Spanish Perception on Water Management: Recommendations and Initiatives

Background

Focus on SDG 6 objective is to try and guarantee the supply of potable and safe water for all humanity by 2030. It means, large investments in infrastructure to provide sanitary and hygiene guarantee for the population and efficiency in the use of water (agriculture, livestock, aquaculture, industry, energy and households). The targets established for this objective appear to be based on political decisions and governance, but education is an important aim which innovation can support.

The current water problems in Spain are caused by climate dynamics and it is particularly important in the south and southeast of the peninsula and the islands, not in the north. This leads to the hydrographic irregularity, defined by the irregularity in the spatial and temporal distribution, and the occurrence of avenues with enormous flows with respect to the average, thus it present strong territorial contrasts.

Spaniards' views towards water use, in a context of extreme north-south differences with respect to rainfall, which is the main source of water supply.

An adequate pedagogy material for geographical education would increase awareness and responsibility in the use of water.

Source: ATLAS.ti, using SDG 6 from: United Nations (2020). Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development integrates A/RES/71/313, E/CN.3/2018/2, E/CN.3/2019/2 and E/CN.3/2020/2. https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020%20review_Eng.pdf

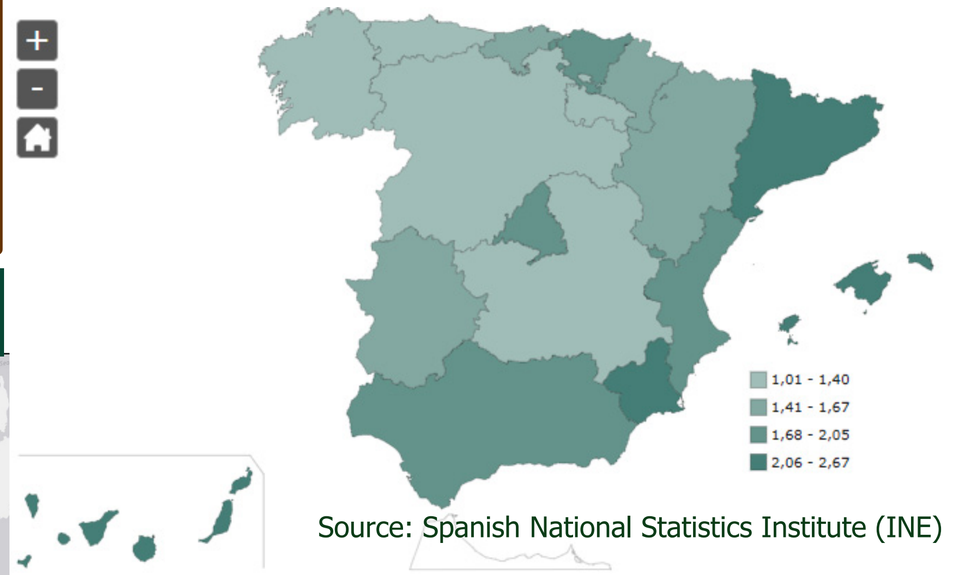
Method: Mixed methodology:

a) **Indicators of evidence** (inventory of relevant data sources and quantitative data) (eg. **water prices**, that has risen at least double its value from 2000 to 2018)

b) **A survey** to know reality: (n=445), 42.5% male (n=189) and 57.5% female (n=256), 38% live on an Autonomous Community with a Gross Domestic Product per capita above the mean of Spain (€25,727 in 2018) and only around 32% has not studied at university, some of them because the age .

c) **To aware on reality**, conveying water issues to students involves designing activities that are attractive to them, and which also highlight the reality they face. **A 'Story Map'** has been created using the ESRI tool. This tool allows text, graphics, images and other data to be integrated, and is also interactive, since it has the capacity through the 'Survey123' system to collect geodata in real time, which are simultaneously located on a map that facilitate both reflection and the drawing of new conclusions.

a) The price of the water 2018 (euros/m3)



