AWARD

Alternative Water Resources and Deliberation processes to renew water supply strategic planning

Cross-Country Report on Social Acceptability of Alternative Water Resources

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Contents

List of Figures 2
Abbreviations 2
Executive Summary 1
I. Introduction 2
II. Scope and objectives 3
III. Methodology 3
III.1. Data collection 3
III.1.1. Demographics 4
III.2. Data analysis 6
III.3. Limitations 6
IV. Findings 6
IV.1. General Knowledge about Global Water Issues 6
IV.1.1. Awareness of global water-related issues 7
IV.1.2. Awareness of AWRs and their future use 7
IV.1.3. Concern about AWRs on a personal level 8
IV.1.4. Willingness to support local initiatives on AWRs 8
IV.1.5. Knowledge about causes and consequences of water issues 8
IV.2 Awareness of Alternative Water Resources 8
IV.2.1. Water quality information 9
IV.2.2. Awareness of AWR potential 9
IV.2.3. Institutional communication of AWR 9
IV.2.4. Desire for better communication of water services 10
IV.2.5. Interest in Local Water Forum participation 10
IV.3 Citizens' Satisfaction with Local Water Services 10
IV.3.1.Awareness about innovative projects 10
IV.3.2. Citizens' satisfaction with innovative projects 11
IV.3.3. Citizens' satisfaction with basic water services 11
IV.3.4. Involvement in decision-making processes 11
IV3.5. Interest in participating in decision-making processes 11
V. Conclusion 12
VI. Cross-Country Recommendations 13
VI.1. Enhanced knowledge about global water issues 13
VI.2. Greater awareness of the potential of AWR 13
VI.3. Improved citizens' satisfaction with local water services 14
VII. References 15
VIII. Annex 16

List of Tables

Table 1. Gender and age group distribution of respondents 4
Table 2. Country distribution of respondents 5
Table 3. General Knowledge about Global Water Issues 6
Table 4. Awareness of Alternative Water Resources 8
Table 5. Citizens' Satisfaction with Local Water Services 10

Abbreviations

AWARD	Alternative Water Resources and Deliberation
AWRs	Alternative Water Resources
BDG	Business Development Group SRL
EC	European Commission
EEA	European Environment Agency
EU	European Union
IWA	International Water Association
NGO	Non-governmental organization
SPSS	Statistical Package for the Social Sciences

Executive Summary

Climate change has intensified water scarcity across Europe, transforming what was once a regional issue into a continental concern. As a response, Alternative Water Resources (AWR)—such as treated wastewater and non-traditional water sources—have gained prominence for their potential to enhance water resilience. However, their adoption remains limited due to infrastructural, institutional, and especially social acceptability challenges. Public attitudes, trust in authorities, and awareness of both risks and benefits play a crucial role in the success of these solutions. Therefore, understanding and engaging citizens is central to ensuring effective integration of AWR into local water management systems.

The report is based on a mixed-methods approach combining desk research, ten in-depth interviews with Romanian stakeholders, and an online survey conducted across Romania, Moldova, Italy, Spain, Greece, Cyprus, and the Lower Danube Basin. The survey gathered 439 responses, primarily from urban residents, and focused on three dimensions: (1) awareness of global water issues, (2) knowledge and perceptions of AWR, and (3) satisfaction with local water services. Quantitative results were analysed using SPSS, complemented by qualitative insights. The study aimed to identify general trends rather than statistically representative data.

The data reveal moderate to high awareness of global water issues, particularly in water-stressed countries such as Spain and Greece. However, awareness of AWR technologies and their future use is significantly lower, especially in Romania and Moldova. Citizens show high willingness to support local water initiatives, even where technical knowledge is limited, indicating latent civic engagement potential. Institutional communication about AWR is weak or absent in all surveyed countries, contributing to limited trust and low satisfaction with innovative water projects. Nonetheless, there is strong public demand for clearer information and inclusive participation in water-related decision-making processes.

To improve social acceptability and engagement with AWR, the following cross-country actions are recommended:

- Embed water literacy into climate and environmental education
- Design regional awareness campaigns tailored to local realities
- Foster civil society and community-led engagement platforms
- Develop accessible and citizen-friendly communication platforms
- Promote visibility and trust through local demo projects
- Institutionalize local forums for dialogue and decision-making
- Integrate citizen participation into all stages of water innovation projects
- Connect water innovation to visible, tangible community benefits
- Build trust through local storytelling, transparency, and inclusive outreach

I. Introduction

Although historically considered only a regional issue in southern Europe, recent data indicate that droughts and water scarcity have become increasingly frequent and widespread across the continent as a result of climate change (EEA, 2021). Water stress arises when water availability, in terms of both quantity and quality, is insufficient to meet the demands of ecosystems, society, and the economy, encompassing drought, scarcity, and limited accessibility.

