

Optimising water reuse in the EU

Framework contract ENV.D.I/FRA/2012/0014

Preliminary findings of the study

4 December 2014



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- Scope
- Baseline scenario and problem definition
- Policy objectives
- Possible EU policy measures

SCOPE

Our study focuses on:

- Reuse of **urban wastewater** that is treated after collection and has been subject to **secondary treatment** (at least)
- Reuse of **industrial wastewater** for **external** purposes

For various types of applications, e.g.:

- agricultural uses
- urban uses
- industrial uses
- environmental uses
- recreational uses
- drinking water production

Not covered by this study: reuse of rainwater or greywater

Water reuse currently amounts to ~ 1000 Mm³/y in the EU It could increase up to ~ 1,700 Mm³/y by 2025 under a BAU scenario

- In 2006, reuse volumes accounted for **only 2.4%** of the total volume of treated effluents produced (*Source: AQUAREC*)
- Current reuse (~ 1,000 Mm³/y) represents ~ **0.4%** of annual EU freshwater withdrawals (237,660 Mm³/y in 2011)
- Increase by 2025: mostly driven by **Spain**
- In a BAU scenario, water reuse will make **no significant contribution** to addressing water scarcity at an EU level

Under a BAU scenario, water reuse would increase significantly in Spain, with only minor increases expected in other MS (1/2)

- **SPAIN**

Legally-binding standards adopted in 2007 have played a crucial role in promoting and improving water reuse practices

Complemented by a National Water Reuse Plan

Current level ~ **550 Mm³/y**

Without further policy intervention (BAU): ~ **700 Mm³/y by 2018**

With further awareness raising and information measures: target of **1,200 Mm³/y by 2018** (~ 4% of the country's total annual water withdrawals)

- **ITALY:**

In several regions, legally-binding standards going beyond the national ones (adopted in 2003) have been imposed

This has limited the attractiveness of water reuse projects

=>No significant future increase of reuse under the BAU scenario

Under a BAU scenario, water reuse would increase significantly in Spain, with only minor increases expected in other MS (2/2)

• FRANCE

Very few new projects since 2006 (when work started on the development of new standards)

Main barriers reported: quite restrictive national standards (2010) and uncertainties related to a series of legislative revisions

=>No significant future increase of reuse under the BAU scenario.

• PORTUGAL

10% reuse target by 2013: not reached

Current reuse rate ~ 1% of reclaimed water

Significant obstacles: lack of economic incentives, insufficient public awareness and acceptance, high administrative burden to obtain permits, etc.

=>No significant future increase of reuse under the BAU scenario.

• GREECE

AQUAREC estimate for 2025 (57 Mm³/y) may be difficult to achieve in a cost-effective way, because of the distance between offer and demand in the region with the highest production of reclaimed water (Athens)

=>No significant future increase of reuse under the BAU scenario.

Under a scenario with stronger policy action, at least 7,000 Mm³/y of reuse might be achievable, according to a first rough estimate

Assumptions:

- **ES:** Would reach its target of 1,200 Mm³/y by 2018, corresponding to **4% of its total annual water withdrawals**
- Five of the MS with the highest reuse potential according to the AQUAREC model (**IT, DE, FR, PT, EL**) would reach the **same water reuse rate as ES** by 2025, expressed as a % of total freshwater withdrawals
- **Other 22 MS:** Situation would remain similar to baseline