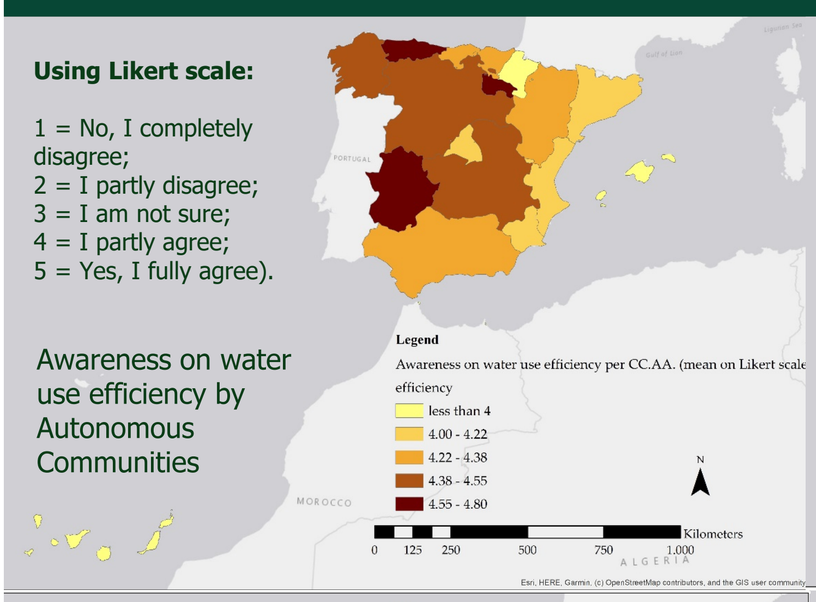
Source: Spanish National Statistics Institute (INE)

b) Survey results

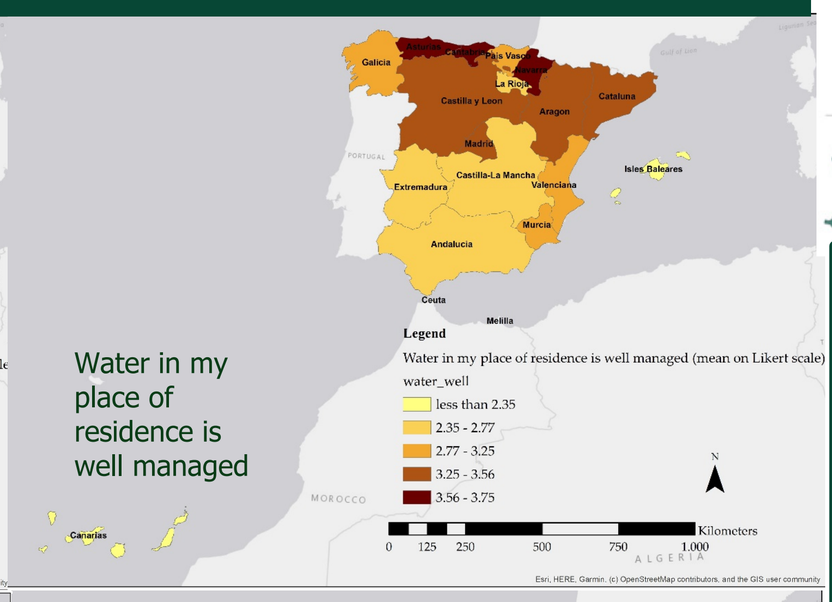
Using Likert scale:

1 = No, I completely disagree;
2 = I partly disagree;
3 = I am not sure;
4 = I partly agree;
5 = Yes, I fully agree).

