WWF Water and Wetland Index – Critical issues in water policy across Europe

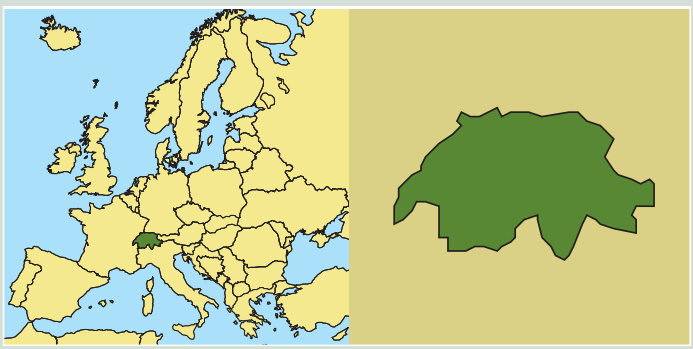
November 2003

Results overview for Switzerland

This fact sheet summarises the results of the Water and Wetland Index for Switzerland. Information about the project and the different issues presented in this fact sheet, as well as the pan-European results can be found in the WWF Report "Water and Wetland Index - Critical issues in water policy across Europe" (2003).

Water Resources in Switzerland

Switzerland is landlocked and is part of the watersheds of five European river systems: around 68% of its surface water flows through the Rhine into the North Sea, 28% through the Rhone, the Po and the Adige into the Mediterranean Sea and 4% through the Inn via the Danube into the Black Sea. Precipitation varies from region to region between 400mm and 3000mm a year (1500mm average). Whereas water quality in Switzerland is mostly good, up to 90% of Swiss rivers are heavily modified in morphology and hydrology. The hydrological regimes and the structure of the riparian zone are mostly artificial. The rivers are strongly fragmented by infrastructures (hydroelectric dams, flood protection measures, river corrections). Around 90% of natural wetlands have disappeared in the past 150 years. Today, semi-natural floodplains cover only 0.26% of Switzerland's area. The human influence leads to severe stress for natural aquatic systems, which have experienced a sharp decline in freshwater biodiversity.



Application of Integrated River Basin Management principles

Public participation in water management

Switzerland's direct democracy includes established elements and instruments for public participation on a legal basis. NGO's or other environmental stakeholders often criticize that the existing instruments are too weak, opportunities for influence are only moderate, and that economic interests have more weight than environmental concerns. However, some of the stakeholders involved in the WWI felt that the possibilities to participate are good and that the possibilities are the same for everybody. The level of influence depends primarily on the NGO's own efforts, and on what elements (out of all possible formal and informal elements) are used to achieve the defined targets. NGO's can use the same mechanisms as business and industry, but their efforts are (or seem to be) often limited by the available financial or human resources.

Information provision	☺☺
Public consultation	☺☺
Active involvement	☺

Integrated management of water resources

The integrated approach on the national level is well established on a legal basis (Laws and Ordinances) and in guiding principles (e.g. the concept “Bodies of Flowing Water”). The existing laws cover almost all the aspects of integrated water management. However, economic criteria are often seen as more important than ecological needs, and our interview-partners have identified clear deficits in some laws (e.g. regulations for agriculture). Moreover, the existing laws are often not fully implemented at a cantonal level, or their implementation is very slow (e.g. residual water) and environmental protection is not given the desired priority, which is shown in the generally low human and financial resources available.

Integrated approach in water policy ☺

International co-operation ☺

Despite the spreading of the idea of an integrated approach, water protection is still strongly influenced by the traditionally sectoral approach. The necessary coordination between the different sectors and the different stakeholders and national authorities involved seems to be very costly and slow. The implementation of existing laws at a cantonal level is often not satisfactory. There are big differences regarding the application of the integrated approach in water management, with all the targets, measures and time schedules necessary. However, as usual, there are good examples as well as bad ones. The emphasis and the priority of environmental problems seem to be strongly dependent on the current political situation in a canton and the attitude of the relevant cantonal authorities.

The international cooperation to manage international river basins or border waters is generally good.

Wetland management

The role and the positive functions of wetlands and floodplains are well known and generally accepted. Protection and restoration measures are legally binding and are well integrated in freshwater management schemes. However, the implementation of the measures to protect and restore floodplains are severely delayed in most cantons because of a lack of resources or the lack of political will to implement the measures. Almost all large wetlands and floodplain areas were drained and destroyed in the 19th and 20th century in order to gain agricultural land or settlement area. Today, attempts are made to restore rivers and wetlands for flood control and improvement of ecological deficiencies. Presently, many but mostly small and isolated floodplains and wetlands exist. Hence, they have a biodiversity and socio-economic value rather than a significant function for flood protection, aquifer recharging or reduction of pollutants. However, large river stretches are heavily affected by water extraction for hydropower productions, leaving virtually no residual water in the river bed.