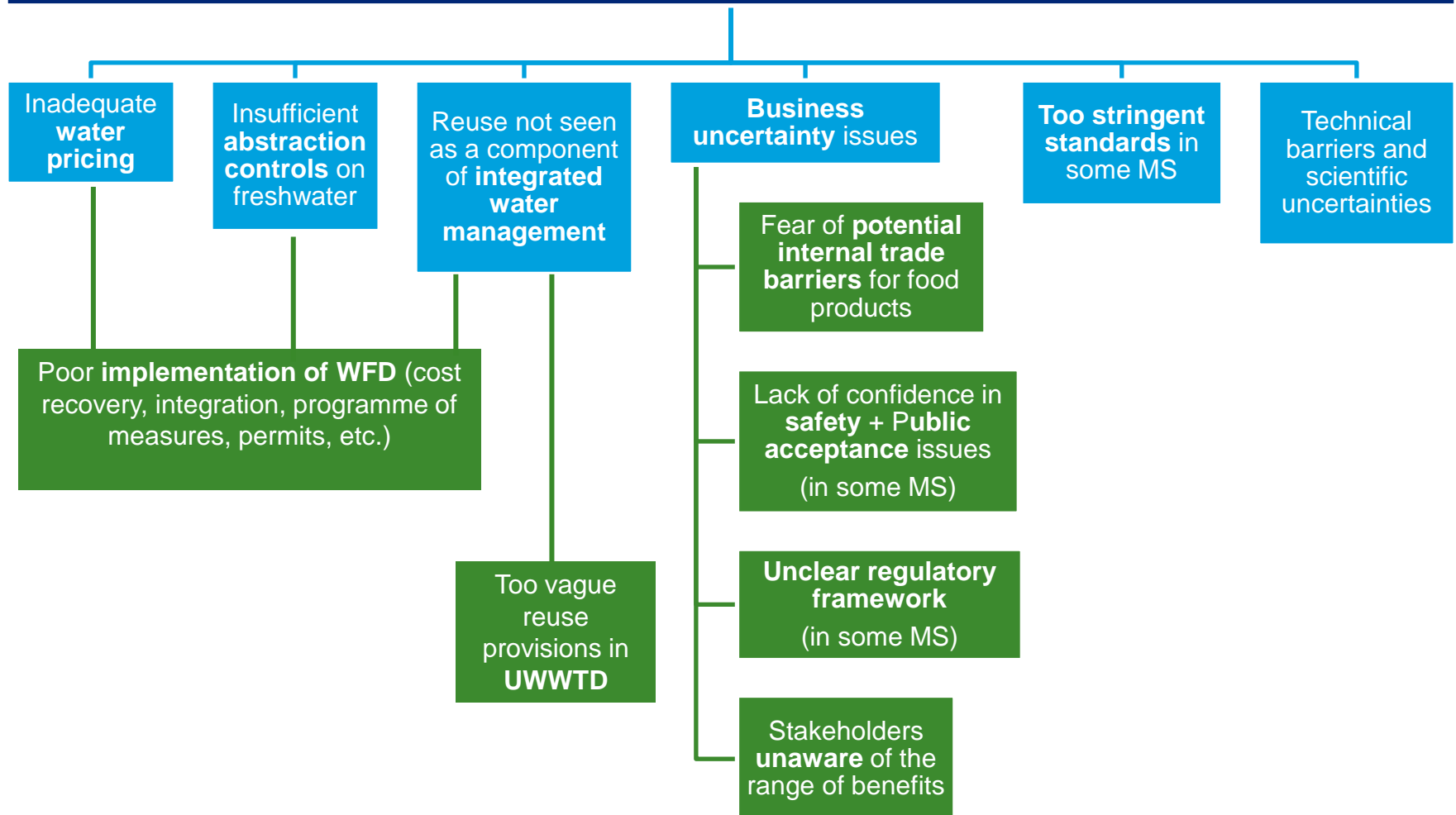
⇒ **Water reuse potential of ~7,000 Mm³/y**

Limitations:

- Geographical, socio-economic and policy context differences between ES and the other five MS considered (e.g. water scarcity situation, distance between offer and demand, water pricing, type of standards, etc.)
- However, it is probably a low-end estimate

What are the main barriers to water reuse?

Potential for water reuse in the EU is largely under-exploited, in spite of numerous benefits



Overall objective

Optimise the reuse of water in the EU as a way to address **water scarcity**:

Achieve a **higher uptake** of appropriate water reuse solutions

- where it proves **cost effective**

- while ensuring the **safety** of practices and **avoiding potential trade barriers** on food products

Specific objectives

Promote an increased use of economic instruments to make water reuse schemes more economically attractive

Provide clarity on how to manage public health and environmental risks of water reuse projects in the EU

Promote water reuse as an integral part of integrated water management

Build trust, credibility and confidence in the quality of reclaimed water among the general public

Increase knowledge on the benefits of water reuse among the various stakeholders

Harmonise practices to promote a level playing field

Four main types of EU policy measures were proposed (1/2)

1 / No new EU action

2 / Optimising status quo

Increased enforcement of WFD requirements on water pricing & freshwater abstraction control, integrated water management and better governance