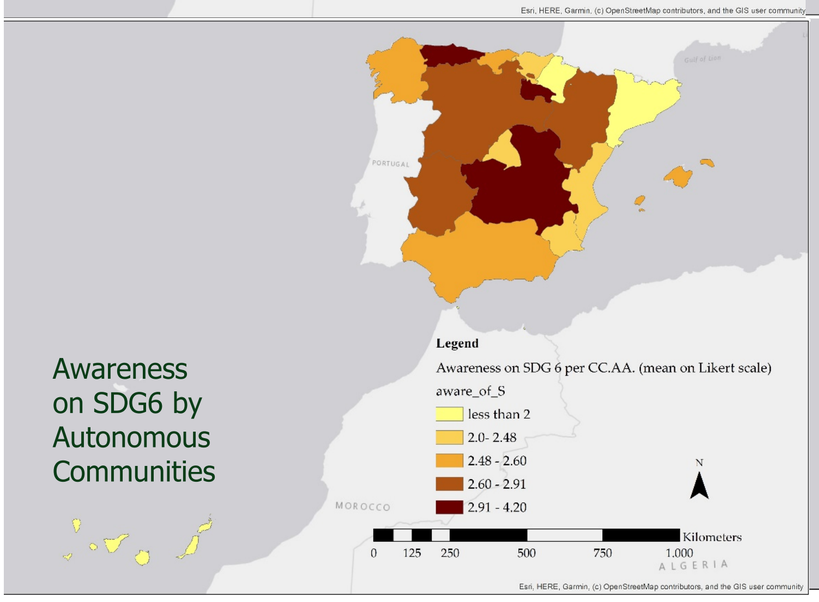
Awareness on water use efficiency by Autonomous Communities



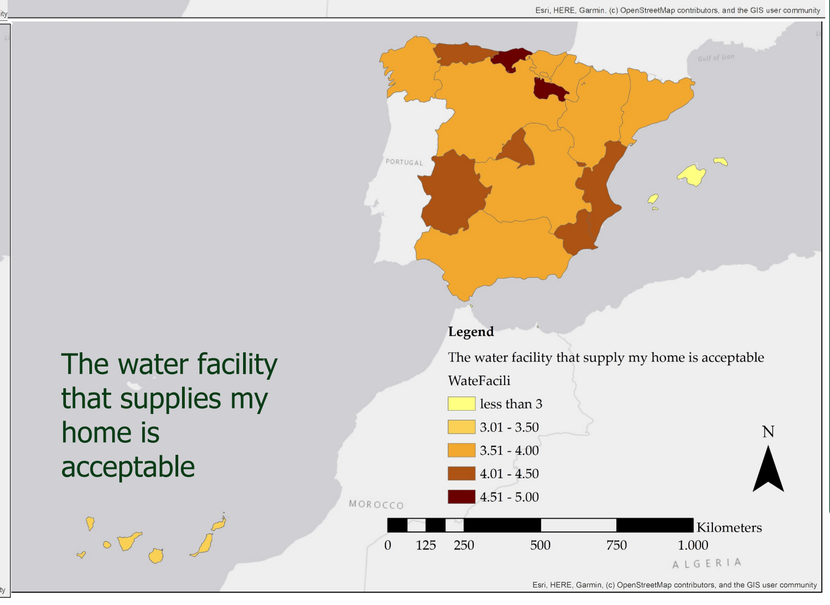
Water in my place of residence is well managed



Awareness on SDG6 by Autonomous Communities



The water facility that supplies my home is acceptable



Results

The majority of the population is aware of the need to improve water use efficiency, think that climate change may affect water use, and are conscious of the fact that drinking water is a scarce good.

Differences in perceptions were found regarding place of residence, gender and education level, which were all especially significant in relation to territory, although there is a greater awareness among women about the effects of climate change and the need for good water management.

The perceived problems contrasted with real problems give a picture of the real situation.

It is argued that education should employ innovative materials and pedagogically motivating resources from school to university level.

It is considered that there is little publicity that is really effective and more school awareness campaigns are proposed in an education framework for the Sustainable Development Goals.

