

# SWITCH PROJECT: ZARAGOZA, SPAIN

<http://www.zaragoza.es/ciudad/medioambiente/agenda21/switch.htm/>



**ZARAGOZA**  
**LEARNING ALLIANCE**



In Zaragoza, the Learning Alliance works within the Water Commission. This is a multidisciplinary consultancy team which meets when important topics related to water arise.

## The LA process

The Water Commission is already working on water-related topics (use, demand, cost recovery, leak detection). This team includes the main stakeholders in Zaragoza. There are currently 29 members, and there are further plans to link to several Actur neighbourhood associations (Actur is the SWITCH study area and is where EXPO 2008 took place), and particularly, to the Regional Government (of Aragón), whose involvement is key to the solution of several political and economic problems.

## LA Members

- River Basin Organisation
- Zaragoza University
- Infrastructure Department of Zaragoza Municipality
- Finance Department of Zaragoza Municipality
- Public Health Institute of Zaragoza Municipality
- Local Agenda 21 of Zaragoza Municipality
- Zaragoza Business Confederation
- Engineers Association
- Pharmaceutical Association
- User and Consumer Association
- UGT and CCOO Trade union

## FACTS & FIGURES

- Zaragoza has a population of 650,000 inhabitants
- It is situated 300 km north-east of Madrid, and lies at the confluence of two tributaries of the Ebro River, the Gállego River from the north and the Huerva River from the south
- The Hydrographic Ebro Basin Confederation (CHE) is responsible for the management of the Ebro River

## VISION & GOALS FOR URBAN WATER MANAGEMENT

- To reduce water losses in the study area
- To monitor consumption by the installation of a new metering system
- To promote good habits and behaviours related to water among the students and the educational community and to disseminate and communicate the results to the population
- To encourage wastewater reuse
- To apply lessons learnt throughout Zaragoza



## MEASURING SUSTAINABILITY

- Awareness levels
- Household water consumption reduction
- Reduction of water leakages
- Wastewater reuse
- Cost recovery

## ZARAGOZA'S WATER SYSTEMS & PRESSURES

Zaragoza has low levels of rainfall (~350mm per year), with almost zero rainfall in summer. Water supply is currently abstracted from the Rio Ebro via the Imperial Canal on the south bank of the river.

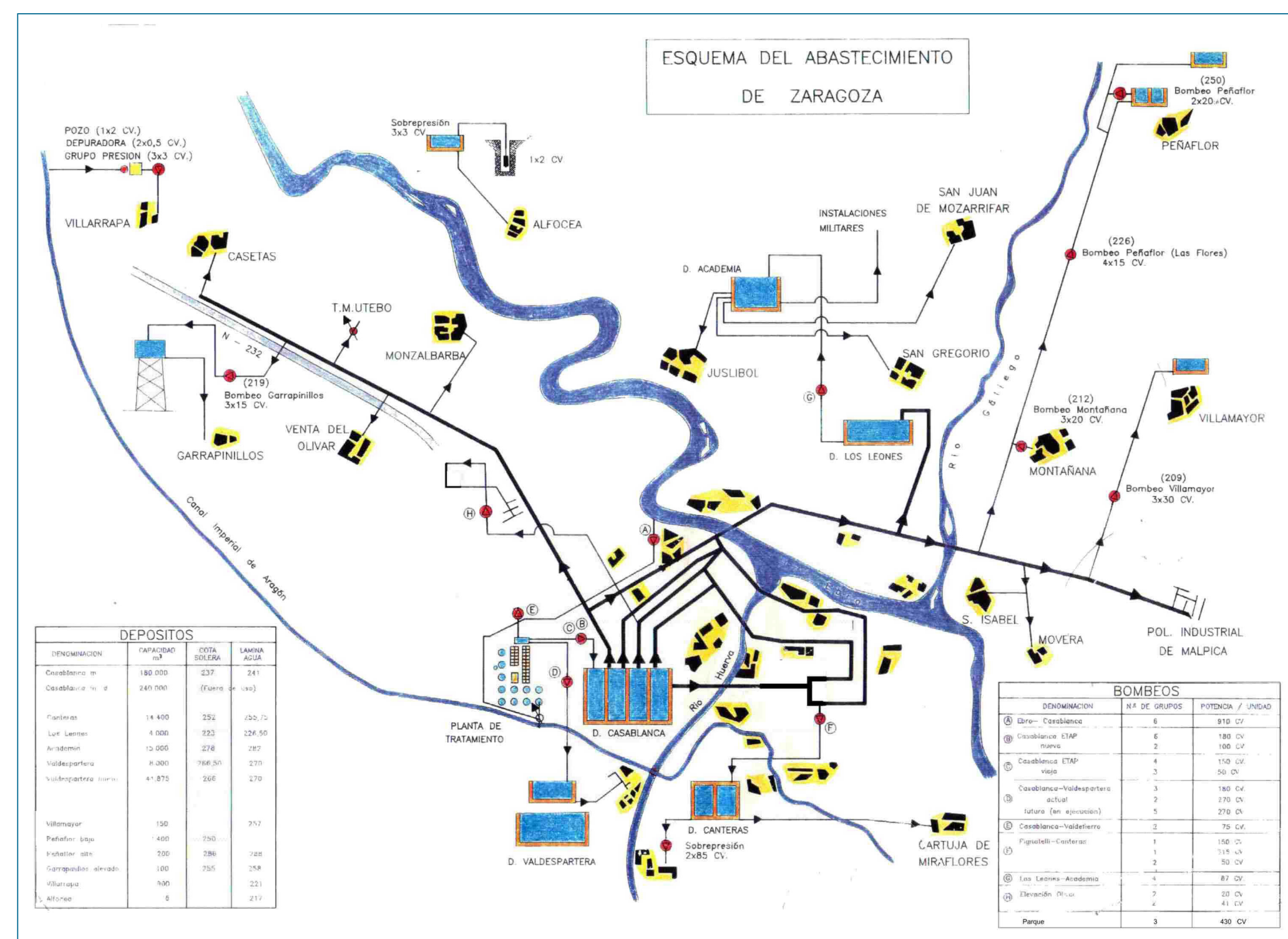
Zaragoza Municipality has 325,000 water meters installed in the city, ninety per cent of which are for domestic consumption.

