

This country profile was compiled by the OECD Secretariat and reflects information available as of March 2015. Further information and analysis can be found in the publication: OECD (2015) *Water Resources Allocation: Sharing Risks and Opportunities*, OECD Studies on Water, OECD Publishing. Country profiles for all of the 37 allocation regimes in 27 OECD and key partner countries surveyed for this project are available for download at: <http://www.oecd.org/fr/publications/water-resources-allocation-9789264229631-en.htm>.

KOREA

Overview and highlights

Korea is a country with abundant rainfall, although it is concentrated in the summertime. Water resources allocation is primarily managed by different ministries depending on the type of use. Municipalities are also involved. Ground water and surface water are publicly owned.

Key characteristics of the prevailing allocation regime in Korea include:

- Water resources are considered neither over-allocated nor over-used;
- Water entitlements are unbundled from property titles;
- If an entitlement is not used in a given period, it will be lost (e.g. "use it or lose it");
- Before a new entitlement can be granted, securing environmental improvement water for river ecosystem is required;
- Abstraction charges apply to domestic, industrial, energy production and hydropower. Charges are based on the quantity of water usage and do not reflect water scarcity;
- During episodes of scarcity, the Ministry of Land, Infrastructure and Transport has the authority to adjust the use of river water, as described in the River Act, but there has never been such a case in Korea.

Legal and institutional setting for water allocation

Institution	Scale	Main Responsibilities
Ministry of Land, Infrastructure and Transport	National	Water Quality Management, Policy, Planning, Monitoring, Management
Ministry of Environment	National	Water Quality Management, Regional Water Supply Planning
Ministry of Agriculture, Food and Rural Affairs	National	Agricultural Water Management, Planning
Ministry of Trade, Industry and Energy	National	Hydro Power Management
Municipality	Local (Municipal)	Local River Maintenance

Legal context for water allocation: Roman/ Statutory Law

Legal definition of ownership of water resources: Ground water and surface water are publicly owned.

Tracking water scarcity

A mapping exercise has been undertaken to identify areas where the scarcity of groundwater and surface water is becoming a problem: Long-term Water Resources Plan (2011-2020). This plan is reviewed every five years and it will be revised if necessary.

Allocation Regime Example: Surface Water Systems in Korea Controlled by the River Act (national scale)

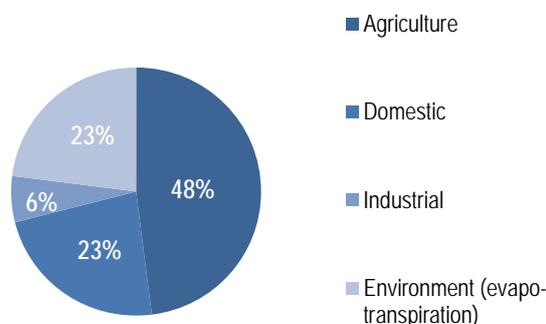
Physical features of the water resource

Korea is a country with abundant rainfall. Annual average rainfall of Korea is 1 283mm, which is 1.4 times larger than the global average rainfall. However, annual rainfall per person is 2 591mm which is 13% of the global average. Two-thirds of the annual rainfall is concentrated during the summertime - from June to September. Surface runoff such as river, dam and groundwater accounts for 58% of the total water amount, whereas the rest is lost as evapo-transpiration. Of the total surface runoff, water from the river, dam and groundwater accounts for 10%, 14%, and 3% respectively, while the remaining 31% of surface runoff goes out to the sea. This means that only 27% of the total water amount is usable.

The **flow rate is managed or controlled** to some extent, as water systems are partially regulated.

There is **significant non-consumptive use** for the hydropower generation and river maintenance flow.

Mean annual inflow/ recharge consumed per use:



Defining the available resource pool

Are limits defined on consumptive use? Yes.

- There is a limit in the volume of water that can be abstracted, which is linked to a river basin management plan prepared by the Ministry of Land, Infrastructure and Transport. It is a statutory instrument that must be followed.

Are environmental-flows clearly defined? Yes.

- Environmental-flows are defined as the minimum flow for river maintenance, as defined in the River Act.
- Freshwater biodiversity is taken into account by calculating the amount of water needed for the spawning and growth of fish. Terrestrial biodiversity is not taken into account.

Are there arrangements to deal with impacts of climate change? Yes.

- For adaptation to climate change, the Korean government is researching the Smart Water Grid System and desalination for the extreme drought. The Smart Water Grid System is an advanced water resources management system, which is linked with ICT, and uses multi-regional sources (e.g. rainfall, river water, desalination, dam (or reservoir) water, and reused wastewater).