In response to these challenges, Alternative Water Resources (AWRs) have emerged as a strategic approach at EU and national levels. These include treated wastewater and other non-traditional sources that can be adapted for specific applications. Water reuse, in particular, provides notable economic, social, and environmental benefits, making it a key component of sustainable water management (Cipolletta et al., 2021; CIS, 2016). Nevertheless, the adoption of AWRs presents challenges, such as substantial infrastructure, energy costs, institutional capacity or social acceptance (EC, 2017; IWA, 2015).

The social acceptance of AWR is shaped by a combination of interrelated factors. Key among them is the population's level of awareness and understanding regarding these resources, as well as their knowledge of the broader challenges such as water scarcity and climate change (Gullberg et al., 2023). Equally important are people's perceptions of the severity of these issues, their evaluation of the potential costs, benefits, and risks associated with the adoption of new water technologies, and their trust in local authorities and other relevant stakeholders from the water ecosystem (Wolsink, 2018; Hofman, 2015; Al-Saidi, 2021; Hurliman & Dolnicar, 2016). The local context in which these water technologies are introduced also plays a significant role, influencing how they are received by the public.

Crucially, these attitudes and perceptions are largely influenced by the extent to which water-related challenges and possible alternative solutions are discussed in the public sphere (Gullberg et al., 2023). When issues such as declining water supplies and the need for innovative solutions are openly addressed through media, education, or policy discourse, the general public is more likely to engage with and support such initiatives. Raising public awareness is therefore essential for the success of emerging technologies in the water sector, including water reuse systems and other forms of AWR. For these technologies to be embraced and implemented effectively, communities need to understand not only their necessity but also their safety, practicality, and environmental impact (Akhmouch & Romano, 2016). Building this trust requires collaboration among water experts, researchers, and decision-makers.

Although few comprehensive studies exist to date, initial findings suggest that low levels of public acceptance can significantly impede the implementation of AWR technologies (Smith et al., 2021). Understanding and addressing public perception at the local level is thus a crucial step toward ensuring the successful integration of these sustainable solutions.

II. Scope and objectives

The present report aims to identify the levels of social acceptability of AWR across European countries, establish cultural perceptions of AWR, and explore new ways to engage local communities in the democratisation process of the water sector. This study sets the foundation for a dialogue that integrates technical innovation with cultural and social realities, ensuring that AWR becomes a viable part of the water management landscape in the region. This report is based on data from a survey shared with citizens of Romania, Republic of Moldova, Italy, Spain, Greece, Cyprus, and other countries from the Lower Danube Basin.

The following objectives were prioritized:

- **Identify the levels of awareness of AWR**: Understanding how well local communities (mainly citizens with no extensive knowledge on water innovation technologies applied at local level) know about AWR technologies and their potential applications.
- **Establish cultural perceptions to AWR**: The European countries under subject share cultural commonalities that can help identify cultural or psychological barriers to AWR acceptance.
- **Develop information and communication strategies on AWR**: Evaluating the effectiveness of current outreach programs (mainly in the water sector, but innovation, in general) and identifying new ways to engage local communities in the democratisation process of the water sector.

III. Methodology

In order to understand the level of acceptability of AWRs of the citizens, the AWARD project proposed a complex methodology that combines qualitative and quantitative data collection methods that allows data triangulation.

The main objective of this report is to understand the level of awareness and acceptability of the citizens of the countries taking part in the AWARD project and not only, namely Romania, Republic of Moldova, Italy, Spain, Greece, Cyprus, and other countries from the Lower Danube Basin. In order to fulfil this objective, this study sets out to answer the following empirical questions:

1. What is the level of social awareness among citizens regarding global water issues?
2. What is the level of social acceptability among citizens regarding AWRs?
3. What is the level of satisfaction among citizens regarding current water local services?

Desk research was conducted before data collection development to identify the main challenges and trends in AWR field in the consortium countries. The desk research included a literature review that analysed articles, reports and policy papers on the topic.

III.1. Data collection

Since the topic of alternative water resources is still yet to gain momentum among the professionals activating in the targeted countries, this research concluded the need of generating primary data to

be able to properly assess the status quo. Firstly, ten in depth interviews were conducted with relevant Romanian stakeholders (environment experts from NGOs, water experts from academia and private companies, local and central public authorities' representatives with responsibilities in water or public utilities issues) so that the sample would include professionals from academia, private and public sector. This method allowed for greater insights regarding the driving forces behind certain challenges that the water sector is facing.

Secondly, an online quantitative survey was conducted across all targeted countries to gain a better overview at where the citizens stand in relation to the current and alternative practices within the water sector. For sampling, the most practical approach involved leveraging the network of associations established in the area. Several regional partners were contacted to help distribute and promote the online survey. Furthermore, the survey was shared via email, social media platforms, and local community networks to encourage wide participation and diverse representation.

These two methods proved to be complementary, and their results validated one another. The in-depth interviews helped in understanding the quantitative responses and vice versa. Inviting both the professionals (in smaller percentage) and the general public (in general citizens, with no relevant knowledge about water) to participate in our study tried to increase the representativeness of multiple social groups.

