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.

SWITZERLAND

Overview and highlights

Switzerland is a water tower of Europe. Its share of European waters amounts to 5%. Average renewable water availability amounts to 5100m^3 per person per year (3 times the global average). The Confederation, Districts (Cantons) and local authorities (communes) are the main responsible for water allocation. Recent concerns about water shortages or scarcity and climate change pressed for a water management reform[1].

Key characteristics of the prevailing allocation regime in Switzerland include:

- Public use is the major type of water uses (51% of mean annual inflow/ recharge);
- There is significant non-consumptive use in hydro power and navigation;
- Environmental and freshwater biodiversity flows taken into account in the definition of the resource pool;
- Water resources are considered neither over-allocated nor over-used;
- Before a new entitlement can be granted an assessment of third parties and environmental impact assessment (EIA) are required.

Legal and institutional setting for water allocation

Institution	Scale	Main Responsibilities
Confederation	National	Protection of water resources. National strategy. Technical support. Monitoring.
Districts (Cantons)	Provincial/State/Regional	Priorities for water access. Entitlements.
Local authorities (communes)	Local (Municipal)	

Tracking water scarcity

No mapping exercise has been undertaken to identify areas where the scarcity of surface and ground water is becoming a problem. However, a national strategy supports the development of mapping at district level.

[1] Report to the Federal Council on the management of local water shortages, October 2012. In French, Gérer les pénuries locales d'eau en Suisse. Rapport du Conseil fédéral en réponse au postulat Eau et Agriculture. Les défis de demain. (17 Octobre 2012).

Allocation Regime Example: All Water Bodies in Switzerland (national scale).

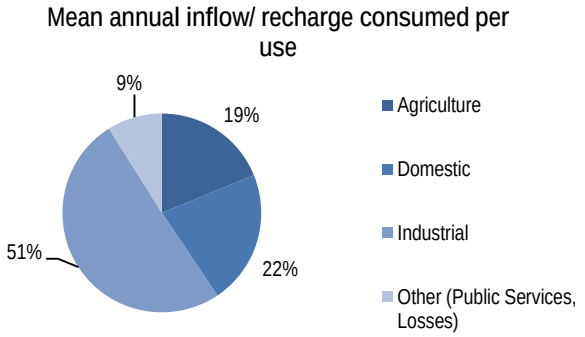
Physical features of the water resource

Water resources in Switzerland include aquifers (150 billion m^3), natural lakes(130 billion m^3), ice caps (58 billion m^3), snow pack (5 billion m^3, in the spring), storage (4 billion m^3). Rainwater amounts to 60 billion m^3 per year. In the Alps, seasonal variations are significant.

Average renewable water availability amounts to 5100m^3 per person per year (3 times the global average).

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

There is **significant non-consumptive use** in the hydro power (1 600 million m^3) and navigation.



Defining the available resource pool

Are limits defined on consumptive use? Yes.
There is a limit in the volume of water and to the proportion of water that can be abstracted.

Are environmental-flows clearly defined? Yes.
Any abstraction should leave at least 80% of a specified flow in the river; capped at 1000 l/s. Additional restrictions apply. Districts have some room of maneuver to adapt to local and/or exceptional circumstances. Freshwater biodiversity flows also considered as minimal flow requirements for fish migrations (20 cm depth) and conservation of valuable biotopes.

Are there arrangements to deal with impacts of climate change? Yes.
A new strategy is in place to better anticipate and adapt to climate change. It covers general measures, measures related to exceptional circumstances, better knowledge of water availability and use, and sectoral measures (agriculture, water supply, navigation, energy).

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	✓	
Return flows (how much water should be returned to the resource pool, after use)		
Inter-annual and inter-seasonal variability		
Connectivity with other water bodies		
Climate change		

Entitlements to use water

Definition of entitlements

Are entitlements legally defined? Yes.

Are private entitlements defined? Yes, defined as owned by an individual (to an individual person) or a collective group (to a group of persons/ organisation/ city). A district (or several districts if the river crosses borders, or the Department in some cases) can allocate water rights to a single or a collective entity.

Nature of entitlement: n/a.
Period granted for: n/a.
Return flow obligations specified? n/a.

Characteristics of entitlements

If the entitlement is not used in a given period, n/a.

Are entitlements differentiated based on the level of security of supply (or risk of shortage)? n/a.

Is there a possibility to trade, lease or transfer entitlements? n/a.

Type of users not required to hold a water entitlement to abstract water: n/a.

Requirements to obtain a new entitlement or to increase the size of an existing entitlement: Assessment of third parties and environmental impact assessment (EIA).

Predefined priority classes

1. Agriculture (Cattle) + Domestic
2. Other priorities set by districts (cantons)

Abstraction charges

User category	Abstraction charge?	Basis for charge	Reflects water scarcity?
Agriculture	Yes	Based on capacity of the installation	No
Domestic	No		
Industrial	No		
Energy production (not including hydro power)	No		
Hydro power	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: n/a.

Definition of "exceptional" circumstances: During these situations, abstraction of surface water can be banned to secure access for people and cattle and to protect the environment. If required, non-compliance with minimal flows can be considered.

Legal bodies declaring the onset of "exceptional" circumstances: Districts (cantons).

Monitoring and enforcement

Responsible authority: Users.

Types of withdrawals monitored: Agriculture.

Monitoring mechanisms: Metering (or other means, if disproportionately costly).

Sanctions: Imprisonment (up to 3 years) and fines (up to 20 000 Swiss Francs).

Conflict resolution mechanisms? n/a.