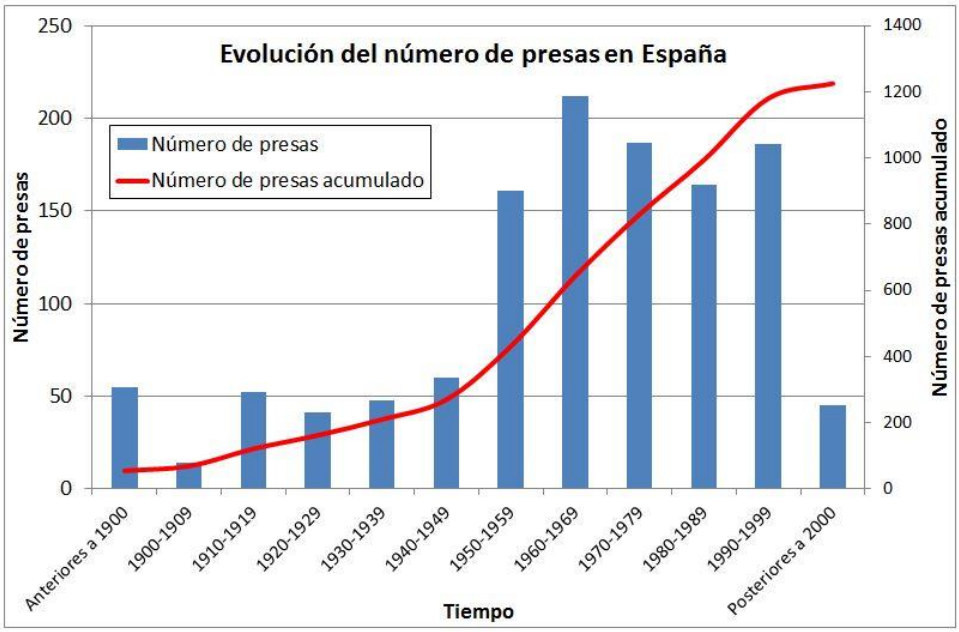
Developing a Visualization Tool to Monitor Reservoir Fill in Spain

Problem Description and Background

"I have survived a civil war, a world war and a pertinacious drought, so this is not going to kill me" - My grandma, anytime something bad happens. Own translation.

The drought which my grandma mentions so often happened right after the Spanish civil war and is in fact a succession of multiple droughts between years 1944 and 1955. These severe droughts put the already ravaged Spanish economy at the time under huge stress as these droughts caused famine and food rationing.

These famines have left a terrible memory in the minds of those who experienced it. They also explain the urge the Spanish government felt to build many reservoirs and water management infrastructures, as these dry cycles have repeated throughout Spanish history. This was translated in just under 1000 reservoirs being built only during Franco's dictatorship 1939-1975 (see image below).



This makes of Spain the 5th country in the world and the 1st in the EU with the most reservoirs, 1225, whilst being the 29th country by population as of 2019, with just under 47 million inhabitants.

Even though the great number of reservoirs has helped manage droughts in recent time, extreme drought phenomena have remained relatively common, the most recent in 2017. Furthermore, with climate change extreme droughts and floods are expected to increase making water management more important than ever.

Spain is an agricultural powerhouse at a European level, so even if nowadays with all these reservoirs, we would not expect Spain to experience a famine, a very severe drought could be very damaging for Spain's economy, especially in its rural areas.

This also highlights who might be interested in a tool to monitor reservoir fill: the Spanish farmers and other inhabitants of rural Spain, as well as any stakeholder in Spain's agriculture.