The questions (see Annex) were developed to encompass the following topics:

- Knowledge about global water issues
- Information/ awareness about Alternative Water Resources
- Citizens' satisfaction with current water local services

The questions were deliberately designed in order to be understandable for the respondents of the survey (mainly citizens, with no in-depth knowledge of water technologies and social sciences). Each question attempted to be concise and without bias. This method avoids the problem that is observed in many cases, whereby irrelevant or too sophisticated questions reduce the response rate and, as a result, the validity of the conclusions. Ethical practices were applied, observing the established EU data protection legislation so that there existed no infringements on privacy.

III.1.1. Demographics

In terms of gender distribution, the sample of the online respondents consisted more of women than men, with Cyprus and Greece being an exception to this trend (Table 1). The imbalance between female and male respondents is likely attributed to the online dissemination method, which offers limited control over participant demographics. The data reveal a higher participation rate among women, potentially reflecting greater interest in the survey topic among females or a higher propensity for women to engage in online surveys.

Table 1. Gender and age group distribution of respondents

		Total	Romania & Moldova	Italy	Cyprus & Greece	Spain	Lower Danube Basin & Others
Gender	Male	44%	41%	49%	60%	38%	44%
	Female	54%	58%	50%	38%	57%	56%
	I would rather not say	2%	1%	1%	2%	5%	0%
Age group	15-35	42.4%	48%	31%	43%	44%	53%
	36-65	51.7%	51%	55%	55%	51%	41%
	66+	5.5%	1%	13%	2%	5%	6%

Source: Public awareness and acceptability of AWR Survey, 2025, AWARD project, BDG analysis

The age groups in the survey were divided into three groups - young people (15 - 35 years old), adults (36 - 65 years old) and older people (over 65 years old). Overall, more adults responded to this survey, with countries from the Lower Danube Basin being an exception to this trend. The slightly lower number of young respondents may be linked to a general lack of interest in the topic. Although Europe is an aging continent, with the highest proportion of older people compared to other continents, this age group is significantly underrepresented in the survey. This may be due to logistical barriers, for example, some elderly people living in rural areas may not have reliable internet access, making it difficult for them to complete online surveys.

In terms of country distribution, the respondents originated from countries that conduct demo cases within the AWARD project and several neighbouring countries such as Greece, Moldova, Bulgaria, Serbia, Hungary, etc. The grouping of the countries was done based on cultural and language similarities (Romania & Moldova; Cyprus & Greece) and on geographical relevance (Lower Danube Basin) (Table 2).

Table 2. Country distribution of respondents

Countries	Number of respondents	Percent
Romania & Moldova	158	36%
Italy	113	25.70%
Cyprus & Greece	42	9.60%
Spain	108	24.60%
Lower Danube Basin & Others	18	4.10%
Total	439	100%

Source: Public awareness and acceptability of AWR Survey, 2025, AWARD project, BDG analysis

The number of respondents is approximately evenly distributed between the first four groups of countries, with Romania and Moldova having a higher representation rate. The Lower Danube Basin countries are severely underrepresented. These inequalities may expose certain dissemination shortages or outreach and even interest level, and due to the AWARD network, that mainly focuses on the demo cases countries. The online survey has been distributed to several social media channels, mainly addressing students in sectors other than water (business, environment, social engagement, various support groups, etc.) with a coverage of more than 100,000 followers. Moreover, the survey

was distributed during several Local Water forums organized in the countries participating in the AWARD project.

III.2. Data analysis

The online survey generated a total of 439 responses in the countries covered by AWARD project countries and not only (Republic of Moldova, Greece, Lower Danube Basin countries). The data were recoded and analysed using statistical software SPSS by each country/ region.

III.3. Limitations

The sample of respondents is based on availability rather than representativeness, with the aim of identifying main trends related to the analysed aspects. This study recognises that the number of responses is insufficient to represent all citizens living in the countries where the survey was circulated. However, this was not the intention. The goal was to explore general trends and to initiate a discussion on the topic of social acceptability of AWR. Another limitation of the current survey relates to the nature of online surveys, which are more likely to be completed by people from urban areas. One of the main challenges was reaching the rural population, as citizens living in urban areas were much easier to engage through social media channels. Of the total number of respondents, only a small, and statistically insignificant, fraction came from rural areas.

IV. Findings

The findings from the data analysis have been organised according to the main research dimensions of the study: (1) knowledge about global water issues, (2) awareness of alternative water resources, and (3) citizen satisfaction with local water services. The results are analysed at the level of each dimension across all countries, rather than by individual question or country.

