Optimising water reuse in the EU

Public consultation analysis report

Europe Direct is a service to help you find answers to your questions about the European Union.

Freephone number (*)**:**

00 800 6 7 8 9 10 11

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Luxembourg: Publications Office of the European Union, 2015

ISBN 978-92-79-46856-8
doi: 10.2779/393475

Document information

CLIENT	European Commission – DG ENV
CONTRACT NUMBER	07.0307/2013/658572/ENV.C1
REPORT TITLE	Public consultation analysis report
PROJECT NAME	Optimising water reuse in the EU
DATE	12 February 2015
PROJECT TEAM	BIO by Deloitte (BIO)
AUTHORS	Mr Shailendra Mudgal, BIO by Deloitte Ms Lise Van Long, BIO by Deloitte Ms Nada Saïdi, BIO by Deloittey Ms Lidia Wisniewska, BIO by Deloitte
KEY CONTACTS	Shailendra Mudgal +33(0)1 55 61 63 03 shmudgal@deloitte.fr Or Lise Van Long +33(0)1 55 61 63 03 lvanlong@bio.deloitte.fr
DISCLAIMER	The project team does not accept any liability for any direct or indirect damage resulting from the use of this report or its content. This report contains an analysis of public consultation results and is not to be perceived as the opinion of the European Commission. The views expressed by public authorities do not necessarily represent the official views of the government of a selected country. Also note that the survey relied on self-declaration.

Please cite this publication as:
BIO by Deloitte (2015) Optimising water reuse in the EU – Public consultation analysis report prepared for the European Commission (DG ENV).

Contents

Table of figures

Executive Summary

The online public consultation aimed to gather informed opinions and suggestions from a wide range of stakeholders on how to optimise water reuse in the EU.

The consultation was held from 30 July until 7 November 2014. It included, in particular, specific questions related to the perception of benefits of and barriers to water reuse, and opinions on possible EU-level measures to promote water reuse while ensuring protection of the environment and human health.

In total, 506 respondents participated in the consultation.

This included: 224 individual respondents, 222 companies and organisations, 43 public authorities and 17 other respondents. Twelve stakeholders uploaded additional documents and eight sent more detailed responses or position papers via email. Participation was particularly high in four Member States (France, Spain, Italy and Germany), which together made up more than 65% of total responses. About 95% of total answers were obtained from Member States' organisations, 3% from EU-level organisations and 2% from other countries. Among private companies, nearly equal share of respondents represented large companies and Small and Medium Enterprises (SMEs).

The most supported uses appear to be applications not requiring high quality water.

The most supported uses among the respondents (selected by at least 60% of respondents) are those which do not require high quality water (street cleaning, fire-fighting, cooling, etc.) and in which reclaimed water is not in direct contact with people (irrigation of non-food crops, irrigation of golf courses, etc.). Moderately-supported uses (selected by 40%-50% of respondents) include uses in industry and irrigation in which reclaimed water is not in contact with food, as well as groundwater recharge. The least-supported uses (selected by less than 30% of respondents) include uses in which reclaimed water is directly in contact with food (food industry with food contact, irrigation of fruits and vegetables to be eaten raw) or with people (bathing waters, drinking water). The results of the consultation on appropriate uses illustrate to some extent the lack of awareness of the public with regard to the possibility to adapt the quality of the reclaimed water to the intended uses.

Overall, there is a wide recognition of various benefits of reusing water.

An increase in quantity and quality of available water is viewed as the most important benefit of reusing water (87% of respondents considered reduction of water scarcity as an effect of "high" or "medium" benefit and 70% considered reduction of pollution discharge as an effect of "high" or "medium" benefit). Water reuse is also seen by more than 70% of respondents as a valuable solution for improving adaptation to climate change and increasing resource efficiency. A high percentage of respondents (80%) also consider water reuse as an opportunity to foster innovation in the water industry.

The proportion of respondents seeing economic benefits of water reuse as high is surprisingly low, when considering the number of publications and good practice examples demonstrating that water reuse can bring significant economic benefits. Only 50 to 60 % of respondents consider these economic benefits[1] as high or medium. These results might be associated with the general lack of awareness on the benefits of water reuse and the lack of economic analyses covering the whole range of costs and benefits of reuse schemes.

[1] The economic benefits listed in the questionnaire include: increased revenues for the agricultural sector, cost savings for water users, cost savings for public authorities, job creation, and increased revenues for the tourism sector.

Awareness and perception-related issues emerge as the main barriers

The negative perception on the quality of reused water is a highly or moderately important barrier for 85% of respondents (with almost 60% viewing it as highly important); no respondent, however, provided any evidence of actual health or environmental issues/damages due to water reuse practices in the EU.

The fact that water reuse is not seen as a component of integrated management is a highly or moderately important barrier for 86% of respondents (with almost 60% viewing it as highly important).

The lack of awareness on the benefits of reusing water is a highly or moderately important barrier for 85% of respondents (with 55% viewing it as highly important).

The next two frequently mentioned types of barriers relate to the regulatory and internal trade context:

- Almost 80% of respondents identify the lack of clarity of regulations for the management of reuse risks as a highly or moderately important barrier (with 50% viewing it as highly important); and
- About 75% of respondents express their fear regarding potential trade barriers for food products irrigated with reclaimed water (45% of them considering it as highly important); no respondent, however, provided any evidence of actual trade barriers.

The lack of clarity in the regulatory framework to manage water reuse-related risks is more frequently seen as a barrier than the existence of stringent national water reuse standards. However, stringent national water reuse standards are more frequently quoted as a barrier in Member States having such standards in place (CY, EL, ES, FR, IT, and PT).

According to respondents, the most effective policy measures to promote water reuse in the EU are the regulatory ones.

Almost 80% of respondents regarded legally-binding EU standards as effective or very effective (with almost 50% evaluating this option as very effective); similar results are observed for a legally-binding framework involving potential reuse targets in water-stressed river basins. Respondents from Member States with national standards are more likely to perceive EU-level standards as effective than other respondents (91% and 67% of perceived effectiveness, respectively). This could be explained by the fact that, in some of these Member States – in particular, FR, IT and EL – many stakeholders hope that future legally-binding EU standards would be better designed and easier to implement than their current national standards, thus making reuse projects easier to implement and a more economically attractive solution for potential project developers.

Among the non-regulatory measures, the most effective according to the respondents is awareness-raising and dissemination of information, with 77% of respondents considering this option as effective or very effective (37% evaluating it as very effective). Other non-regulatory measures, including increased enforcement of existing directives and guidance, are deemed effective or very effective by a smaller proportion of respondents.

Furthermore, the majority of respondents (around 75%) do not consider maintaining the status quo as effective for promoting water reuse.

A majority of respondents (78%) believe that several types of EU measures should be combined, most of them suggesting that EU action should include regulatory and non-regulatory measures (such as dissemination of information).

According to respondents, the most effective policy measure to ensure environmental and health safety of reuse practices is to set legally-binding standards at EU level.

More than 80% of respondents consider legally-binding standards as effective of very effective, with 50% of them viewing them as very effective. Promotion of ISO/CEN standards is considered as effective or very effective by 65% of respondents (only 19% finding this measure very effective).

Compared with respondents from other countries, respondents from Member States with national water reuse standards are much more likely to consider EU action as effective, in particular to implement legally-binding EU standards (95% among the six concerned Member States vs. 75% among the other respondents).

A vast majority of respondents (88%) consider that maintaining the status quo would have no or little effectiveness with regard to ensuring the safety of reuse practices.

A majority of respondents (59%) believe that several types of EU measures should be combined. Many respondents suggest that standards should be accompanied with awareness-raising actions and/or financial incentives.

This page is intentionally left blank

Introduction

The online public consultation was held from July 30th, 2014 until November 7th, 2014.The aim of the public consultation was to gather informed opinions and suggestions from a wide range of stakeholders on how to optimise water reuse in the EU. In particular, there were specific questions related to:

- Perception of benefits of and barriers to water reuse; and
- Opinions on possible EU-level measures to promote water reuse while ensuring protection of the environment and human health.

The online stakeholder consultation was hosted by the European Commission (DG Environment) and accessible to all at the following website: http://ec.europa.eu/environment/consultations/water_reuse_en.htm.

Respondents could provide answers to the questionnaire either as an 'interested individual/citizen/consumer' or as a 'stakeholder/expert' representing an organisation. A background document presenting key elements to fully understand the scope and content of the questions was annexed to the questionnaire and the respondents were invited to read it carefully before filling in the questionnaire.

The majority of the questions adopted a "multiple choice" approach, where the respondent was requested to express his/her opinion on a graduated scale, usually a 4 or 5 point-scale, concerning levels of benefits/barriers and expected effectiveness of policy options. The questionnaire also included open questions for the respondents to specify some answers or to develop their opinions on the policy options.

While most respondents responded to the questionnaire online, some stakeholders sent position papers or more detailed written responses, which have been taken into account in the present report (see Annex 2 for a brief overview of their main contents). Respondents also had the opportunity to upload documents while answering the online questionnaire.

The total number of responses to the questionnaire is 506. Twelve (12) stakeholders uploaded additional documents and eight (8) sent more detailed responses or position papers via email.

A draft analysis of the consultation results was presented during a stakeholder meeting held on 4 December 2014 in Brussels. The following key comments were made during this meeting:

- Several stakeholders reiterated the fact that public acceptance is a key barrier. It does not only generate business uncertainty issues for project developers/investors, but is also a reason why certain MS have developed very strict water reuse standards.
- According to some meeting participants, the results of the public consultation demonstrate the lack of awareness and misunderstandings of the public with regard to the quality of reclaimed water vs other water resources that are currently used.
- Participants were surprised that economic benefits of reuse did not rank amongst the key benefits identified by the respondents. There are many publications and good practice examples demonstrating that water reuse can bring significant economic benefits, but this does not seem to be reflected in the results of the public consultation.
- Regarding the soil fertilisation benefits, it was pointed out that this can be an incentive for operators of wastewater treatment plants to develop reuse infrastructure instead of enhancing nutrient removal treatment installations.
- The importance of awareness-raising policy measures was underlined by several participants. These measures are viewed as necessary to address the public acceptance issues and the lack of knowledge on the wide benefits of reuse.

- Financial incentives, in the form of public subsidies, were seen by many participants as necessary to promote water reuse. One justification given is the fact that water from conventional sources is strongly subsidised in many EU areas, thus reused water cannot compete due to its comparatively higher price. Farmers and urban users will not be available to pay for the full cost of reused water, which may only be acceptable for industrial uses.
- Several stakeholders from the industry expressed their support for an EU legally-binding framework including common standards on water reuse. Overall, no opinion against the implementation of common EU standards was expressed, while several stakeholders expressed doubts or concerns about a legally-binding framework involving targets on reuse level set at EU level.

