

Drought

Despite the fact that water is abundantly available in France, there are chronic imbalances between withdrawals and resources available in a number of basins. Large stretches of river regularly dry up in the summer and the water table in some areas can drop substantially. These chronic situations are different from the difficulties experienced in exceptionally dry years. However, the regular occurrence of dry years increases the vulnerability of those sectors that are subject to excessive withdrawals. Supplementing the implementation of all available regulatory instruments aimed at securing water supplies, a water scarcity management plan has been formulated.

National water supply strategies and measures to prepare for drought

The water scarcity management plan, adopted by the Council of Ministers in October 2005, is in three parts:

- reinforce the legal priority given to drinking water;
- improve water management by users (compulsory meters), farmers (agricultural research, collective organization, support for discontinuation of irrigation, new reserves) and industries (by sector);
- seek better sustainable use of water (recovery of rainwater and waste water, desalination, groundwater replenishment).

The purpose of this plan is to sustainably reduce France's exposure to drought, by providing additional safety margins (particularly with respect to the drinking water supply) and by reconciling the various uses while preserving the quality of aquatic environments.

Knowledge and monitoring of soil quality

Knowledge and monitoring of soil quality in France are primarily covered by a scientific interest group on Soils (*Groupement d'intérêt scientifique "Sol" – GIS Sol*) made up of the Ministries responsible for Agriculture and Ecology, the National Institute for Agronomic Research (INRA), the French Environment and Energy Management Agency (ADEME) and the Research Institute for Development (IRD).

These programmes focus on:

- comprehensive pedological mapping of French territory;
- a network to measure the quality of soils and changes in soil quality, based on 2,200 observation points throughout the country;
- a soil analysis database.

The *GIS Sol* is responsible for designing, guiding and coordinating soil geography inventory work and for soil quality monitoring operations. It sets up, develops and manages a soil information system to meet the information needs of national and European public authorities and of society at large. It ensures availability and utilisation of data and results obtained from these actions, as well as coordination with European programmes of a similar nature.

Water supply strategies

Impact on drinking water has been limited thanks to the work done on water availability and above all thanks to the water supply network interconnections built since the drought of 1976. Only a few isolated municipalities which did not carry out this work may today have supply problems (the only recent example: in 2005, 3,000 people were drawing their water supplies from cisterns, out of a population of 60 million).

Drought emergency plans

These plans consist in restricting withdrawals by the main consumer (irrigation in the agricultural sector) and the other sectors (manufacturing industry and energy) for the benefit of drinking water supplies.

The national framework is structured by department, with four staged levels, defined in terms of piezometric level or flow rate:

- vigilance;

- alert: slight limitation of withdrawals;
- crisis: partial ban on withdrawals;
- reinforced crisis: total ban on withdrawals (according to use).

Use of information on climate and weather conditions, forecasts and monitoring and rapid warning data to mitigate the effects of drought

The website of the ministry in charge of ecology provides every month (every two weeks in the summer) data on weather, hydrology, piezometric pressure, and fill level of the major retention dams. This data is compared to the average of the last fifty years or calculated in terms of frequency.

Announcements made by the ministries at the beginning of years identified as dry have enabled farmers to adjust their choice of crops.

The water scarcity management plan set up in 2005 has produced first results that are satisfactory with respect to both individuals (following communication campaigns introduced in 2006) and of farmers and manufacturers. INRA carried out a "drought and agriculture" review in 2006. It provides a rigorous comprehensive analysis of the relevant international scientific literature. It also makes data available to public authorities and stakeholders to support decision-making, particularly: establishing the physical basis for balanced water resource management; exploring the possibilities for setting up cultivation and production systems better adapted to the new circumstances; analyzing the available avenues for economic and policy action.

Moreover, the law on water and aquatic environments of 30 December 2006 included legal provisions on: priority for drinking water over other uses; collective organization of irrigating farmers; quantitative safeguard zones; mandatory water meters in new apartment buildings; coverage of domestic wells; water savings as part of the Water Agencies mandate, etc. Other work is under way in the framework of the management plan and should make real progress possible.