Wetlands in water management 😐

Wetland protection 😐

Wetland restoration 😐

Response to key pressures and impacts on freshwater ecosystems

Water quantity problems (household)

Water quantity problems due to the use of water in households or for agricultural irrigation have not been of major importance so far. Nevertheless, a monitoring program for ground and surface water levels does exist and it will be extended to detect possible future problems well in advance.

Legal instruments	☺
Financial instruments	☺
Information instruments	☺

Water quality problems (agriculture)

Qualitative water protection has a long tradition in Switzerland. Effective preventative measures (e.g. waste water treatment plants, ban of phosphates in detergents) led to a massive reduction of nutrient inputs to the environment and therefore to a significant improvement of water quality in rivers and lakes. However, the problem of high input of nitrate and pesticides from agriculture into surface and ground waters is still unsolved. Causes and sources of this non-point pollution have been identified and first measures to reduce the input have been taken (e.g revision of the Federal Law on Agriculture, nitrate- and phospate-programs, ecological cross compliance for all agriculture subsidies). However, the implementation of these regulations is often still in the pilot-stage and very poor. Meanwhile it has become generally accepted that the measures taken so far are not sufficient, since they only cover one part of the new ecological requirements, and that the existing laws in agriculture are often too weak. The conversion of farmland in extensively used grasslands or semi-natural habitats (buffer-zones) is absolutely necessary in critical areas (areas close to surface and ground water). For further improvement, it would be essential to convert former farmland alongside rivers to natural floodplains. Thus, it would be necessary to reorganize the land use planning and to pay compensation to farmers for the loss of farmland.

Legal instruments	😐
Financial instruments	😐
Information instruments	😐

Measures in the agricultural sector are difficult to introduce. It seems that the understanding for the problems related to water protection does exist, but the political will for change does not! A strong “farmer-lobby” prevents or delays effective ecological measures.

Little is known about the problems and possible effects of new chemicals and anthropogenic substances that are daily used in households and industry (e.g. endocrine disrupters). Research is in progress, but measures can politically not be introduced as long as the knowledge is not more comprehensive.

River fragmentation due to infrastructure

A major problem is the physical fragmentation of rivers by dams and the "missing" residual water downstream of water abstractions for hydro-electrical power stations. Despite clear legal regulations for dam operators, severe problems still occur all over Switzerland. The lack of fish ladders and bypasses impede fish migration, and non-compliance with residual water regulations leads to ecological water quantity problems in large river stretches. Another problem is the seasonal or daily variation (hydro peaking) in river flows caused by dams, which heavily affect natural processes in rivers.

River fragmentation and dams 

Two main reasons are responsible for the current situation:
a) The "new" regulations in the Federal Law on Water Protection apply only for new dams, or when existing hydro-electrical power stations are in need of a new license (after the end of the existing license period). But existing licenses are often valid up to 80 years!
b) Regulations are sometimes simply ignored. The national authority (SAEFL) has delegated the responsibility to control the implementation of the laws to the cantonal level. But cantons find themselves often in a conflict of interest: on one hand they should give the concession or license according to the new regulations, on the other hand they can directly profit financially from the hydro-electrical power stations or are even the owners (or shareholders) of the hydropower companies. Independent control does therefore hardly exist.

The Federal Law on Flood Control, the Ordinance on Flood Control and the different Guidelines published by the Federal Office for Water and Geology (FOWG) and the Swiss Agency for the Environment, Forests and Landscape (SAEFL) acknowledge a new era in flood control and water management. Elements like restoration of floodplains and wetlands, aquifer recharge, protection of habitats for aquatic organisms and other topics are included. A central point is the statement that flood protection has to be assured primarily by preventive measures (spatial development, restoration, space demand for rivers and streams). Up to now, only small projects have been carried out, while larger projects are still in a planning phase. It will only be in a few years that it can be assessed, how good the laws and measures are, and how good the implementation works. Due to the high population density and the small territory of Switzerland the land need for river restoration will be a big problem.

River fragmentation and flood defence 

Legend:

Very good	Good	Fair	Poor	Very poor
				

Further information:

The Water and Wetland Index for Switzerland was completed by WWF Switzerland.

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