1. Demographics of the respondents

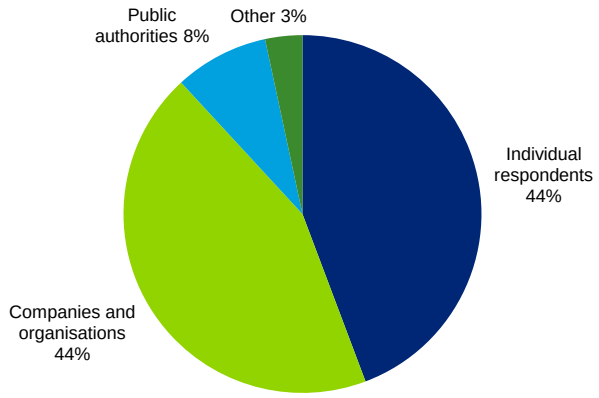
1.1. Type of respondents

In total, 506 respondents participated in the consultation. Responses came from 224 individual respondents, 222 companies and organisations, 43 public authorities and 17 other respondents (who were not qualified by any provided category).

Table 1: Number of respondents by type

Type of respondent	Number
Individual respondents	224
Companies and organisations	222
Public authorities	43
Other	17

Figure 1: Respondents by type

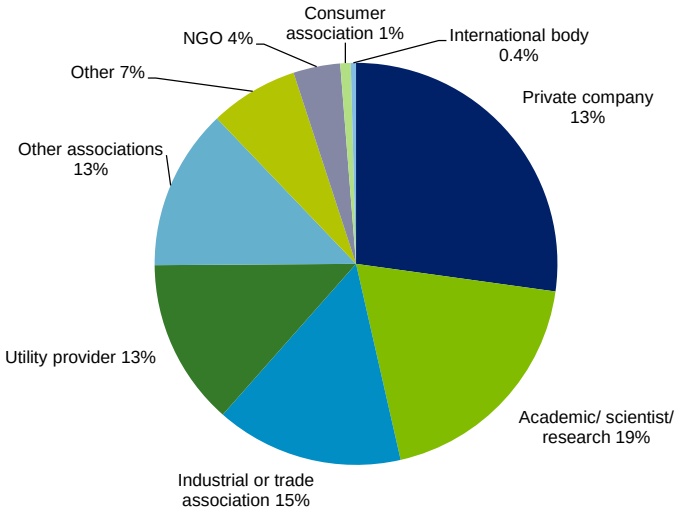


The breakdown of companies and organisations is provided in the table below.

Table 2: Number of respondents by type of organisation

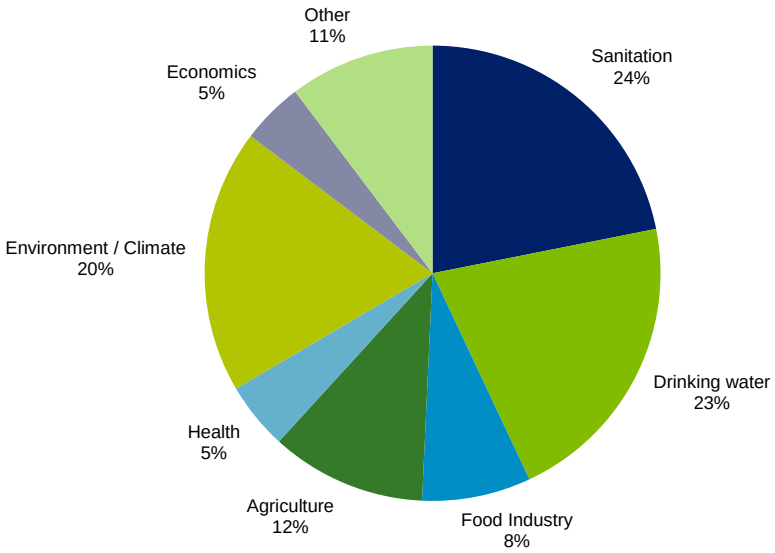
Type of organisation	Number
Private company	65
Academic/scientific/research	46
Industrial or trade association	36
Utility provider	32
Other associations	31
Other	17
NGO	9
Consumer association	2
International body	1

Figure 2: Breakdown of responding companies and organisations by type



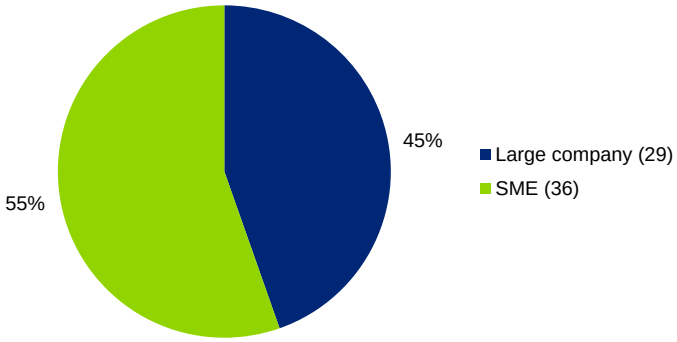
The following figure presents a breakdown of organisations and companies by the main field of activity they represent.

Figure 3: Responding organisations and companies by field of activity



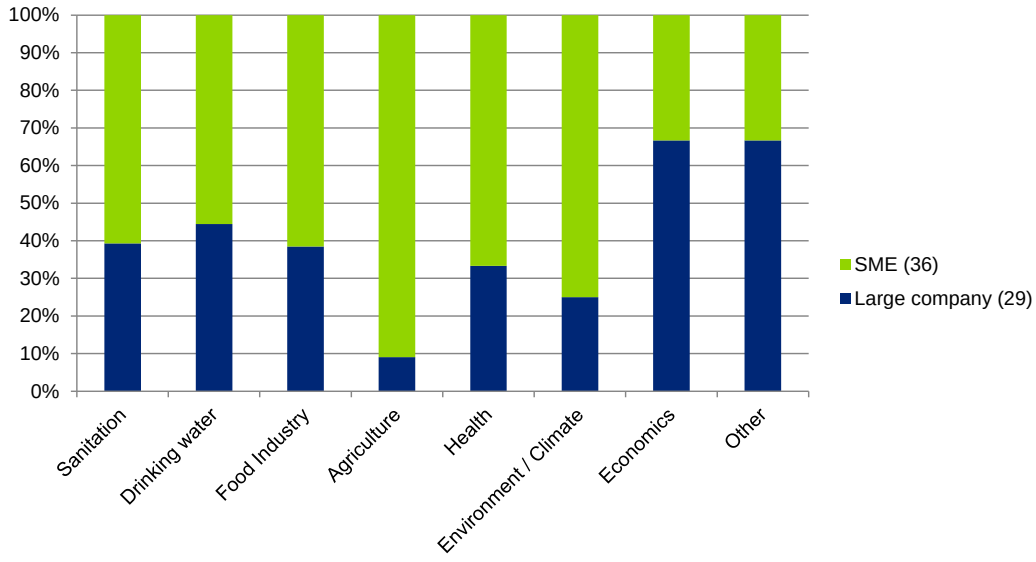
Among private companies, nearly equal share of respondents represented large companies and Small and Medium Enterprises (SMEs) (Figure 4).

Figure 4: Responding companies by size



The figure below shows the share of large companies and SMEs for each sector represented in the survey.

Figure 5: Share of large companies and SMEs by sector of activity



1.2. Location of the respondents

About 95% of total answers were obtained from EU Member States, 3% from EU level organisations and 2% from other countries. France, Spain, Italy and Germany made up more than 65% of total responses (Figure 6), but participation per capita was the highest in Bulgaria, Cyprus, Spain, France, Luxembourg, Malta and Portugal (Figure 7).

Figure 6: Number of respondents by country and share in total number of responses (countries with the highest numbers of respondents)

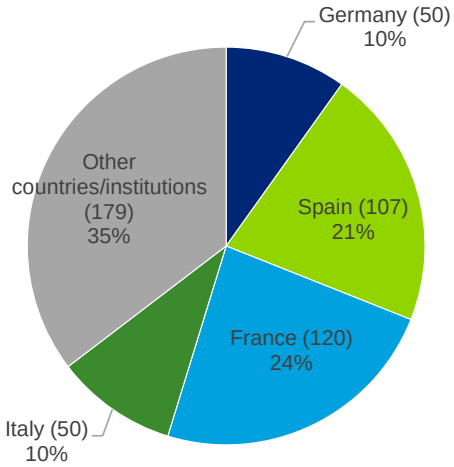
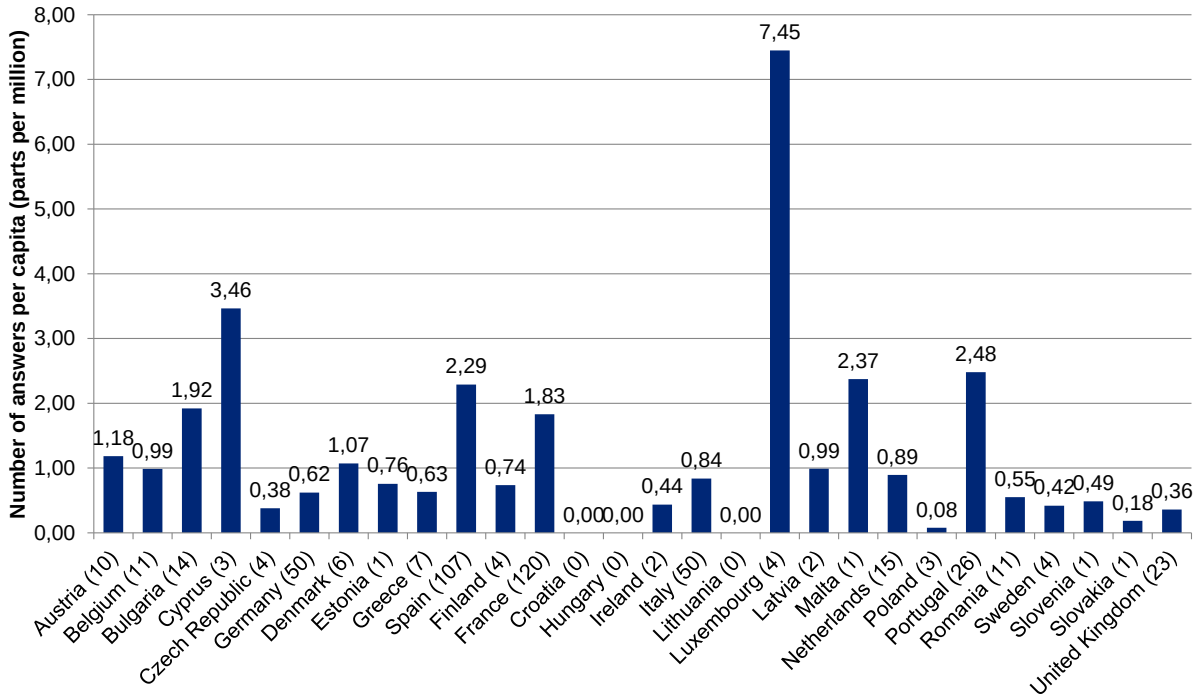


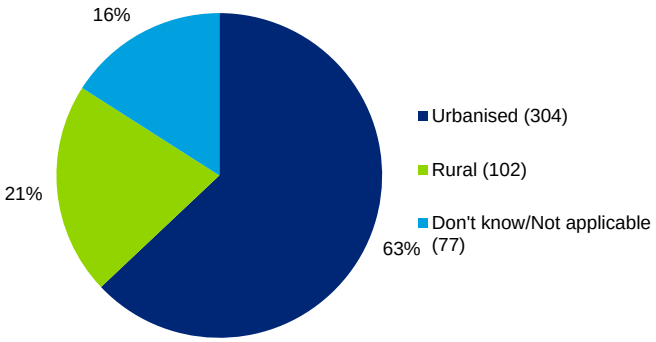
Figure 7: Number of respondents by country, per capita



France, Spain, Cyprus, Portugal and Malta are among the Member States with the highest water reuse rates and where reuse is regulated by national standards. This may explain the interest in the public consultation and the high participation in these Member States. In France, in particular, water reuse was an important subject during the period of the public consultation: the Order ruling the different uses of reclaimed water was being amended at that time. Interest for the consultation in Bulgaria might be explained by the water stress situation of several river basins in this country. The high participation rate (per capita) in Luxembourg is somehow surprising, as this Member State is not subject to water stress and national stakeholders have not expressed a great interest for reuse of treated urban wastewater during the consultation; this result may also be due to a bias linked to the low population in Luxembourg.