IV.1. General Knowledge about Global Water Issues

Table 3. General Knowledge about Global Water Issues

Item	Values	Romania& Moldova	Italy	Cyprus & Greece	Spain	Low Danube Basin & Other
Q1. On a scale of 1 to 5 where 1 is completely unaware and 5 is fully informed, to what extent are you aware of global water-related issues (such as access to clean water, pollution, water scarcity, etc.)?	Totally unaware	1%	0%	0%	2%	0%
	Unaware	12%	2%	7%	10%	6%
	Neither aware nor unaware	35%	16%	31%	22%	22%
	Aware	36%	41%	45%	47%	39%
	Totally aware	16%	42%	17%	19%	33%
Q2. On a scale of 1 to 5 where 1 is completely unaware and 5 is fully aware, to what extent are you aware of AWR (defined above) and their potential future uses?	Totally unaware	6%	5%	7%	11%	0%
	Unaware	21%	14%	17%	26%	6%
	Neither aware nor unaware	35%	31%	21%	29%	41%
	Aware	31%	31%	40%	28%	29%
	Totally aware	8%	19%	14%	6%	24%
Q3. On a scale of 1 to 5 where 1 is completely unaware and 5 is highly knowledgeable, how concerned are you as a person about AWR?	Total unconcerned	6%	4%	7%	4%	0%
	Unconcerned	16%	11%	21%	11%	6%
	Neither concerned nor unconcerned	32%	26%	26%	22%	11%
	Concerned	25%	35%	19%	44%	50%
	Extremely concerned	21%	25%	26%	19%	33%
Q4. On a scale of 1 to 5, where 1 is strongly disagree and 5 is strongly in favor, to what extent do you want to participate in supporting local initiatives and policies that address global water issues, such as access to clean water?	Totally unsupportive	2%	2%	0%	1%	0%
	Unsupportive	9%	5%	2%	5%	11%
	Neither supportive nor unsupportive	19%	22%	12%	17%	0%
	Supportive	41%	30%	33%	33%	33%
	Totally supportive	29%	42%	52%	44%	56%
Q5. On a scale of 1 to 5 where 1 is totally uninformed and 5 is fully informed, how much do you know about the causes and consequences of global water problems (access to clean water, water pollution, water scarcity, etc.)?	Totally uninformed	1%	2%	0%	2%	0%
	Uninformed	10%	5%	14%	15%	17%
	Neither informed nor uninformed	34%	35%	19%	26%	22%
	Informed	42%	47%	48%	44%	11%
	Fully informed	12%	12%	19%	13%	50%

Source: Public awareness and acceptability of AWR Survey, 2025, AWARD project, BDG analysis

IV.1.1. Awareness of global water-related issues

Most respondents across all regions place themselves at the *"Aware"* or *"Totally Aware"* end of the scale. There's a general high awareness across all countries, with lowest scores in Romania & Moldova and highest in Spain and Lower Danube Basin & Others. The data shows that Romania & Moldova have the highest percentage of respondents in the "neutral" category (35%), suggesting a mix of confusion

or low exposure. In contrast, countries experiencing long-acknowledged high-water stress (Spain, Italy, Cyprus & Greece) report higher levels of strong awareness, likely due to both more visible environmental impacts and targeted educational campaigns.

IV.1.2. Awareness of AWRs and their future use

AWR awareness is moderate, with most respondents falling into the “Aware” and “Neither aware nor unaware” categories. There's a notable knowledge gap on what AWR is and how they might be used in the future. In Romania & Moldova there is the lowest overall awareness (only 8% totally aware), with 62% of respondents unaware or neutral, while in Cyprus & Greece can be observed the highest percentage of people "Aware" (40%) and "Totally aware" (14%) that can suggest greater exposure to water reuse technologies in contexts of scarcity. This discrepancy underlines the need for **localized educational initiatives**, especially in areas where the perception of water abundance (e.g., Romania & Moldova) masks the real vulnerabilities caused by climate change and infrastructure deficits.

IV.1.3. Concern about AWRs on a personal level

Countries facing perceived water stress (Spain, Italy, Cyprus & Greece) exhibit both high awareness and high concern. By contrast, Romania & Moldova lag behind, with only 46% expressing concern, while 32% remain neutral. This suggests that public concern is still underdeveloped, potentially due to a lack of exposure to real or perceived threats related to water scarcity or poor resource management.

IV.1.4. Willingness to support local initiatives on AWRs

The data show a positive consensus across all countries included in the study, indicating a very high willingness to support, with most responses in “supportive” or “totally supportive”. The potential engagement is high in all countries, despite lower awareness in some of them - Cyprus & Greece (52% totally supportive), Romania & Moldova (29% totally supportive and 41% supportive), Spain (29% totally supportive and 41% supportive), Italy (44% totally supportive and 33% supportive). The potential engagement expressed by respondents suggests that support does not necessarily require deep technical knowledge, but rather trust, relevance, and perceived benefit of local actions. This finding highlights a major opportunity for all the countries/ regions of mobilizing civic support around AWR implementation, even in contexts where technical understanding is limited.