The volume of water received in the drinking water treatment plant is 280 litres per inhabitant per day. This compares to an average domestic consumption of 120 litres per inhabitant per day (figures obtained from the average value of domestic meter readings).

There is one drinking water plant in Zaragoza which collects the water from the Ebro river and the Imperial canal and distributes it to several tanks allocated in the city. The treatment of the wastewater is as follows: physical, chemical and disinfection, and active carbon to avoid flavours and smells.

## Issues and challenges

- Municipal water rates are complex and do not provide the motivation to make savings in water consumption
- Analogue meters are not precise and, in addition, the degree of measurement error is not known
- The extent of network leakages is not known
- Storage tanks within the buildings may not be needed. Furthermore, they could be prone to leakage and have no sanitary controls
- Drinking water is sometimes used to water gardens



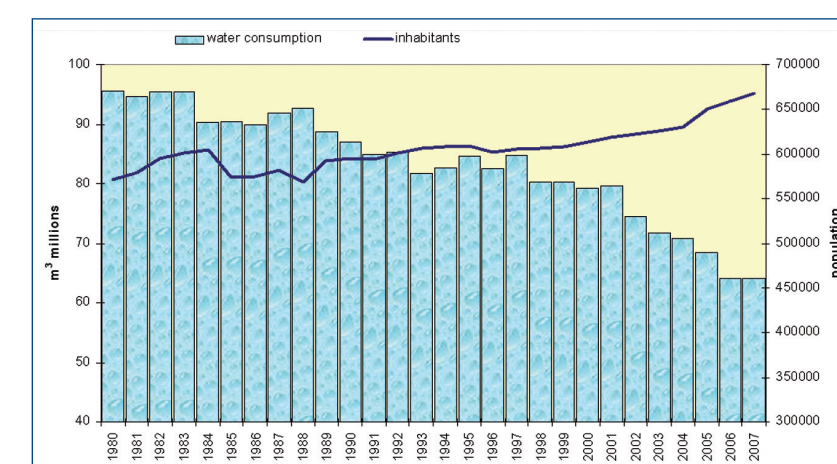
## DEMONSTRATIONS



## POTENTIAL FUTURE SCENARIOS

The two main objectives are to reduce both network leakages and the consumption of domestic, municipal and industrial water.

- Related to the former, monitoring consumption by the installation of new metering systems will contribute to reducing water losses in the study area. More knowledge about how the network works and where the leakages take place would allow the formulation of action plans to address this. In the future, this could also be scaled up throughout Zaragoza.
- In relation to the latter objective, a new tariff system, together with water education programmes in the city will help to reduce household water consumption. Finally, the Municipality would like to promote wastewater reuse.



## RESEARCH FOCUS AREAS

- Analysis of water consumption in households
- Analysis of water supply costs
- Analysis and design of water supply tariffs