The majority of respondents declared living in an urbanised area (63% of the total responses), and 21% of respondents in a rural area.

Figure 8: Number of respondents by type of living area



Almost half of respondents are aware of water reuse practices in their neighbourhood (see Figure 9). A breakdown of responses by Member State is provided in Figure 10.

Figure 9: Awareness of water reuse practices in the neighbourhood

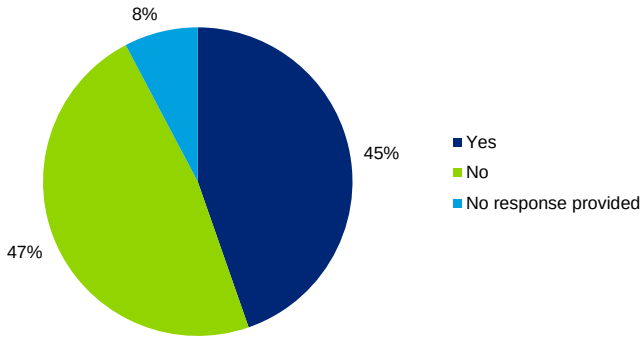
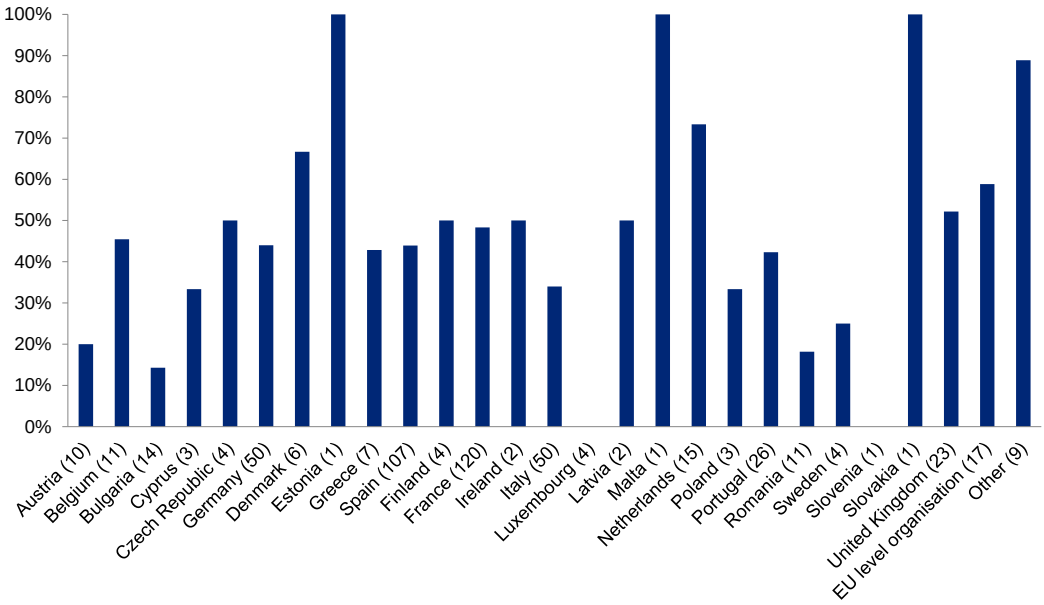
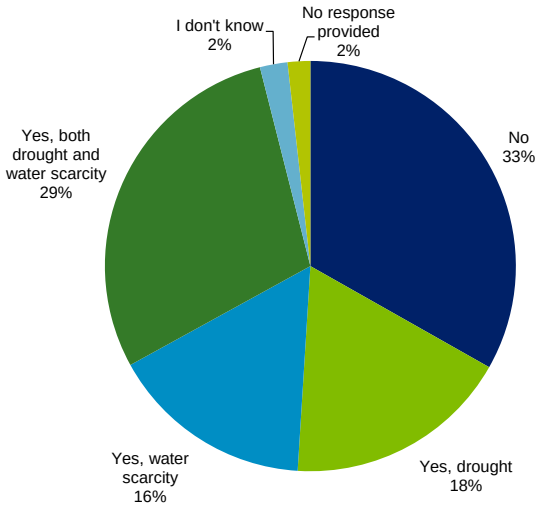


Figure 10 : Share of respondents who are aware of water reuse practices in their neighbourhood, by Member State



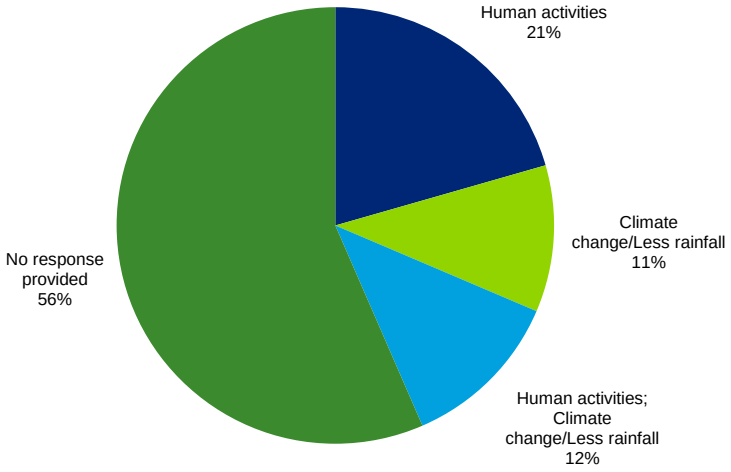
Respondents were asked if they are aware of droughts or water scarcity occurring in the area where they live in the past five years. An explanation was provided on these terms: *Drought refers to a temporary decrease in water availability, for example when it does not rain over a long period of time. Water scarcity occurs when demand for water exceeds the available sustainable resources. Water scarcity situations are not only limited to the southern, drier regions but can occur also in areas in the northern river basins of Europe.* The figure below indicates that over 62% of respondents are aware of drought, water scarcity or both having occurred in the past five years in their living areas.

Figure 11: Awareness of droughts or water scarcity occurring in the living area in the past five years



About 43% of the respondents answered to the question asking for their opinion on the main reason(s) for water scarcity in their region. Almost half of them think that human activities are responsible for water scarcity in their region, 25% think that it is due to climate change/less rainfall, and 28% consider both reasons as important.

Figure 12: Opinions of respondents about reasons for water scarcity in their region



This page is intentionally left blank

2. Perception of the benefits of and barriers to water reuse

2.1. Opinions on the most appropriate uses of reclaimed water

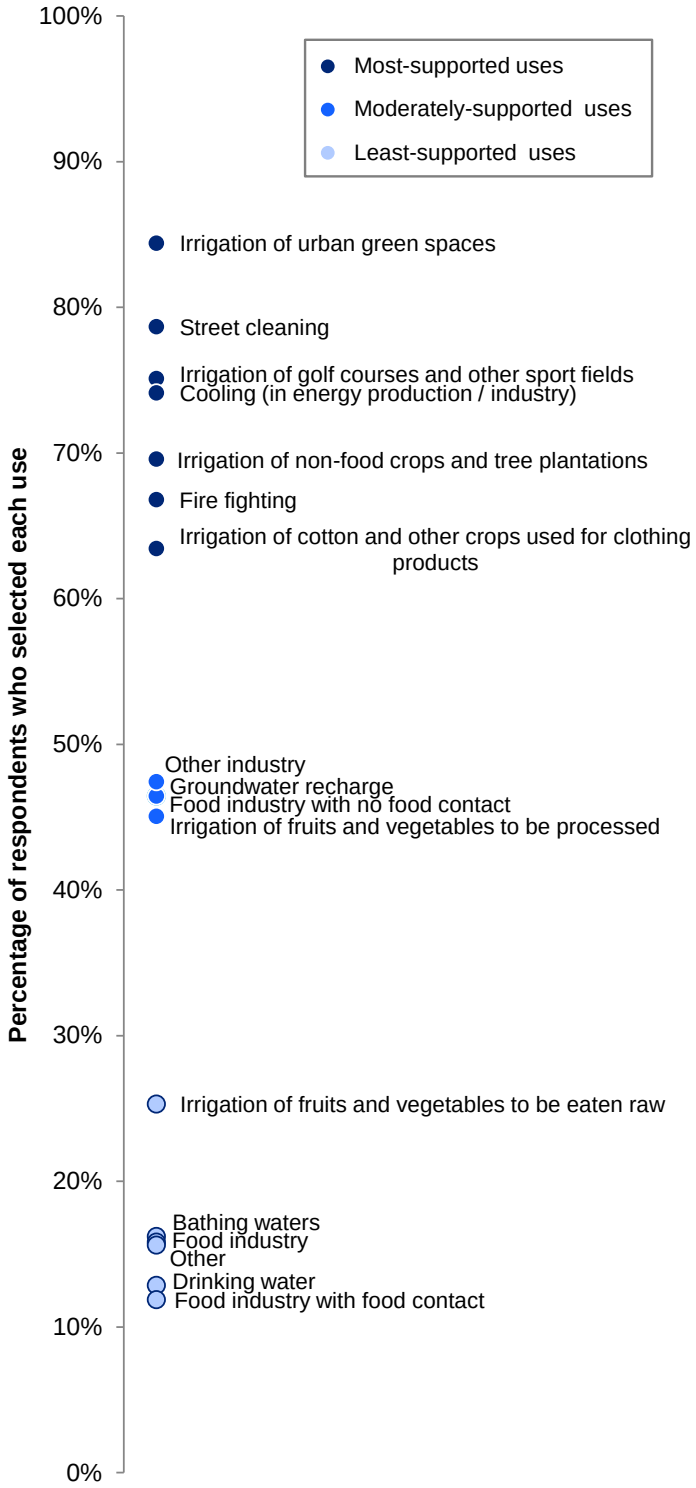
Participants were asked which uses of reclaimed water[2] they considered to be appropriate and should be encouraged, as long as the level of treatment of the water is adjusted in order to meet the quality requirements of the intended uses. They could choose several answers in the list of potential uses provided in the questionnaire. In addition to the listed uses, they could mention other uses they thought to be appropriate.