IV.1.5. Knowledge about causes and consequences of water issues

Knowledge about the root causes and long-term consequences of global water challenges remains uneven. While some regions (e.g. Cyprus & Greece) show strong results (48% informed, 19% fully Informed), Spain & Italy has a balanced mid-to-high awareness (44–47% informed, 12–13% fully informed) and Romania & Moldova report moderate knowledge (42% informed, 12% fully informed), indicating a foundational understanding, but still lacking depth or systems thinking. Respondents are generally more familiar with immediate and visible problems (pollution, droughts, service outages), rather than structural causes like climate change, biodiversity loss, or unsustainable consumption patterns.

IV.2 Awareness of Alternative Water Resources

Table 4. Awareness of Alternative Water Resources

Item	Values	Romania & Moldova	Italy	Cyprus & Greece	Spain	Low Danube Basin & Other
Q6. How often do you receive information about water quality in your area?	Never	51%	57%	76%	62%	11%
	Sometimes	41%	34%	24%	30%	72%
	Frequently	8%	10%	0%	8%	17%
Q7. Are you aware of water-related technological advances in the potential usage of AWRs in general or being used in your area?	No	63%	82%	71%	75%	44%
	Yes	37%	18%	29%	25%	56%
Q8. Does your water company or other organization provide you with basic or advanced information about AWRs?	No	51%	39%	45%	44%	28%
	Yes	9%	9%	17%	11%	39%
	I don't know	39%	52%	38%	45%	33%
Q9. Would you like better access and more information about water-related services (water quality, nature-based solutions, digitalization of water-related services, circular economy, etc.)?	No	4%	1%	0%	2%	11%
	Yes	91%	96%	100%	93%	89%
	I don't know	5%	4%	0%	6%	0%
Q10. Would you be willing to participate in a free local discussion forum for AWRs (as defined below)?	No	13%	13%	10%	24%	17%
	Yes	54%	50%	74%	39%	72%
	I don't know	33%	38%	17%	37%	11%

Source: Public awareness and acceptability of AWR Survey, 2025, AWARD project, BDG analysis

IV.2.1. Water quality information

There are **gaps in access to information about local water quality.** Most respondents rarely receive information about local water quality, the main parameter for informing citizens. Cyprus & Greece (76%), Spain (62%), and Italy (57%) report the highest rates of no communication. This significant gap in basic water information contributes to **low public trust and increased uncertainty**, particularly in regions where the price of water is rising or where infrastructure upgrades are ongoing. Technical reports or regulatory updates, when available, are often too complex for the general public to understand, exacerbating the disconnect. The lack of accessible, timely information about water services is a critical barrier.

IV.2.2. Awareness of AWR potential

Across all countries/regions, **awareness of technological progress related to AWR is low**. Awareness is especially low in Italy (18%), Spain (25%) and Cyprus & Greece (29%). In Romania and Moldova, 37% of the respondents are aware of water-related technological advancements in AWR. This knowledge gap can be attributed to multiple factors: a lack of educational content, underdeveloped public communication strategies by water authorities, and limited presence of AWR technologies in local media narratives. Moreover, many citizens, particularly in rural areas, confuse traditional water-saving practices with modern AWR strategies, creating a false sense of familiarity.

IV.2.3. Institutional communication of AWR

Institutional communication is important to build trust among citizens, yet the survey reveals a **weak performance.** Less than 20% of respondents receive information about AWR from water companies or public authorities – in Romania & Moldova and Italy only 9% receive this information, in Spain 11% and in Cyprus & Greece 17%. A large proportion don't know whether they do or not (e.g. 52% in Italy,

45% in Spain, 39% in Romania & Moldova). This reveals that a significant share is unsure whether such information is provided, suggesting opacity and lack of proactive dissemination. This also indicates a major communication gap or lack of transparency from water service providers. Utilities and municipalities tend to focus their communication on regulatory compliance and infrastructure upgrades, rarely including content on innovation, nature-based solutions, or future resilience planning.

IV.2.4. Desire for better communication of water services

Considering the gaps in access to information and the weak institutional communication, there is a **strong public demand for better information.** There is overwhelming interest in gaining better access to water-related knowledge and services. Over 90% of respondents across all regions express interest (Italy – 96%, Spain – 93%, Romania & Moldova – 91%), with Cyprus & Greece showing 100% demand. This clearly signals that citizens are ready to be engaged, if the opportunity arises.

IV.2.5. Interest in Local Water Forum participation

There is an **increased willingness to participate in Local Water Forums about AWR** that suggest **a moderate civic engagement potential in AWR.** Between 50% and 74% of respondents are willing to participate in local discussion forums (Italy – 50%, Romania & Moldova – 54%). The highest participation potential is in Cyprus & Greece (74%) and the lowest in Spain (39%). However, a large share of people remains undecided (33% to 38%) often citing lack of clarity on what such forums involve. This signals both interest and hesitation.

