA establishes the *plan for rationalising rural water use* every 10 years. (The demand for agricultural water in 2020 is estimated to be 15.4 billion tons)	**Metering, monitoring and reporting** ► Metering: No ► Monitoring: No ► Reporting: No ► Korea establishes measures for metering according to IWRM (installing measurement devices to estimate demand)
Quantity targets accounting for climate change The Comprehensive Plan of Agricultural Water takes climate change into consideration	**Scarcity pricing** No
Water entitlements Customary use right under the Civil Law, based on permit under the River Law. The Korea Rural Community Corporation (KRC) manages the water rights of farmers. For non-KRC farmers, the rights belong directly to the farmer	**Enforcement measures** *Unspecified*
Proportion of cost recovery for surface water ► 0% for KRC and the government operated districts (about ⅔ of the irrigated area) ► 30% of Operation and Maintenance costs for other irrigators	**Other policy instruments used to encourage water use efficiency** ► Subsidies, Water supply cost recovery, Farm advice and research ► Farmers operating under KRC are exempt from water supply cost recovery charges, excluding labour costs

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

B.3. Policies to Control Agricultural Water Quality

Since 2009, the Agricultural Environmental Conservation Program has been launched to reduce non-point source pollutants.

Table 4. Key instruments to improve water quality

National water quality data collection tools	**Main policy instruments**
► Chemical monitoring ► A national database presents the results of the agricultural water quality measurement network provided by the Water Environment Information System of MOE	► *Regulatory*: Restrictions on plant building in the upstream of agricultural reservoirs and No-Fishing (restricted) Zones ► *Economic*: Pilot operation of the Agricultural Environment Conservation Programme for the reduction of agricultural nonpoint source ► *Information*: No
Spatial tools (e.g. topological, geometric, or geographic data analysis) to target policies in specific areas *Unspecified*	**Enforcement measures** Water Quality Improvement Project for agricultural reservoirs since 2007 (32 districts had been completed by 2018)

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

Table 5. Water risks and responses

	Droughts	**Floods**
Reported Trends	The incidence and severity of droughts is increasing.	Due to the frequent occurrence of rainfall on an unprecedented scale, as well as extreme climate change, floods are increasing in scale and frequency.
Key Policies	Drought warning system and preparation of agricultural disaster indemnity. The Agricultural Drought Management System (ADMS) provides drought information to the public, and expands access to drought information including the status of storage rates and mapping of upland water availability.	Preventive approach for flood adaptation and mitigation thanks to a flood warning system and an integrated water resources management system development.
Main Changes from 2009 to 2019	-	-
Factoring of Climate Change in Policies	3/5: Although research on climate change (e.g. climate change surveys) has been fruitful, there is a lack of policy considerations (reflecting project costs, etc.) due to conservative investment plans in the agricultural sector. Relevant laws will be revised so that climate change impact/vulnerability results will be considered in policy making.	

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