Figure 13 ranks all uses of reclaimed water according to their level of support among respondents. Three use categories of reclaimed water have been defined in the figure, depending on their level of support:

- The uses which were more frequently selected as appropriate (by at least 60% of respondents) are labelled as “most-supported uses” in Figure 13. Uses included in this group are those which do not require high quality water (street cleaning, fire-fighting, cooling, etc.) and in which reclaimed water is not in direct contact with people (irrigation of non-food crops, irrigation of golf courses, etc.).
- The uses labelled as “moderately-supported” are those which were selected by 40% - 50% of respondents. This group includes uses in industry and irrigation in which reclaimed water is not in contact with food (food industry with no food contact, irrigation of fruits and vegetables to be processed). Groundwater recharge is also moderately supported.
- The “least-supported” uses, which were selected by less than 30% of respondents, include uses in which reclaimed water is directly in contact with food (food industry with food contact, irrigation of fruits and vegetables to be eaten raw) or with people (bathing waters, drinking water).

[2] In the context of this consultation, ‘reclaimed water’ refers to former urban or industrial wastewater that has been treated to remove solids, organic matter and certain types of impurities (subject to at least secondary treatment). Water is treated to a certain quality that matches the intended use, in most cases at a lower standard than drinking water quality.

Figure 13: Proportion of respondents considering a given use of reclaimed water as appropriate



It seems that many respondents consider reclaimed water as low-quality water, thus restricting the term “appropriate use” to fields where a lower water quality is accepted, and where reclaimed water is not in contact with food or people. For example, most respondents do not consider bathing as an appropriate use for reclaimed water, while there are various examples of reuse schemes which have contributed to improving the quality of bathing waters (in particular, in EU coastal areas). Most EU citizens are not aware of the existence of unplanned reuse and indirect reuse for potentially sensitive uses (drinking water production, irrigation of food crops, etc.), which may also explain these results. Therefore, the results of the consultation on appropriate uses illustrate to some extent the lack of

awareness of the public with regard to the possibility to adapt the quality of the reclaimed water to the intended uses.

Some respondents shared their views on additional appropriate uses for reclaimed water. The most frequently mentioned applications are:

- Environmental uses: enhancement of river flows, restoration and maintenance of wetlands, injection in aquifer to prevent salted water intrusion, etc.;
- Indirect Potable Reuse (IPR);
- Urban uses other than street cleaning: public fountains and ornamental plants, building cleaning, toilet flushing and washing machines, vehicles cleaning (truck and car wash), etc.

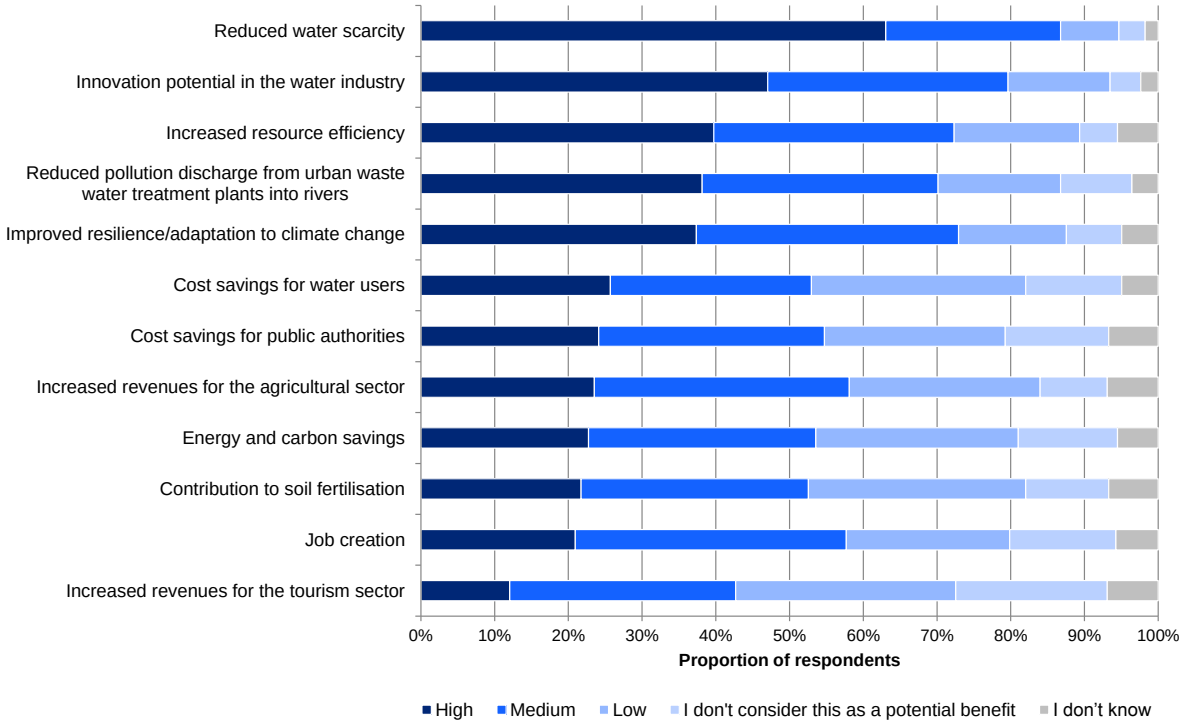
Some respondents also note that all uses of reclaimed water are appropriate, if the proper level of water quality is ensured. It is highlighted that reusing water should be case-specific.

2.2. Opinions on benefits of water reuse

2.2.1. Overall opinions

Participants were asked to share their views on the level (high, medium, low) of the potential benefits of water reuse listed in the questionnaire. The results are presented in Figure 14.

Figure 14: Views of respondents on the level of potential benefits of water reuse



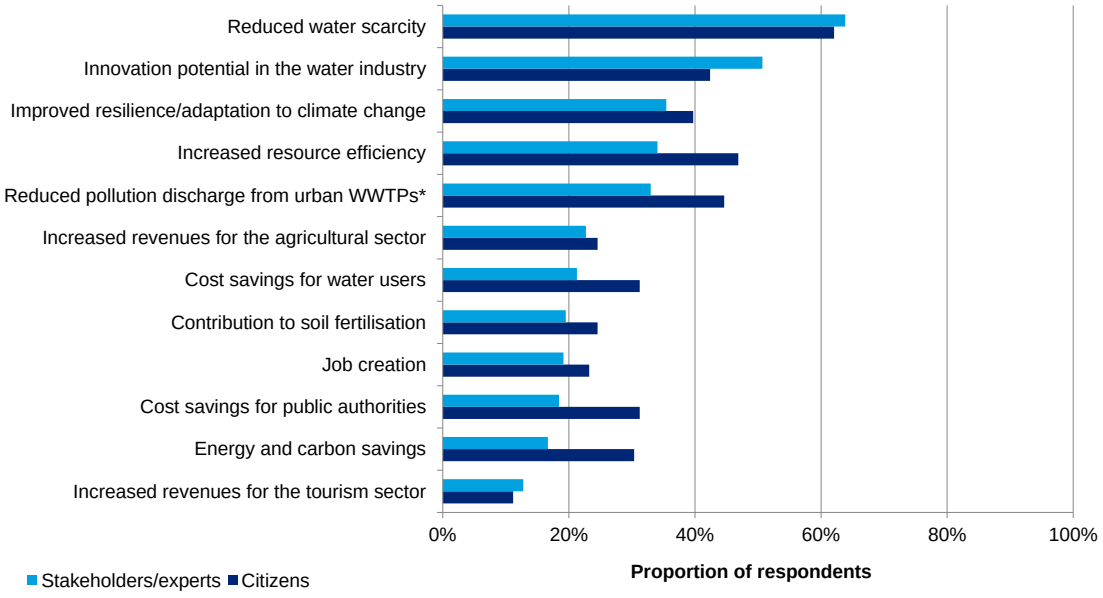
All the listed effects but “increased revenues for the tourism sector” are seen as benefits of water reuse with a “high” or “medium” level by more than half of the respondents.

On the one hand, an increase in quantity and quality of available water is viewed as the most important benefit of reusing water: 87% and of respondents considered reduction of water scarcity as an effect of “high” or “medium” benefit and 70% considered reduction of pollution discharge as an effect of “high” or “medium” benefit. Water reuse is also seen as a solution for improving adaptation to climate change and increasing resource efficiency. Interestingly, a high percentage of respondents (80%) also consider water reuse as an opportunity to foster innovation in the water industry.

On the other hand, the listed potential economic benefits of reusing water (cost savings, increased revenues for different actors, job creation) are less widely seen as actual benefits: only 50 to 60 % of respondents consider them as having a “high” or “medium” potential. This is also the case of some environmental benefits (energy and carbon savings, contribution to soil fertilisation).

As mentioned above, there is overall a low level of public awareness with regard to water reuse. For this reason, it was investigated whether there are significant differences in the perception of water reuse benefits between citizens and stakeholders/experts (Figure 15).

Figure 15: Proportion of citizens and stakeholders/experts considering benefits as “high”

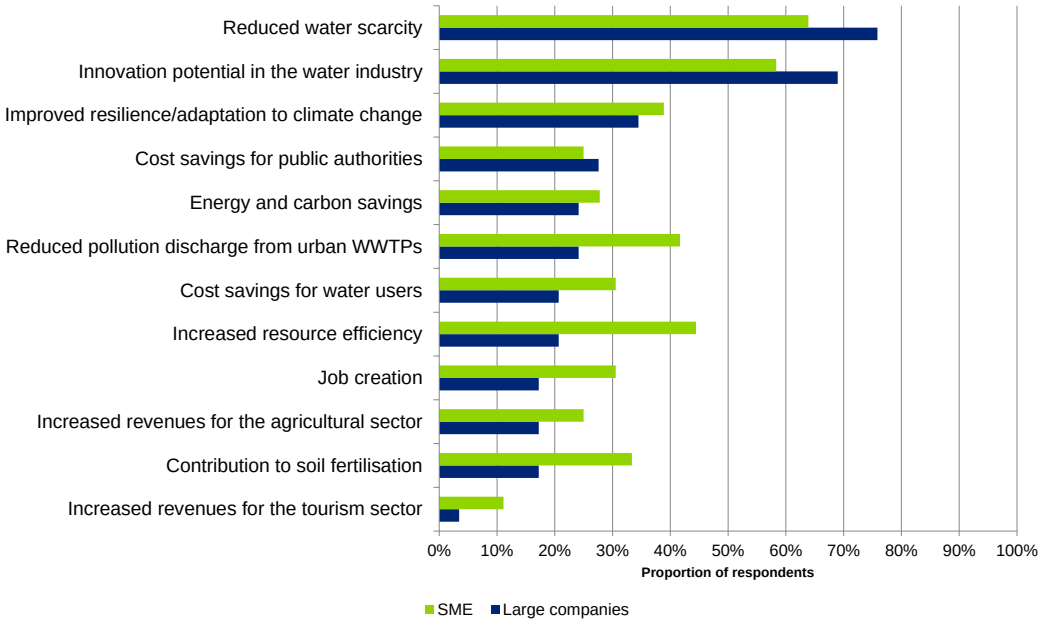


*WWTP: wastewater treatment plant

The same trends in terms of perception can be seen between citizens and stakeholders/experts, with the opinion of both types of respondents matching the global analysis. Nevertheless, differences arise regarding the perception of potential cost savings due to water reuse, with more citizens than stakeholders perceiving them as water reuse benefits. Stakeholders/experts are also less likely than citizens to consider increased resource efficiency and reduced pollution as benefits.