IV.3 Citizens' Satisfaction with Local Water Services

Table 5. Citizens' Satisfaction with Local Water Services

Item	Values	Romania & Moldova	Italy	Cyprus & Greece	Spain	Low Danube Basin & Other
Q11. On a scale of 1 to 5, where 1 is completely unaware and 5 is highly informed, how much do you know about innovative and digital water projects in your area?	Totally unaware	39%	45%	38%	44%	28%
	Unaware	25%	25%	17%	27%	6%
	Neither aware nor unaware	20%	20%	33%	17%	22%
	Aware	13%	9%	5%	9%	39%
	Totally aware	1%	1%	7%	3%	6%
Q12. On a scale of 1 to 5, where 1 is completely dissatisfied and 5 is extremely satisfied, how satisfied are you with innovative water projects in your local area (related to digitalization, the circular economy, climate change-related projects, etc.)?	Totally dissatisfied	25%	24%	30%	16%	12%
	Dissatisfied	32%	32%	28%	21%	24%
	Neither satisfied nor dissatisfied	33%	38%	23%	42%	41%
	Satisfied	7%	6%	10%	19%	18%
	Extremely satisfied	2%	0%	10%	2%	6%
Q13. On a scale of 1 to 5, where 1 is completely dissatisfied and 5 is extremely satisfied, how satisfied are you with the current state of the water services in your region (water supply, wastewater treatment, etc.)?	Totally dissatisfied	14%	6%	13%	5%	12%
	Dissatisfied	31%	36%	28%	17%	29%
	Neither satisfied nor dissatisfied	42%	45%	43%	50%	35%
	Satisfied	11%	14%	13%	25%	18%
	Extremely satisfied	2%	0%	5%	3%	6%
Q14. Have you ever had the opportunity to participate in a local decision-making process related to water and/or other environmental issues (climate change, decarbonization, etc.) at the local or regional level?	No	85%	81%	90%	89%	56%
	Yes	15%	19%	10%	11%	44%
Q15. Would you be interested in participating in a local, citizen-based water policymaking process under the leadership of an existing innovation project?	No	4%	8%	0%	9%	11%
	Yes	38%	37%	64%	34%	44%
	I would need more information before taking a decision	57%	55%	36%	56%	44%

Source: Public awareness and acceptability of AWR Survey, 2025, AWARD project, BDG analysis

IV.3.1. Awareness about innovative projects

There is a **low awareness of digital and innovative water projects** among all countries/ regions. In Romania & Moldova, Italy, Cyprus & Greece, and Spain, more than 60% of respondents report being either totally unaware or unaware of such projects. Italy stands out as the *least aware*, with 70% of respondents falling into these two categories. This pattern reflects a broader disconnect between innovation rollouts and public visibility. Even where EU-funded or climate-adapted water projects exist, they often remain invisible to the end users. Lack of public involvement in project design or monitoring contributes to low awareness and limits the potential for community uptake.

IV.3.2. Citizens' satisfaction with innovative projects

Levels of satisfaction with innovative water projects are **consistently low** across all countries. In Romania & Moldova, Italy and Cyprus & Greece, over half the respondents (57%, 56%, 58%) are dissatisfied or very dissatisfied, with very few (below 10%) expressing satisfaction. Spain shows a somewhat better balance, with 37% dissatisfied, 21% expressing satisfaction and 42% neutral. The vast majority feel disconnected from local innovation projects related to water, climate, or circular economy. This low satisfaction rate appears closely linked to the invisibility of innovation. In most cases, respondents do not see direct benefits from digitalization, climate-smart technologies, or new services.

IV.3.3. Citizens' satisfaction with basic water services

There is a **moderate satisfaction level with basic water services** such as supply and wastewater treatment. While perceptions of innovation are weak, satisfaction with basic water services (e.g., supply, treatment) is slightly better. Spain leads in public perception, with 28% satisfied and 50% neutral. The Lower Danube Basin follows closely, with 24% satisfied and 35% neutral. In contrast, Romania & Moldova, Italy, and Cyprus & Greece show higher levels of dissatisfaction, with 40–50% of respondents expressing negative or neutral views, and only around 13–14% being satisfied. The divergence between satisfaction with services versus innovation suggests that while basic infrastructure is functional, transformative or future-oriented services are poorly communicated or underutilized. Citizens may be generally content with access but remain sceptical or unaware of the sector's modernization agenda.

IV.3.4. Involvement in decision-making processes

Civic engagement in local or regional decision-making on water and environmental issues is considered low. There is a systemic lack of participatory experience considering that more than 80% of respondents in Romania & Moldova, Italy, Cyprus & Greece, and Spain have never participated in a local water or environmental decision-making process. Cyprus & Greece report the lowest engagement, at just 10%. This finding reflects a structural weakness in governance: most countries lack inclusive, sustained platforms for civic input. Water management remains predominantly technical and top-down, often excluding the voices of ordinary citizens, especially marginalized or rural communities.