3 / Non-binding measures

- **Awareness raising and dissemination of information**
- Promotion of forthcoming **ISO/CEN water reuse standards**
- EU **guidelines** on how to **foster water reuse through economic instruments**
- EU **guidelines** on the **implementation of the WFD and UWWTD**

Four main types of EU policy measures were proposed (2/2)

4 / Legally-binding measures

- **Water reuse targets** at river basin scale, where:
 - *Contribution to addressing water stress is significant*
 - *AND cost-effective*

- **Common EU water reuse standards**

Standards including provisions on:

- Contents of risk management plans
- List of acceptable uses and possible use restrictions
- Indicative quality criteria and wastewater treatment requirements
- Key aspects of permitting procedure
- Monitoring requirements
- Roles and responsibilities

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Results of the public consultation

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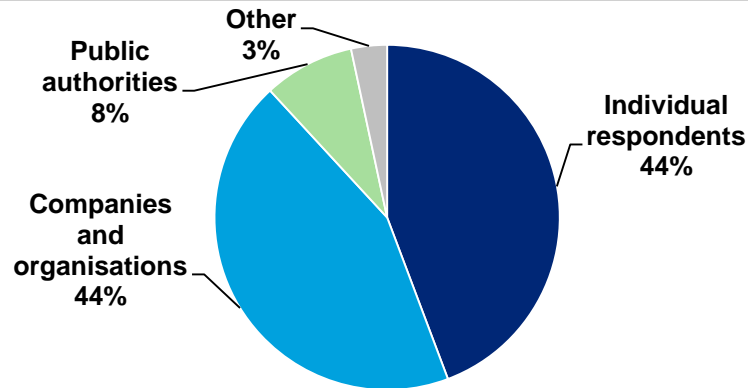
- Introduction
- Opinions on appropriate uses of reclaimed water
- Opinions on benefits and barriers to water reuse
- Opinions on potential EU policy measures to promote water reuse

The consultation was held **from 30 July to 7 November 2014**.

The total number of responses to the online questionnaire was **506**.

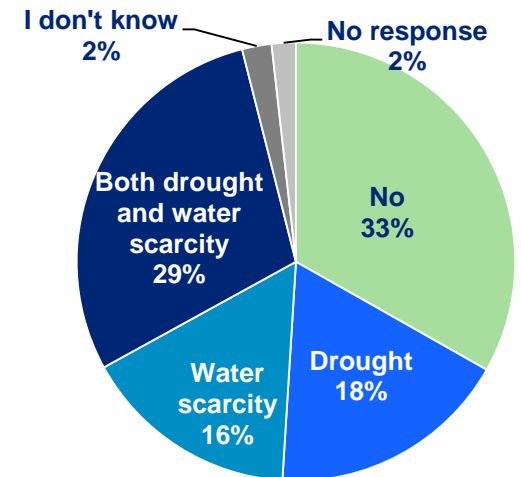
Respondents include as many individuals as companies and organisations

Proportion of respondents from each category



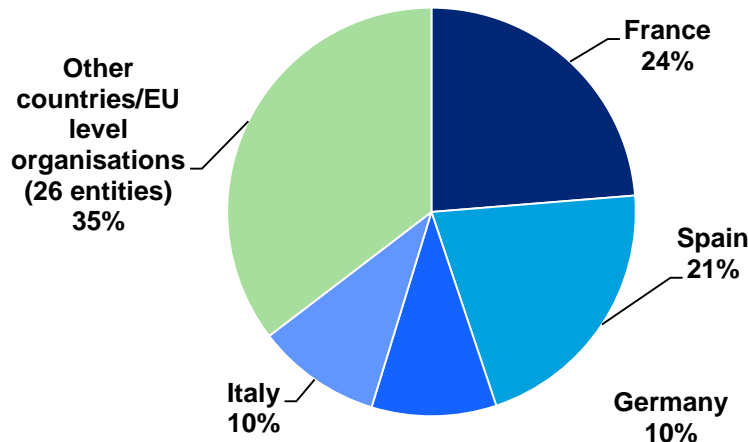
A majority of respondents experienced drought and/or scarcity