It was also investigated whether there were different views between SMEs and large companies (Figure 18).

Figure 16: Proportion of large companies and SMEs considering potential benefits as "high"



Among both large companies and SMEs, reduced water scarcity and innovation potential in the water industry are more likely to be considered as 'high' benefits, than among the other types of respondents.

Many more SMEs than large companies consider that the following benefits have a "high" potential: increased resource efficiency (difference of 24 points), reduced pollution discharge from urban wastewater treatment plants into rivers (difference of 18 points) and contribution to soil fertilisation (difference of 16 points).

2.2.2. Focus on economic benefits

The proportion of respondents seeing economic benefits as high is surprisingly low, when considering the number of publications and good practice examples demonstrating that water reuse can bring significant economic benefits. The economic benefits listed in the questionnaire include: increased revenues for the agricultural sector, cost savings for water users, cost savings for public authorities, job creation, and increased revenues for the tourism sector.

As shown in Figure 15, more citizens than stakeholders/experts see potential cost savings as water reuse benefits, which is also surprising.

These results might be associated with the general lack of awareness on the benefits of water reuse and the lack of economic analyses covering the whole range of costs and benefits of reuse schemes.

On this subject, there are no significant differences between large companies and SMEs.

2.2.3. Additional benefits

Some respondents shared their views on additional potential benefits of water reuse. The most frequently mentioned benefits are:

- Safeguarding groundwater resources by reducing pressure on them and, if reused water is injected in aquifers, protecting them from salt intrusion;
- Reducing competition and conflicts for the use of freshwater resources; and
- Increasing self-sufficiency by ensuring agricultural production in times of droughts.

2.2.4. Conclusion on benefits

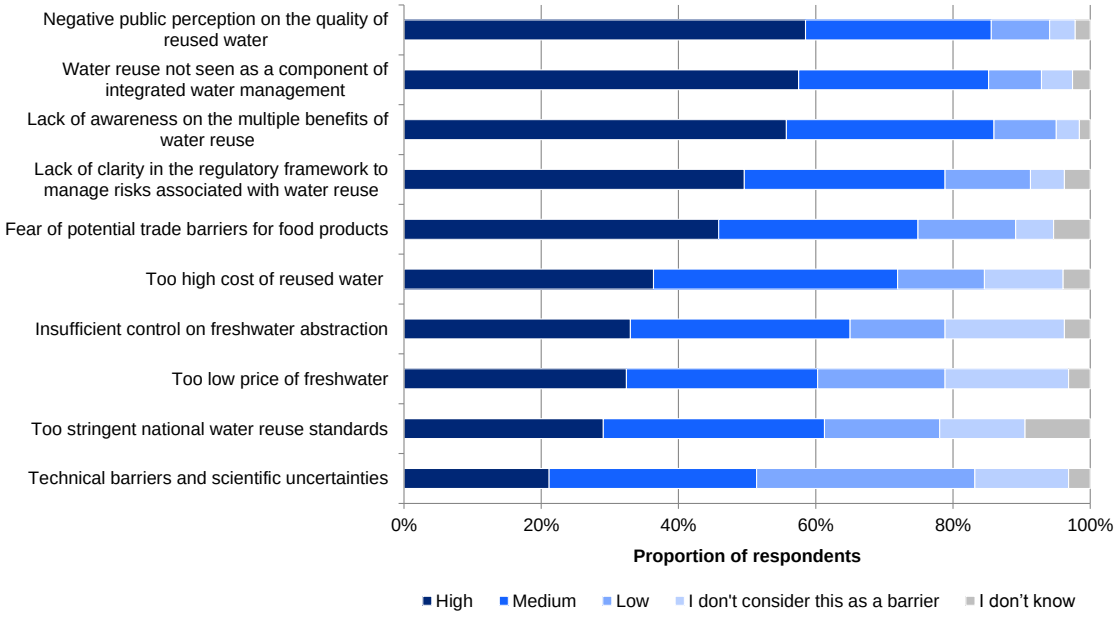
Overall, there is a wide recognition of the various benefits of reusing water. The few respondents who do not see any benefits in reusing water note that they could not give a general answer because the benefits of reuse project should be assessed on a case-by-case basis. Only one respondent mentions health risks as the reason for not identifying any benefits, although no evidence of unacceptable health risks is provided by this respondent.

2.3. Opinions on barriers to water reuse

2.3.1. Overall opinions

Participants were asked to share their views on the level (high, medium, low) of the potential barriers to water reuse listed in the questionnaire. The results are presented in Figure 17.

Figure 17: Views of respondents on the level of the potential barriers to water reuse



All the barriers listed in the questionnaire are identified as having a high or medium level by at least half of the respondents.

Awareness and perception-related issues emerge as the main barriers, as shown by the following results:

- The negative perception on the quality of reused water is a highly or moderately important barrier for 85% of respondents (with almost 60% viewing it as highly important); no respondent, however, provided any evidence of actual health or environmental issues in the EU[3];
- The fact that water reuse is not seen as a component of integrated management is a highly or moderately important barrier for 86% of respondents (with almost 60% viewing it as highly important); and

[3] One respondent mentioned that there are knowledge gaps regarding health issues (e.g. with regards to respiratory risks), and another one stated that inappropriate use of wastewater led to 53 casualties in 2011 from E.coli contamination in seeds of fenugreek imported from Egypt.

- The lack of awareness on the benefits of reusing water is a highly or moderately important barrier for 85% of respondents (with 55% viewing it as highly important).

The next two frequently mentioned types of barriers relate to the regulatory and trade context:

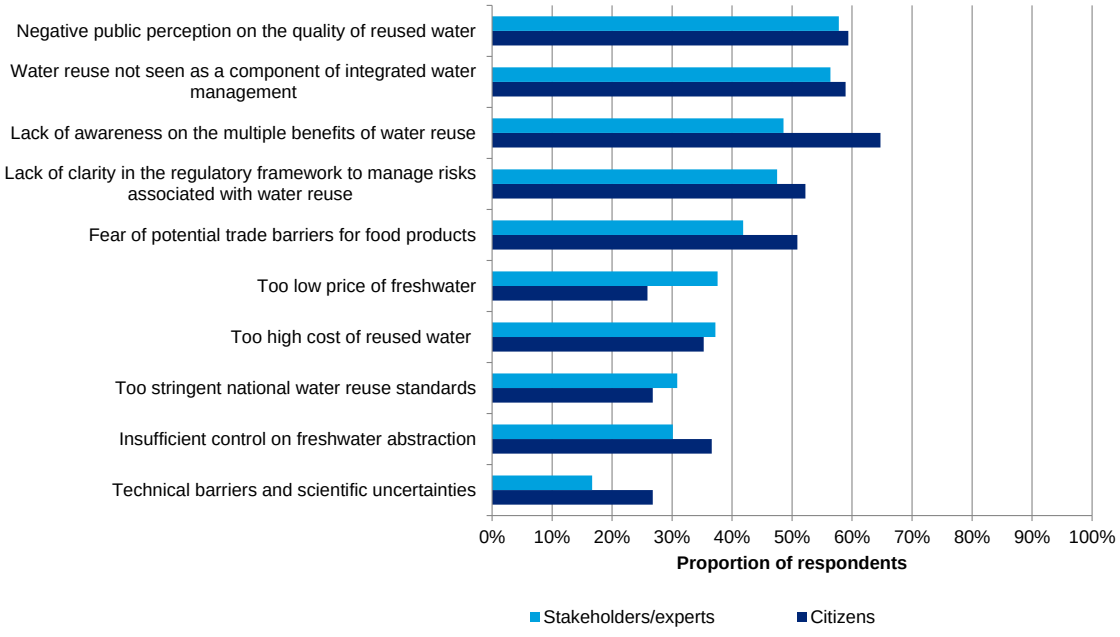
- Almost 80% of respondents identify the lack of clarity of regulations for the management of reuse risks as a highly or moderately important barrier (with 50% viewing it as highly important); and
- 75% of respondents express their fear regarding potential trade barriers for food products (45% of them considering it as highly important); no respondent, however, provided any evidence of actual trade barriers.

Barriers related to water pricing are also considered as important, albeit less than the above-mentioned barriers. Around 60% of respondents regard the low price of freshwater and high price of reused water as highly or moderately important barriers (with around 30% viewing them as highly important). Moreover, results show that the poor control of freshwater abstractions represents a barrier of equal importance to its low price, in the views of respondents.

Among the listed barriers, the less frequently mentioned as being important are the stringency of some national standards and the technical barriers and scientific uncertainties.

Similarly to the comparison carried out for the benefits of water reuse, the difference of perception of water reuse barriers between citizens and stakeholders/experts was analysed (Figure 18).