There is a necessity of a wider knowledge on SDGs which should came from innovative geographical education using visualization tools, such as WebGIS or Story Maps.

c) Aware on reality: A Story Map

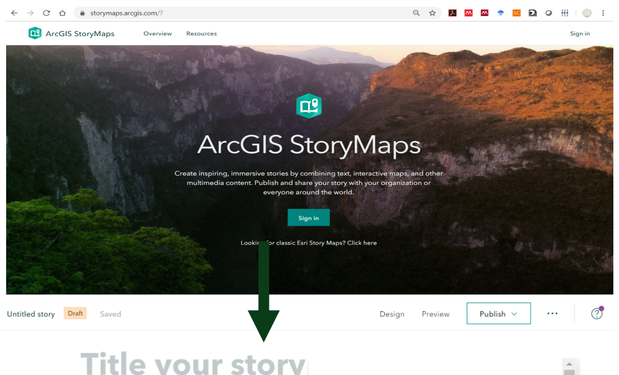
The sustainability of the different uses of water spaces or landscapes requires concerted management and agreements with the social agents involved in those territories.

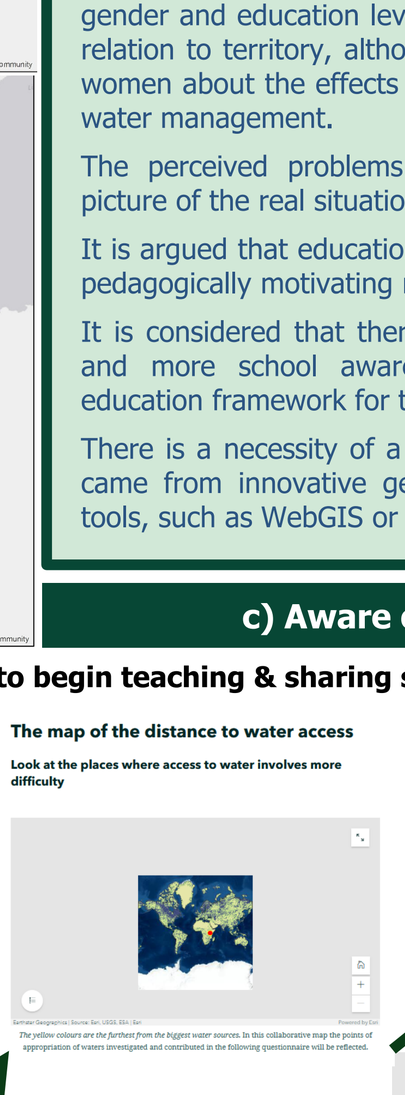
Recommendations on how those involved in education, training and research can contribute to bringing about SDG 6 which knowledge now seem poor.

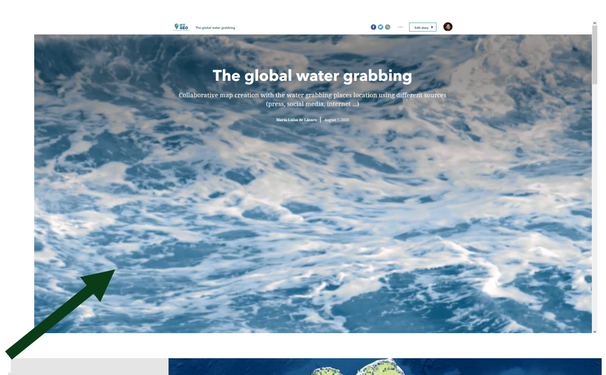
A better education for the training of teachers on the topic in order to help students to monitor more and better data; understand the importance of water for the development of life and human activities; see evidences (using maps, graphs… and research) about water problems in your closest environment and in a global context. Promote small solidarity actions in relation to water and the use of smart technologies.

It is important to include in the educational curriculum the theme of water as a priority and transdisciplinary approach.

A story map helps to begin teaching & sharing sustainability worries



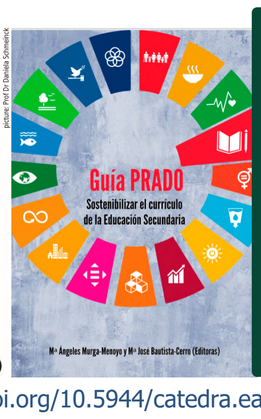




Embed map

Embed survey

Geopoint information



References

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https://doi.org/10.5944/catedra.eads.501120

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