Proportion of respondents having experienced drought and/or water scarcity

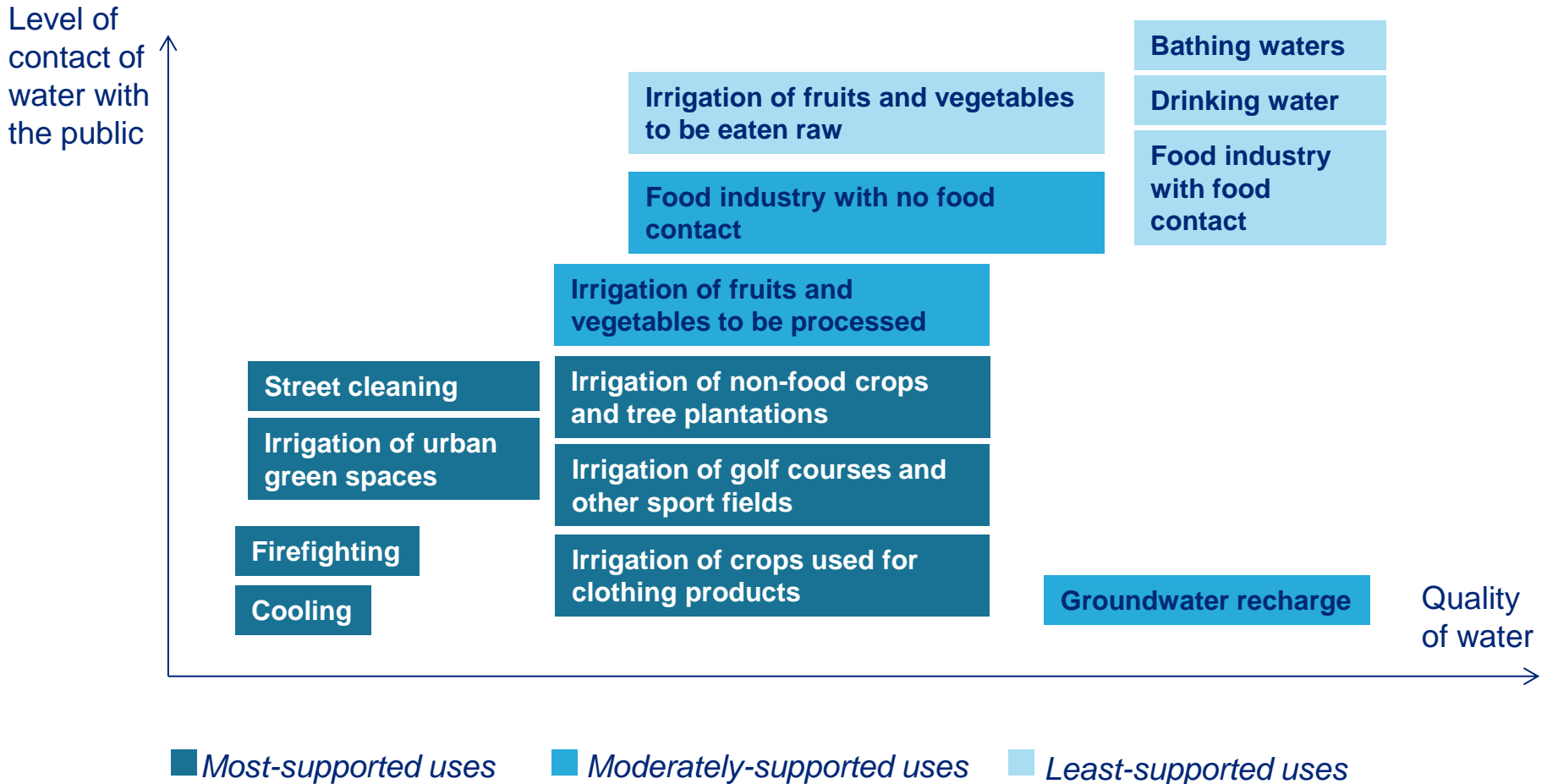


Participation was the highest in France, Spain, Italy and Germany

Proportion of respondents from each country



The most supported uses of reclaimed water are those which do not require high-quality water



The most important reported benefit is the reduction of water scarcity

Each of these benefits were considered as “high” or “medium” by more than 70% of respondents:

Safeguarding water resources by reducing water scarcity (87%) and pollution discharge (70%)

Innovation potential in the water industry (80%)

Improving resource efficiency (72%) and adaptation to climate change (73%)

The other listed benefits gathered less than 58% support from the respondents. In particular, economic benefits were not widely recognised.