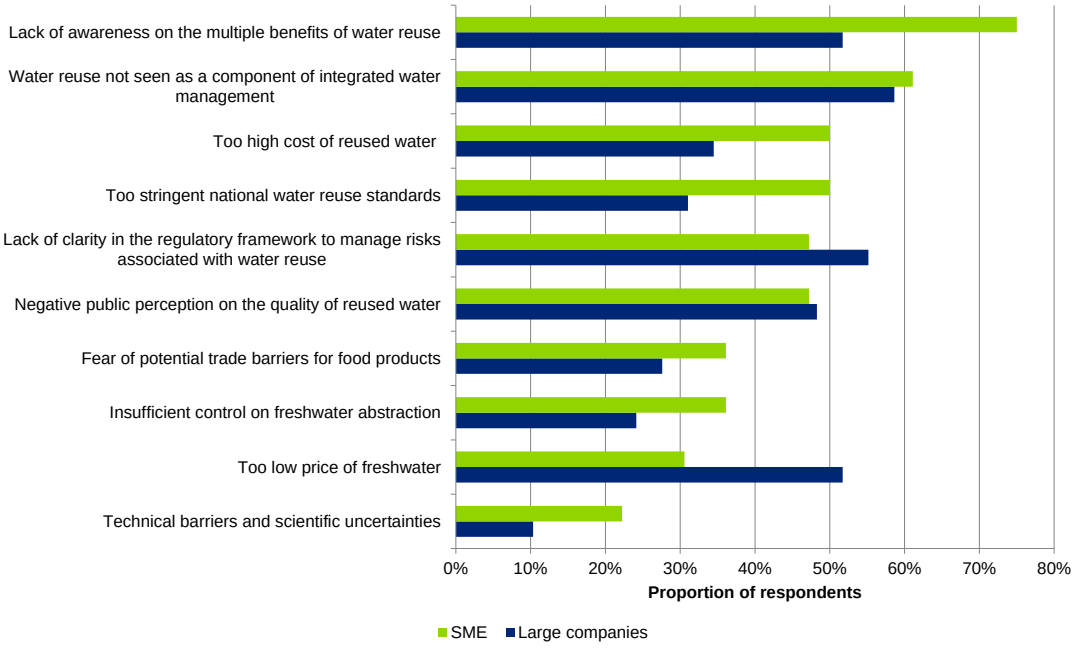
Figure 18: Proportion of citizens and stakeholders/experts considering barriers as "high"



The results show no major differences between citizens' and stakeholders/experts' perception of barriers to water reuse. Nevertheless, the following barriers seem to be more significant in the views of citizens: lack of awareness of reuse benefits, fear of potential trade barriers and scientific obstacles.

A comparison between the opinions of large companies and SMEs was also carried out, as shown in Figure 19.

Figure 19: Proportion of large companies and SMEs considering barriers as "high"

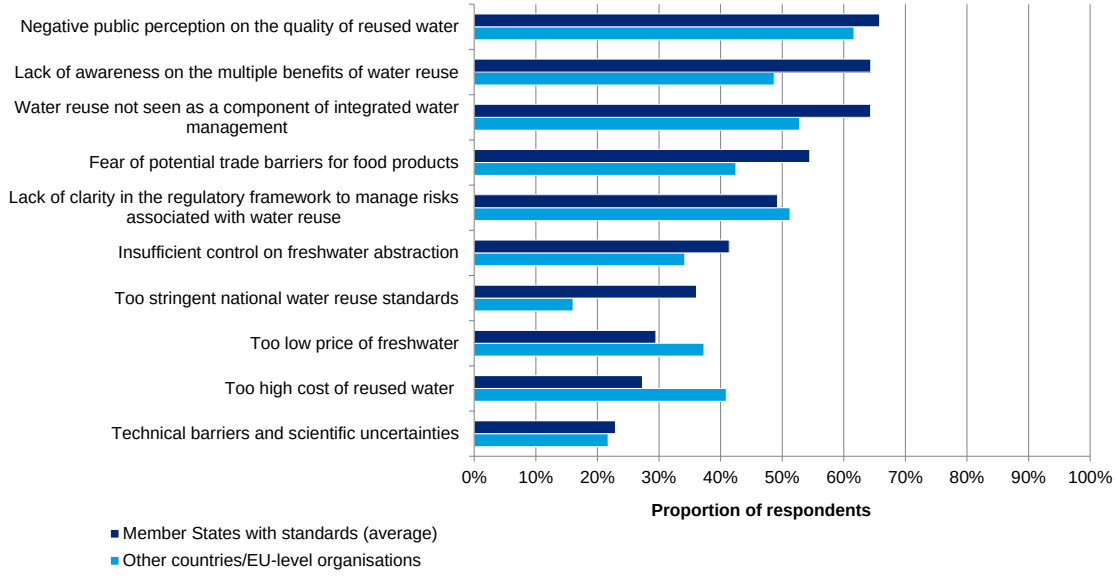


SMEs are more likely to consider the following barriers as highly important, compared with large companies: lack of awareness on the multiple benefits of water reuse; too high cost of reused water; too stringent national standards; fear of potential trade barriers for food products; insufficient control on freshwater abstraction; and technical barriers. Large companies are more likely to consider the too low price of freshwater as a barrier, compared with SMEs.

2.3.2. Differences of opinions among Member States

The difference of perception of water reuse barriers between respondents from the six Member States with national water reuse standards (Cyprus, Greece, Spain, France, Italy and Portugal) and other respondents was investigated. Figure 20 shows the average proportion of respondents from Member States with standards who see the listed barriers as "high", compared to the proportion of respondents from other countries or EU-level organisations.

Figure 20: Proportion of respondents from Member States with water reuse standards (average) and others considering barriers as "high"

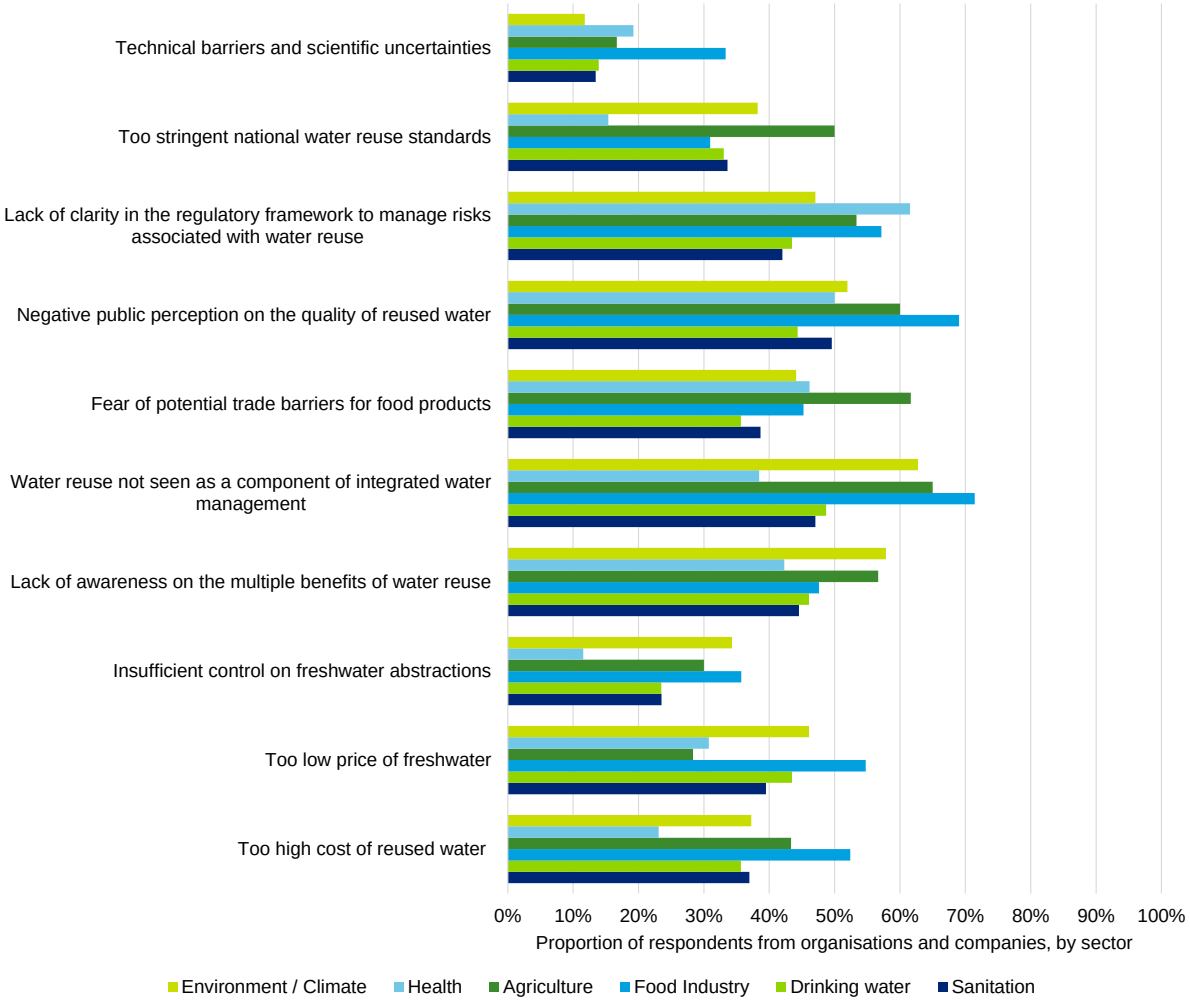


Respondents from Member States with standards are more likely than other respondents to see the level of barriers to water reuse as high. In particular, the average percentage of respondents seeing too stringent national standards as a high level barrier is greater in Member States with standards than in other countries/organisations.

2.3.3. Differences between sectors

Opinions of respondents from organisations and companies of six key sectors were analysed in further detail and compared (Figure 21): environment/climate, health, agriculture, food industry, drinking water and sanitation. The objective was to identify whether certain barriers to water reuse have a greater importance for specific sectors.

Figure 21: Proportion of organisations/companies considering barriers as high, for six sectors



First of all, it can be noted that opinions of respondents from the drinking water sector and from the sanitation sector are almost the same: they never differ by more than 12%. This result is not surprising as around 70% of professionals of either sector are also involved in the other[4]. Additionally, there is never more than 50% of respondents from drinking water and sanitation considering any barrier as high.

The barriers viewed as the highest ones are as follows:

- For the food sector respondents: negative public perception and the fact that water reuse is not seen as a component of integrated water management. Water reuse in the food

[4] Respondents could indicate more than one sector of activity.

industry is one of the least-supported uses of reclaimed water, as shown in Section 2.1, hence it is not surprising that the food sector identifies negative public perception as a significant barrier to reusing water;

- For the agricultural sector respondents: negative public perception, the fact that water reuse is not seen as a component of integrated water management and the fear of potential trade barriers. The reuse of water for irrigation of fruits and vegetables to be eaten raw is among the least-supported uses of reclaimed water (the irrigation of fruits and vegetables to be processed being a moderately-supported use), as shown in Section 2.1. This can explain the identification of negative public perception as a barrier to reusing water. Additionally, it is not surprising that the fear of potential trade barriers is perceived as a serious barrier, as agricultural professionals might be concerned with not being able to sell their products if they are irrigated with reused water (although no evidence of actual trade barriers was provided during the consultation);
- For the environment/climate sector respondents: the lack of awareness and the fact that water reuse is not seen as a component of integrated water management;
- For the health sector respondents: the lack of clarity in the regulatory framework to manage risks;
- For the drinking water and sanitation sector respondents: negative public perception and the lack of awareness on the benefits of water reuse.