IV3.5. Interest in participating in decision-making processes

Even though the participation is low, there is a **high interest in future participation, conditional on more information**. A majority of respondents are potentially open to joining local water governance

efforts. In Romania & Moldova and Italy, around 37 - 38% of respondents say they would participate in citizen-led policymaking, but more than half would need more information before making a decision. Spain is more hesitant, with only 34% clearly supportive and a high share (56%) needing more information before committing. Cyprus & Greece are the most enthusiastic, with 64% affirming interest and only 36% uncertain. A large proportion of people hesitate to make decisions due to a lack of clear and accessible information, highlighting a gap in trust and effective communication. Abstract or bureaucratic engagement processes tend to discourage participation. When initiatives lack local relevance, tangible outcomes, or clarity, citizens are significantly less willing to get involved.

V. Conclusion

The social acceptance of alternative water resources depends on several factors, including public awareness and knowledge of these resources, perceptions of water scarcity and climate change, cost-benefit evaluations of new technologies, local context, and trust in decision-makers and other relevant stakeholders (Wolsink, 2018; Hofman, 2015). Additionally, these factors are influenced by the presence of public discussions on water supply challenges and the need to identify and implement alternative solutions. Citizens' willingness to adopt alternative water resources is also linked to prior knowledge of such practices (Portman et al., 2022).

Most respondents across all countries demonstrate a **moderate to high level of awareness of global water-related issues** such as pollution, water scarcity, and access to clean water. The majority place themselves in the “Aware” or “Totally Aware” categories. While this indicates widespread recognition of water challenges, the depth of knowledge is uneven. Many respondents consider themselves only moderately informed and acknowledge limited understanding of the underlying causes and consequences of water issues. This points to a gap between general awareness and informed knowledge, especially in countries not facing acute water stress.

Awareness of AWR and their future uses is considerably lower than awareness of global water issues. A significant share of respondents in all countries and regions report being either unaware or neutral in their knowledge of AWRs. This lack of familiarity reflects a wider knowledge gap, despite the fact that many respondents express strong readiness to support local initiatives addressing global water concerns. This suggests there is latent potential for community engagement, even if technical knowledge is lacking. Countries that have long dealt with high water stress, Italy, Spain, Cyprus, and Greece, consistently score highest across all indicators of awareness, concern, knowledge of AWRs, and willingness to support related initiatives. This reinforces the connection between direct exposure to environmental pressure and the motivation to educate oneself about available solutions. However, this progression is not uniform across all regions. Romania and Moldova, for instance, show relatively good general awareness and a willingness to act, but score lower on both AWR knowledge and personal concern, indicating a break in the broader pattern observed elsewhere. While awareness exists, knowledge about systemic causes and long-term consequences (e.g. climate change, biodiversity, overconsumption) remains uneven and fragmented. The data show that lived experience and public campaigns drive attention to global water issues and to AWR.

The data also reveal a widespread **limited public communication from water authorities or utilities** across most countries and regions. Institutional communication about AWRs is weak or absent, contributing to mistrust or uncertainty. Most respondents are unaware whether utilities provide AWR

information. This is accompanied by a clear public demand for better information about water-related services and innovations. There is a pressing need for technological literacy campaigns, improved communication of innovation in the water sector, and the development of educational platforms, mobile tools, and localized outreach. Interest in participating in Local Discussion Forums related to AWR reflects this need. However, greater clarity is required regarding the purpose and value of such forums, along with the design of more accessible and inclusive formats. Although gaps in communication and understanding persist, the strong public demand for information and participation is a positive signal that should be matched with concrete institutional responses.

Digital transformation and climate-smart innovation in the water sector require not only technical solutions but also informed and engaged citizens. Satisfaction with basic water services is moderate, but satisfaction with innovative water projects is consistently low, often due to invisibility and lack of public involvement. The survey data point to widespread **low awareness and limited satisfaction regarding local water innovation**, yet also a growing interest in being part of decision-making processes, if proper information and outreach are in place. While past participation in water governance is rare, interest in future involvement is high, though most people require more information and trust before joining. Public willingness to participate is there, but it depends on institutions stepping up their efforts to communicate transparently, educate meaningfully, and create participatory pathways that connect people with water governance in tangible ways

VI. Cross-Country Recommendations

VI.1. Enhanced knowledge about global water issues

1. **Embed water literacy into climate and environmental education**

Integrate water-related topics into formal and informal education systems, especially in secondary schools and community programs, using accessible materials, real-life examples (e.g. droughts, floods, water pollution, heatwaves), and interactive formats. Emphasize the connection between global water challenges, climate change, and everyday behaviour to foster informed and long-lasting engagement.

2. **Design regional awareness campaigns tailored to local realities**

Develop culturally relevant public information campaigns in low-engagement regions, using local languages, storytelling, social media, visual tools, and games for children and parents. Focus on the human and environmental impact of water scarcity and highlight the importance of shared responsibility in addressing these issues.

3. **Foster civil society and community-led engagement platforms**

Support civil society actors, NGOs, and community groups as trusted intermediaries between water and urban experts and the public. Establish local water forums, open workshops, and pilot demonstrations to facilitate dialogue and demystify complex water issues. Showcase successful local projects to build public confidence and normalize sustainable water practices.