The most important barriers: Awareness and perception-related issues

Awareness and perception-related issues: viewed by 85% respondents as “high” or “medium” barriers

Negative perception on the quality of reused water

Lack of awareness on the benefits of reusing water

Water reuse not seen as a component of integrated management

Regulatory and trade context: viewed by 75 -79% respondents as “high” or “medium” barrier

Lack of clarity of regulations for the management of reuse risks

Trade barriers for food products

Lack of clarity in the regulatory framework to manage water reuse-related risks more frequently seen as a barrier than **stringent national water reuse standards**

However, stringent national water reuse standards are more frequently quoted as a barrier in **MS having such standards in place** (CY, EL, ES, FR, IT, PT)

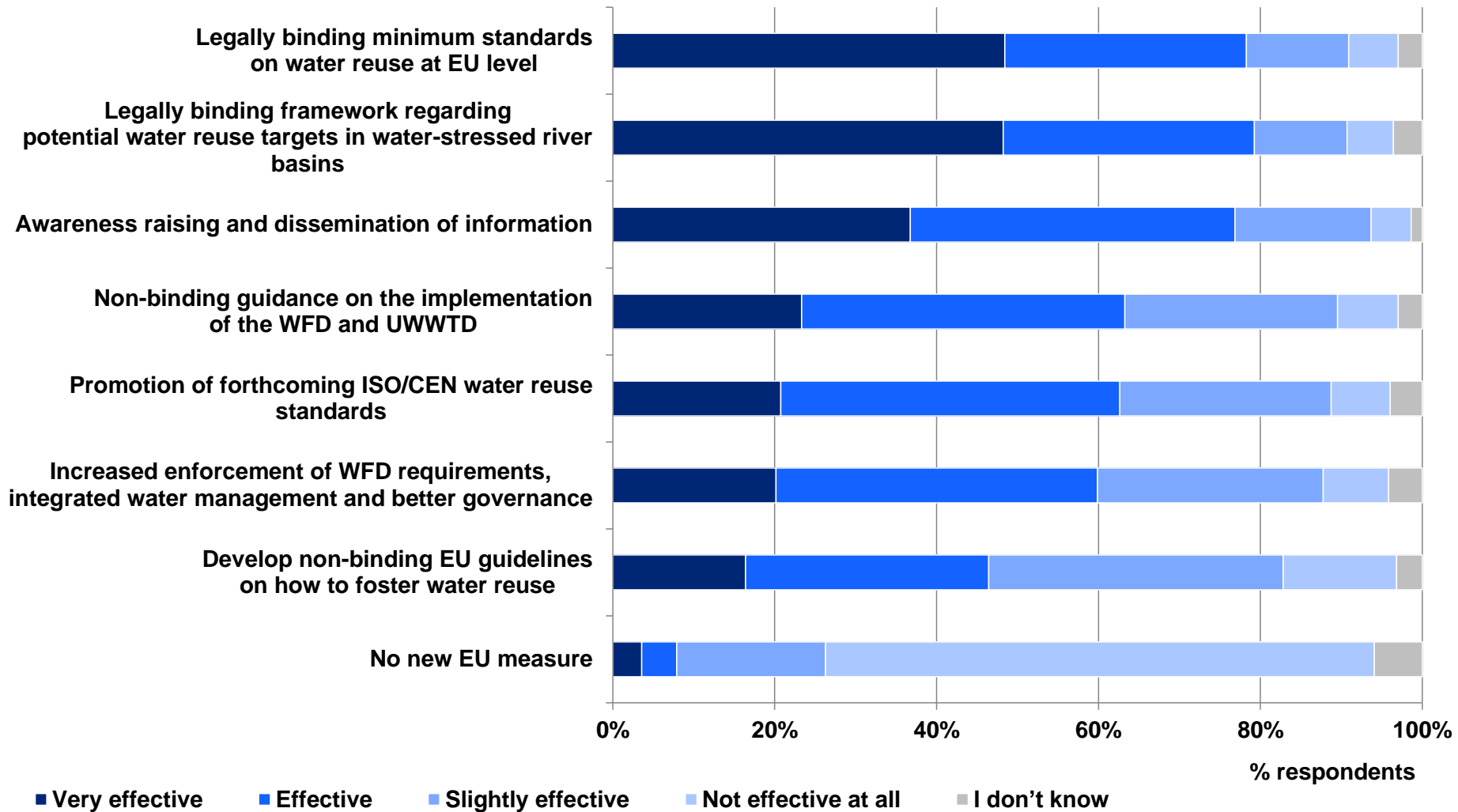
A majority of respondents do not favour the status quo