For some barriers, one or more sectors stand out regarding the proportion of respondents considering them as high:

- The level of technical barriers is viewed as high by a proportion of food sector respondents which is almost twice as high as the other sectors.
- The stringency of national water reuse standards is regarded as a serious barrier by 50% of respondents from the agricultural sector, vs only 15% of respondents from the health sector.
- The fear of potential trade barriers is seen as a serious barrier by 62% of respondents from the agricultural sector, while the proportion in other sectors is around 40%. This is not surprising, as the agricultural sector would be the most affected by such trade barriers.

2.3.4. Additional barriers

Furthermore, some respondents shared their views on additional potential barriers to water reuse. The most frequently mentioned barriers are:

- Potential health risks;
- The distance between the site of water treatment and the site of reuse;
- The lack of political will and the consequent lack of legislation (although this barrier is somehow included in the barriers entitled “Lack of clarity in the regulatory framework to manage risks associated with water reuse” and “Water reuse not seen as a component of integrated water management”).

One frequently mentioned aspect, although it is not a barrier *per se*, is the fact that disadvantages of water reuse must not be overlooked, in particular with regards to maintaining river flow. Respondents who shared that view noted that reusing water means that a certain amount of water does not go back to rivers (from which water was initially abstracted), thus potentially leading to adverse environmental impacts.

2.3.5. Conclusion on barriers

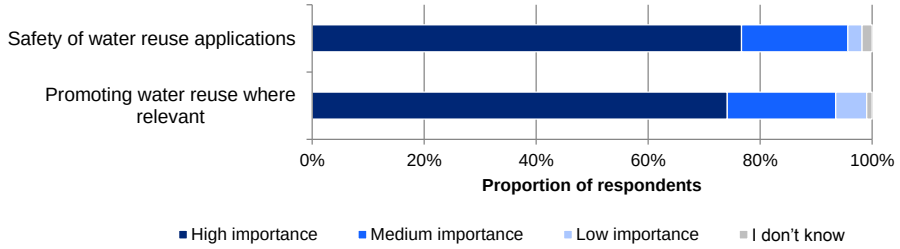
Overall, according to respondents, the lack of awareness and the negative perception issues around water reuse are the main factors preventing a wider uptake. Lack of clarity in the regulatory framework to manage water reuse-related risks is more likely to be considered as a barrier than stringent national water reuse standards. However, stringent national water reuse standards are more frequently quoted as a barrier in Member States having such standards in place.

3. Opinions on possible EU measures

3.1. Main focus of EU measures

Respondents were asked to share their opinions on what the main focus of a potential EU-level measure on water reuse should be: promoting water reuse or ensuring safety of water reuse applications. The results (Figure 22) show that both objectives have an equal importance, in the views of respondents.

Figure 22: Views of respondents on the main focus of EU measures



Some respondents commented that water reuse practices should be fit for purpose and that each case should be assessed individually for potential risks.

3.2. Perceived effectiveness of potential EU measures to promote water reuse

The respondents were asked to share their opinions on the likely effectiveness of the following potential EU measures to promote water reuse (where such a solution is cost-effective):

1. Maintaining status quo: No new EU measure.

2. Optimising status quo: Increased enforcement of Water Framework Directive requirements on water pricing and freshwater abstraction control, integrated water management and better governance.

3. Non regulatory measures:

3.1. Non-binding EU guidelines on how to foster water reuse.

3.2. Promotion of forthcoming ISO/CEN water reuse standards as a common referential for the management of health and environmental risks to be used by Member States.

3.3. Awareness raising and dissemination of information on the various benefits of water reuse, among all key stakeholders/consumers.

3.4. Non-binding guidance on the implementation of the Water Framework Directive and Urban Waste Water Treatment Directive (e.g.: clarify provisions of the Urban Waste Water Treatment Directive on water reuse; give priority to water reuse among alternative water supply options; encourage water stressed Member States to set targets for water reuse).

4. Regulatory measures:

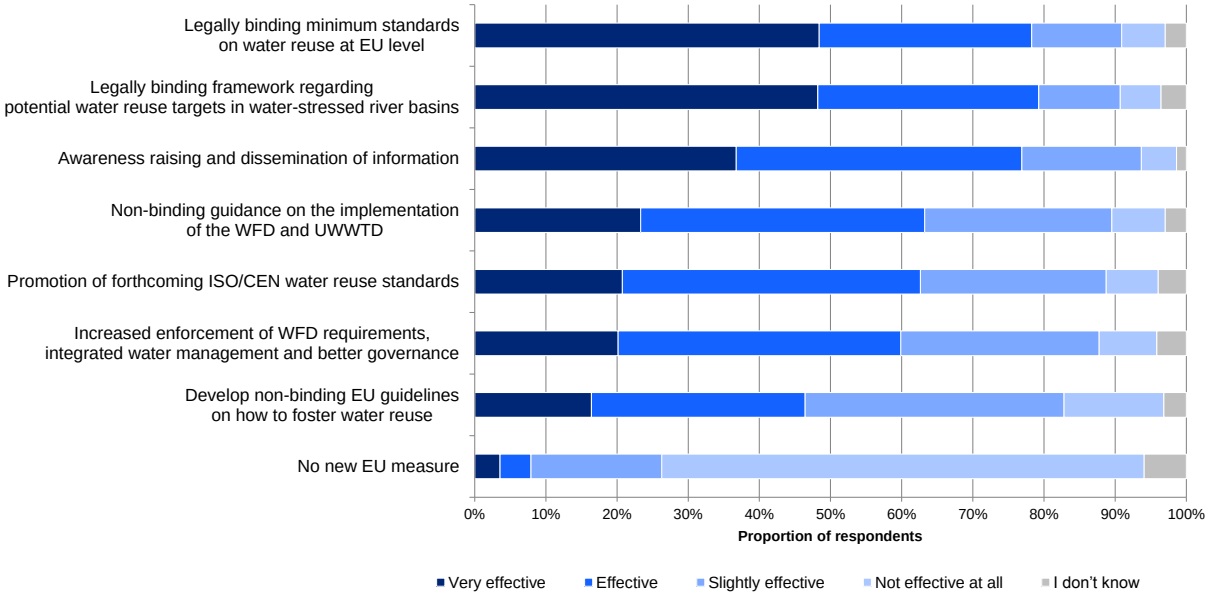
4.1. Legally-binding framework to require that MS with water stressed river basins assess the contribution of water reuse and, when relevant, set targets for it, while managing health and environmental risks.

4.2. Legally-binding minimum standards on water reuse at EU level.

3.2.1. Overall opinions in the EU

The overall results are presented in Figure 23.

Figure 23: Views of respondents on the effectiveness of potential EU measures to promote water reuse



The most effective measures, according to the respondents, are the regulatory ones: almost 80% of respondents consider legally-binding EU standards as effective or very effective (with almost 50% evaluating this option as very effective). Similar results are observed for the legally-binding framework involving potential reuse targets in water-stressed river basins.

Among the non-regulatory measures, the most effective according to the respondents is awareness-raising and dissemination of information, with 77% of respondents considering this measure as effective or very effective (37% evaluating it as very effective). Other non-regulatory measures, including increased enforcement of existing directives and development of guidance, are deemed to be effective or very effective by a fewer proportion of respondents.

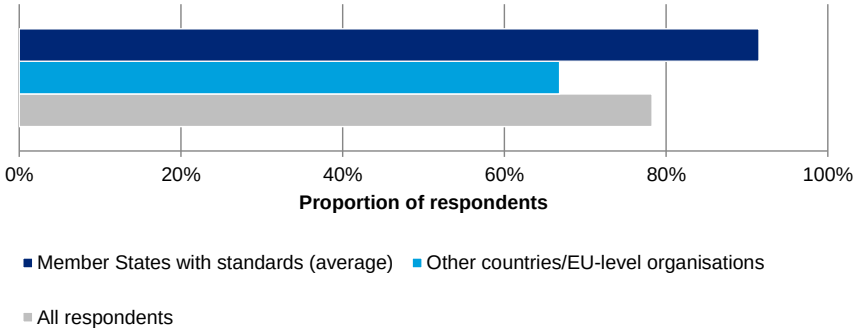
Furthermore, the majority of respondents (around 75%) do not consider that maintaining the status quo would be effective for promoting water reuse.

It should be noted that views expressed in most of the eight position papers submitted as part of the public consultation (see Annex 2) differ significantly from the overall results presented above.

3.2.2. Differences of opinions among Member States

As legally-binding EU standards are the most advocated measure, it is interesting to see whether the opinion of respondents from the Member States which already have standards differs from the opinion of other respondents. For the six Member States with national water reuse standards (Cyprus, Greece, Spain, France, Italy and Portugal), the average proportion of respondents from these countries which considered the EU standards measure as “effective” or “very effective” was evaluated (see Figure 24).

Figure 24: Proportion of respondents considering legally-binding EU standards as effective or very effective for promoting water reuse



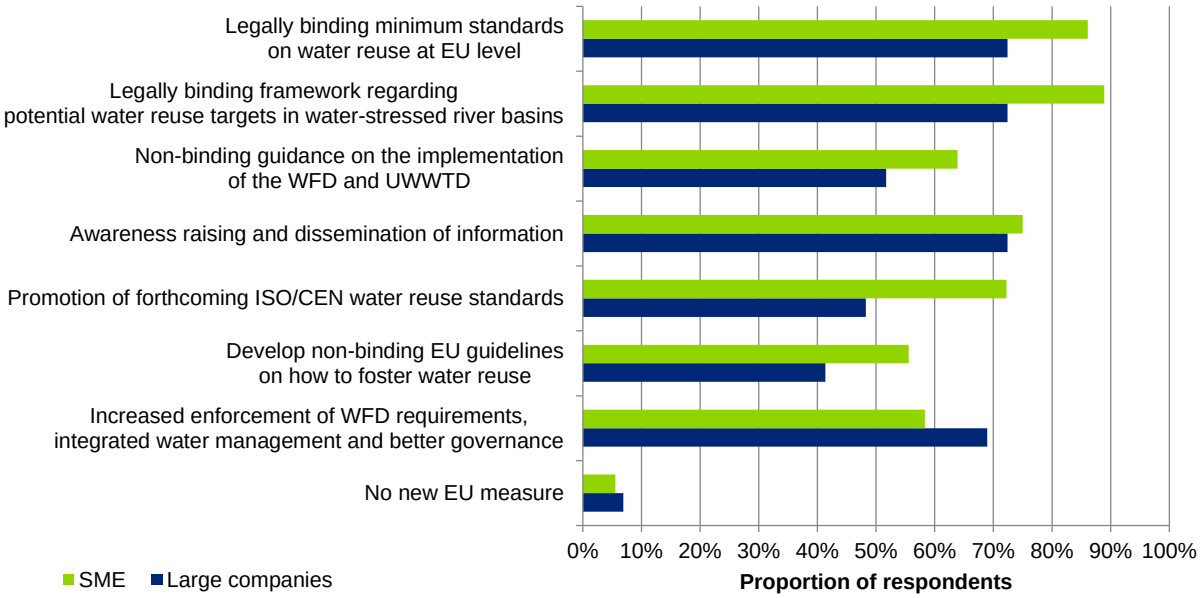
It appears that respondents from Member States with national standards are more likely to perceive EU-level standards as effective compared with other respondents (91% and 67% of perceived effectiveness, respectively). This could be explained by the fact that, in some of these Member States – in particular, France, Italy and Greece – many stakeholders hope that future legally-binding EU standards would be better designed and easier to implement than their current national standards, thus making reuse projects easier to implement and a more economically attractive solution for potential project developers.