VI.2. Greater awareness of the potential of AWR

1. **Develop accessible and citizen-friendly communication platforms**

Public awareness of AWR must be supported through clear, jargon-free communication tools such as online dashboards, phone apps, and community bulletin boards that provide real-time updates on water quality, reuse projects, and innovation pilots. These platforms should be easy to navigate, visually intuitive, and inclusive of users with limited digital literacy or internet access.

2. **Promote visibility and trust through local demo projects**

Launch pilot projects (e.g., rainwater harvesting, greywater reuse, digital metering) in schools, municipal buildings, or farms to illustrate how AWRs work in real life. These tangible examples, combined with open days, guided tours, or short explainer videos, can make technologies feel more familiar and acceptable. Local partnerships with NGOs, educators, and community leaders are essential to ensure the message resonates with different audiences.

3. **Institutionalize local forums for dialogue and decision-making**

Establish permanent, well-facilitated local water forums where citizens can learn, ask questions, and provide feedback on AWR plans. Co-leading these spaces with civil society or trusted community actors ensures credibility and inclusiveness. Regularly engaging citizens in decision-making around water reuse and circular water systems builds long-term ownership and eases transitions to new practices.

VI.3. Improved citizens' satisfaction with local water services

1. **Integrate citizen participation into all stages of water innovation projects**

Move beyond consultation to co-creation by involving citizens early and continuously in planning, implementing, and monitoring water and AWR initiatives. Use participatory methods (e.g. community design workshops, digital feedback tools, and citizen advisory panels) to align innovation with local needs and values. This strengthens satisfaction, trust, and uptake. Participatory governance mechanisms must be mainstreamed into water and climate planning frameworks. The goal is not only to consult, but to empower communities to co-shape local priorities.

2. **Connect water innovation to visible, tangible community benefits**

Ensure that infrastructure investments are accompanied by clear local improvements (e.g. better service quality, savings, green jobs) or environmental gains. Promote these benefits through accessible formats like public showcases, school partnerships, or short video stories to make outcomes relatable and reduce resistance to change.

3. **Build trust through local storytelling, transparency, and inclusive outreach**

In regions where satisfaction is low or uncertainty is high, prioritize trust-building through consistent and human-centred communication. Use local messengers (e.g. NGOs, educators, farmers, or health professionals) to demystify water strategies and create emotional connections to the topic. Develop engagement toolkits and forums that make participation easy, meaningful, and grounded in community realities.

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VIII. Annex

The questions posed during the online survey ''Capturing societal shifts in attitude in the transition from a clean water supply to Alternative Water Resources (AWRs)'':

1. On a scale of 1 to 5 where 1 is totally unaware and 5 is fully informed, to what extent are you aware of global water issues (such as access to clean water, pollution, water scarcity, etc.)?
2. On a scale of 1 to 5 , where 1 is totally unaware and 5 is totally aware, to what extent are you aware of AWRs (as defined above) and their potential usage in the future?
3. On a scale of 1 to 5 where 1 is totally unconcerned and 5 is extremely concerned, to what extent are AWRs an issue of concern to you as a person?
4. On a scale of 1 to 5, where 1 is totally unsupportive and 5 is totally supportive, to what extent do you want to be involved in the support of local initiatives and policies addressing the global water issues, such as access to clean water?
5. On a scale of 1 to 5 where 1 is totally uninformed and 5 is totally informed, how much do you know about the causes and consequences of global water issues (access to clean water, water pollution, water scarcity, etc.)
6. How often do you receive information about water quality in your area?
7. Are you aware of water-related technological advances in the potential usage of AWRs in general or being used in your area?
8. Does your water supplier or any other organization enable you to have basic or more advanced information about AWRs ?
9. Would you like to have better access and more information about water-based services (water quality, nature-based solutions, digitalization of water services, circular economy, etc.)?
10. Would you be prepared to become involved in an AWRs Local Free Discussion Forum (as defined below)? (Definition: Local Water Discussion Forum = a network in which citizens and specialists can discuss their opinions regarding water issues at a local and international level).
11. On a scale of 1 to 5 where 1 is totally unaware and 5 is extremely well-informed, how much do you know about smart and innovative projects related to water in your local area?
12. On a scale of 1 to 5 where 1 is totally dissatisfied and 5 is extremely satisfied, how happy are you with the water innovative projects in your local area (related with digitalization, circular economy, climate change related projects, etc.)?
13. On a scale of 1 to 5 where 1 is totally dissatisfied and 5 is extremely satisfied, how happy are you regarding the way the existing water services will develop in your region, (water supply, wastewater processing, etc).
14. Have you ever had the opportunity to participate in a local decision-making process related to water and/or any other environmental subject (climate change, decarbonization, etc.), at a local or regional level?
15. Would you be interested in being involved in a citizen-based water policy creation local process, under the guidance of an existing innovation project?
16. If you previously answered no, could you please tell us why is that so?
17. Gender
18. To which age group do you belong?
19. Where are you from?