About **85%** of respondents view the **status quo** as being **not effective or only slightly effective** for promoting water reuse and ensuring the safety of practices.

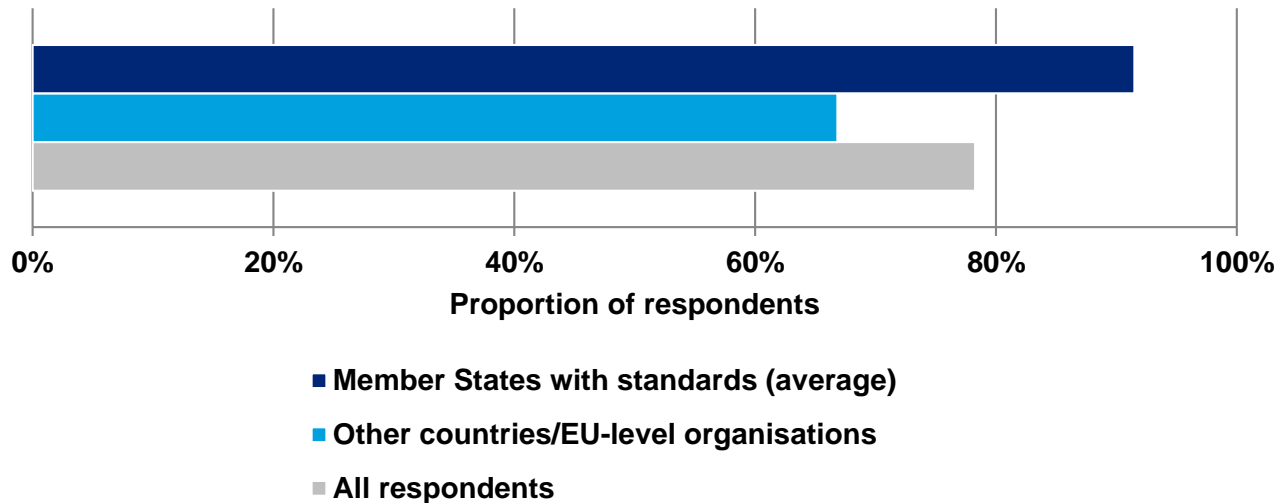
Examples of arguments

- “Not likely to address an increasing water scarcity”
- “Will lead to significant long-term costs for the EU (adaptation and/or mitigation actions)”
- “Maintaining status quo is not likely to improve the situation in MS in which too stringent standards are hindering water reuse”
- “EU-wide barriers are likely to remain”
- “No control of potential health risks”

Regulatory measures are seen as the most effective for promoting water reuse



Proportion of respondents considering legally-binding minimum EU standards as effective or very effective for promoting water reuse



Pros/cons and costs/benefits of possible EU measures

- **EU measure:** Legally binding minimum standards on water reuse at EU level addressing health and environmental risks

Examples of respondents' views

Pros	Cons	Benefits	Costs
<p>“Enables a similar application by all MS”</p> <p>“Would increase export possibilities e.g. for crops irrigated with reused water”</p> <p>“Experience from California and Florida indicate that this approach has been the most effective in promoting extensive water reuse for practically all intended uses”</p>	<p>“Agreeing on standards would take time and represent a significant investment for both the EC and MS”</p> <p>“If standards focus on the technology for reuse, rather than on the quality of the re-used water, it could create a barrier to innovation”</p> <p>““Minimum” means MS can implement more stringent standards, which could prevent the development of water reuse projects”</p>	<p>“Binding commitments would drive innovation by communities and technology suppliers, reducing costs of compliance and dramatically improving the sustainability of water resource management”</p>	<p>“Many standards create significant costs of compliance and monitoring costs, which are passed on to the water users”</p> <p>“Common standards could create economies of scale and may reduce compliance costs. The potential for savings would lie in the possibility to use different technologies for different reuse applications”</p>