What is the status of resource pool? Neither over-allocated nor over-used.

Factors taken into account in the definition of the available resource pool

Factor	Taken into account?	If taken into account, how?
Non-consumptive uses (e.g. navigation, hydroelectricity)	✓	
Base flow requirements	✓	Based on water shortage frequency for 1 in 10-year events
Return flows (how much water should be returned to the resource pool, after use)	✓	65% of domestic and industrial usage, 35% of agricultural usage

Inter-annual and inter-seasonal variability
Connectivity with other water bodies
Climate change

Entitlements to use water

Definition of entitlements	Characteristics of entitlements
<p>Are entitlements legally defined? Yes.</p> <p>Are private entitlements defined? Yes, as an individual entitlement (to an individual person) and as a collective entitlement to an institution representing water users (e.g. WUAs).</p> <p>Nature of entitlement: Defined as the maximum volume that may be taken in a nominated period. Water entitlements are unbundled from property titles.</p> <p>Period granted for: A term of 10 years with expectation of periodic renewal.</p> <p>Return flow obligations: Not specified.</p>	<p>If the entitlement is not used in a given period, it will be lost (e.g. "use it or lose it").</p> <p>Are entitlements differentiated based on the level of security of supply (or risk of shortage)? No.</p> <p>Is there a possibility to trade, lease or transfer entitlements? No.</p> <p>Are allocations (the amount that can be taken at any point in time) managed separately from entitlements? No.</p> <p>Is allocation trading allowed? n/a.</p> <p>Can entitlements function as a financial instrument?</p>
<p>Type of users not required to hold a water entitlement to abstract water: None.</p> <p>Requirements to obtain a new entitlement or to increase the size of an existing entitlement: Securing environmental improvement water for river ecosystem.</p>	

Abstraction charges

User category	Abstraction charge?	Basis for charge	Reflects water scarcity?
Agriculture	n/a		n/a
Domestic	✓	Quantity of water usage	No
Industrial	✓	Quantity of water usage	No
Energy production (not including hydro power)	✓	Quantity of water usage	No
Hydro power	✓	Quantity of water usage	No

Dealing with exceptional circumstances

Distinction between the allocation regimes used in “normal” and extreme/severe water shortage times? Yes.

How is the amount of water made available for allocation adjusted: The Ministry of Land, Infrastructure and Transport formulates a twenty-year water resources plan to secure the efficient use of water resources, and the development and preservation of rivers, as prescribed by the Presidential Decree. The Minister also formulates a ten-year comprehensive water control plan for river basins (basin water control plan), which includes the contents needed for the optimum development and the use of water resources at river basins, improvement of the river environment and prevention of flood, as well as minimization of flood damages, etc. Lastly, The Minister reviews the feasibility of the basin water control plan every five years from the date that the plan was formulated, and if necessary, revises the plan.

Definition of “exceptional” circumstances: There are several circumstances that can constitute “exceptional” circumstances, as follows: 1. When it is difficult to secure the flowing water volume for river maintenance at a standard location; 2. When there is a possibility that public interests will be impaired due to the prolonged drought unless the permitted quantity of river water is adjusted; 3. When the user of the river water has not used it within the effective period, or the amount of water used is less than permitted amount, in particular below the rate determined by the Ordinance of the Ministry of Land, Infrastructure and Transport; 4. When it has become difficult to use the permitted river water, etc.

Stakeholders are involved via The River Water Adjustment Council, which is composed of not more than twenty members, including general public officials, persons of profound learning and experience in this field, right holders of river water, persons who have interests in river water use, persons recommended by the mayor or governor among those belonging to the civic organisations, persons recommended by the developers of dams and persons deemed by the chairman to have interests in the use of river water.

Legal bodies declaring the onset of “exceptional” circumstances: The Ministry of Land, Infrastructure and Transport. It is mandated to adjust the use of river water, as described in the River Act, but there has never occurred to date in Korea.

Pre-defined priority classes



Monitoring and enforcement

Types of withdrawals monitored: Domestic, industrial, energy production, environment, transfer to the sea or another system and national security. Agricultural use is not monitored.

Responsible authority:

- Domestic: Municipality and K-water;
- Industrial use and energy production: Municipality.
- Environment: Ministry of Land, Infrastructure and Transportation and Ministry of Environment;
- Transfer to the sea or another system: Ministry of Oceans and Fisheries;
- National security (e.g. protection of infrastructure and critical dikes, nuclear plants): Ministry of Trade, Industry and Energy.

Monitoring mechanisms: n/a.

Sanctions: None.

Conflict resolution mechanisms? No.