Pros/cons and costs/benefits of possible EU measures

- **EU measure:** Legally binding framework involving potential reuse targets in water stressed river basins

Examples of respondents' views

Pros	Cons	Benefits	Costs
<p>“Would give a clear direction and would create a level playing field”</p> <p>“Incentive for the EU water industry to develop technologies that can ensure a reliable and safe water supply based upon reclaimed water”</p> <p>“Flexible approach (MS set their own targets, if necessary)”</p>	<p>“Agreeing on targets and formalising them would take time”</p> <p>“Without incentives, this option would be difficult to implement”</p> <p>“In times of economic crisis there might be a lack of resources to meet commitments”</p>	<p>“A sufficiently ambitious regulatory framework with quantitative goals would accelerate technological and business model innovation in EU water reuse and ultimately lower the costs of adoption”</p>	<p>“Implementation costs could be significant: operational costs, implementation costs, monitoring and measuring costs and penalties”</p> <p>“Extensive data collection may be needed, which will be quite costly and difficult in some MS”</p>

Pros/cons and costs/benefits of possible EU measures

- **EU measure:** Awareness raising and dissemination of information on the various benefits of water reuse, among all key stakeholders

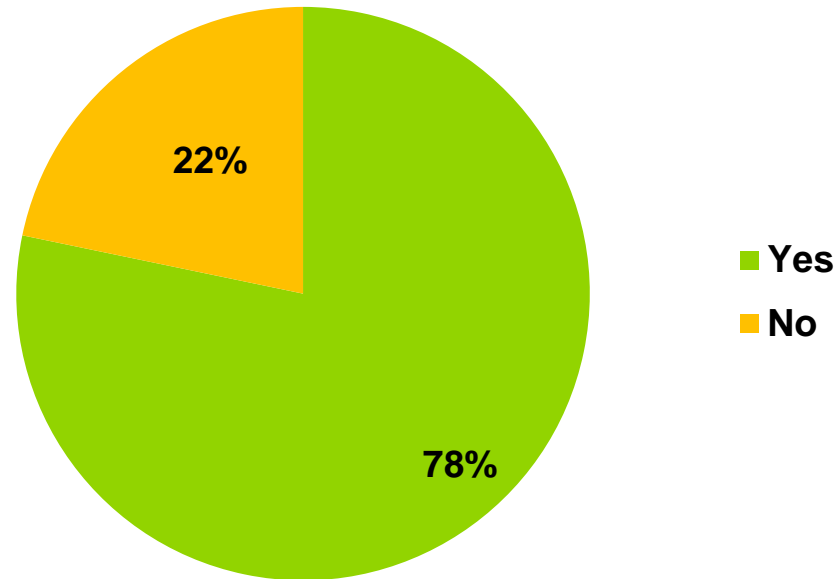
Examples of respondents' views			
Pros	Cons	Benefits	Costs
<p>“International experience with water reuse adoption in Australia, Singapore, and California has shown us that public outreach is crucial to obtaining public acceptance of recycled water”</p> <p>“The most successful projects have been promoted by users, under water scarcity conditions”</p>	<p>“It may take many years to change perceptions on water reuse”</p> <p>“Risk of poor information, incomplete or ambiguous messages”</p>	<p>“Little or no administrative burden”</p>	<p>“Developing appropriately-tailored educational programmes need a significant investment in time and money”</p>

Examples of other possible EU measures proposed by respondents:

- Economic instruments
 - Financial incentives to reuse water (e.g. through the CAP)
 - Better enforcement of cost recovery principle
- Promoting previous experiences and investing in R&D
- Regulating specific sectors only, e.g. irrigation of golf courses

A majority of respondents believe that several types of EU measures should be combined

Would a combination of different measures be necessary to promote water reuse?



Q&A session

- What is your opinion on the **reasons justifying EU action** and the **added value** of EU action concerning water reuse?
- Do you have **further evidence** to reinforce the arguments in favour of EU action?
- What would be the effects of the policy options **in your country**? Do you have information/data to **quantify** these effects?
- Your reactions on the results of the **public consultation**
- Any other feedback or questions

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