A comparison of opinions between respondents from each Member State could not be made, due to the low number of responses from many of Member States (which are therefore not deemed representative).

3.2.3. Differences between large companies and SMEs

A comparison of the views of large vs small/medium enterprises on the policy measures was also carried out (see Figure 25).

Figure 25: Proportion of companies considering listed potential EU measures as effective or very effective to promote water reuse



All the listed policy measures are considered as effective or very effective by over 50% of SMEs. Almost all of the policy measures are considered effective or very effective by the majority (50% or more) of large companies.

Legally-binding measures are seen as the most effective by both SMEs and large companies. Non-binding guidance on the implementation of the WFD and UWWTD is also viewed as effective or very

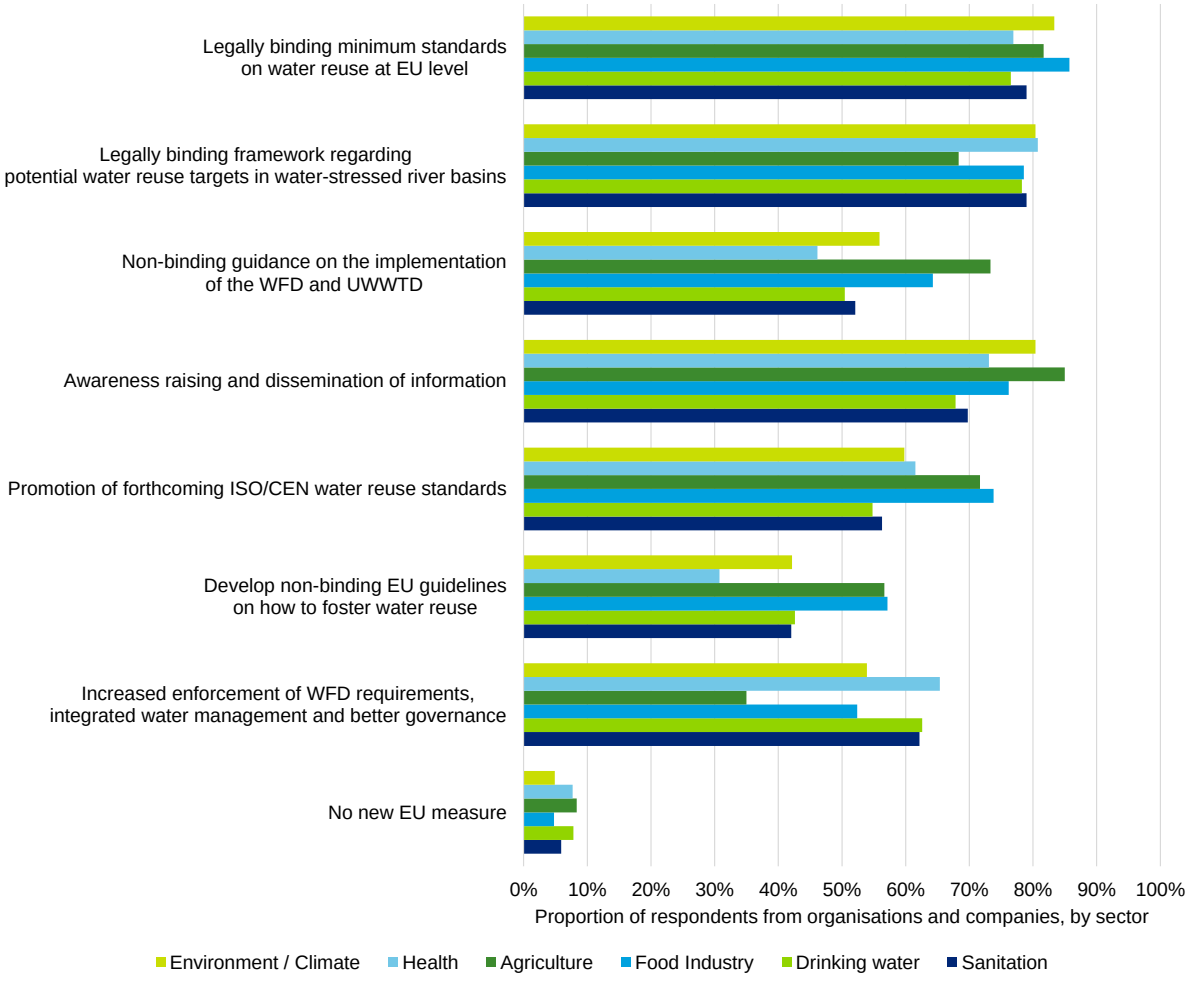
effective. Only 7% of large companies and 6% of SMEs consider that the status-quo is the most effective option.

The main difference between opinions of SMEs vs large companies concerns the promotion of the forthcoming ISO/CEN water reuse standards: more SMEs than large companies consider this measure as effective (72% vs. 48%).

3.2.4. Differences between sectors

Opinions of respondents from organisations and companies in six key sectors were analysed in further detail and compared: environment/climate, health, agriculture, food industry, drinking water and sanitation. No major differences between the opinions of each sector were identified, as shown in Figure 26.

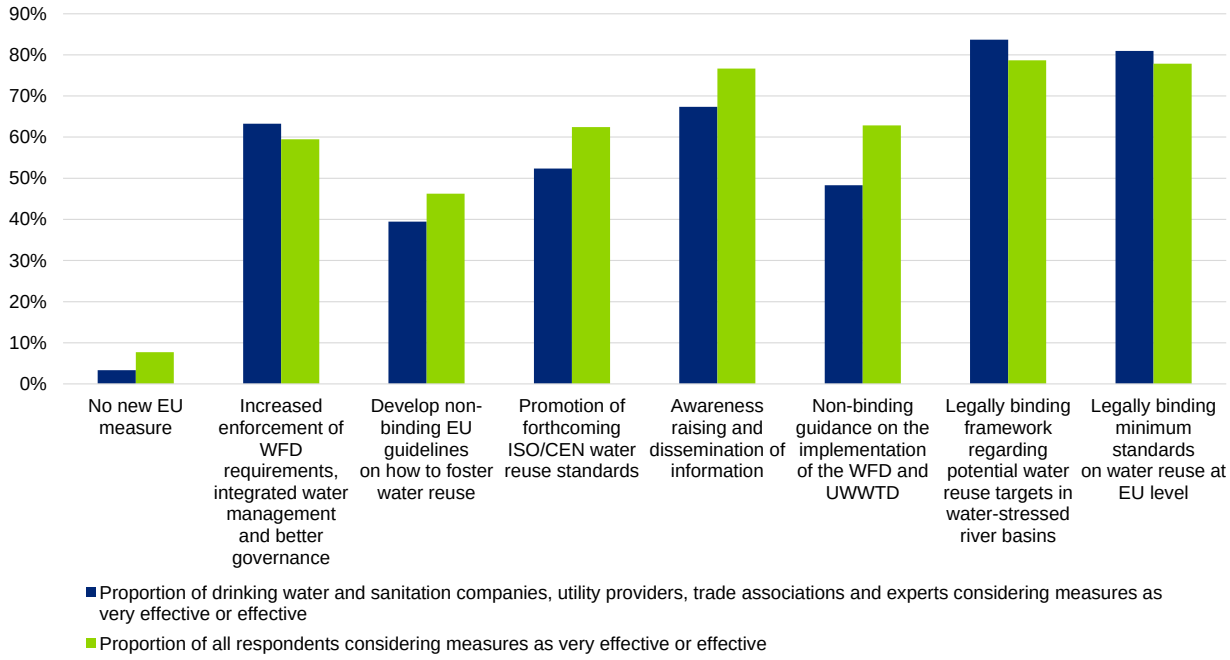
Figure 26: Proportion of organisations/companies considering the potential policy measures as effective or very effective, for six sectors



It can be noted that effectiveness of EU measures as perceived by respondents from the drinking water sector and sanitation sector are very similar: as highlighted in Section 2.3.3, this is not surprising as around 70% of professionals of either sector are also involved in the other.

Opinions of respondents from the drinking water and sanitation sectors were then grouped together and compared to the overall opinion on policy measures (Figure 27).

Figure 27: Proportion of respondents from the drinking water and sanitation sectors considering the potential policy measures as effective or very effective, compared to all responses



No major differences are identified between both groups of respondents: binding measures are regarded as the most effective and, among non-binding measures, awareness raising and dissemination of information are seen as having the highest potential; no further EU action is seen as the least effective option.

However, respondents from the drinking water/sanitation sectors are more likely to consider binding options as effective/very effective when compared to the overall opinion, and the reverse for non-binding options and no further EU action. Furthermore, the proportion of respondents from the drinking water/sanitation sectors viewing an increased enforcement of WFD requirements as effective/very effective is higher than the proportion of respondents from all sectors and backgrounds.

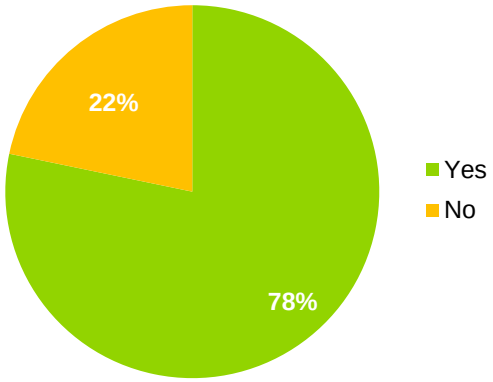
3.2.5. Additional measures and combination of measures

Some respondents propose additional measures. One of the most frequently mentioned measure is financial incentives to reuse water. In particular, a respondent mentions that offering payments to farmers for the ecosystem services associated with water reuse, as part of the Common Agricultural Policy (CAP), could be a useful incentive. Moreover, many respondents highlight the need for pricing instruments in the promotion of water reuse: inter alia, a framework for cost recovery and a freshwater pricing policy[5]. Some respondents stress the importance of promoting previous experiences and investing in research and development. Other respondents consider that regulating specific sectors only, e.g. irrigation of golf courses, would be effective.

Respondents were also asked if some measures should be combined. As shown in Figure 28, a majority (78%) of respondents believe so.

[5] It should be noted that implementation of national water pricing policies that are based on the full cost recovery principle is already a key objective of the WFD.

Figure 28: Answer to the question "Would a combination of different measures be necessary to promote water reuse?" – Proportion of respondents



The respondents who answered "Yes" were prompted to specify which measures they think should be combined. The prevailing opinion is that an EU action should include regulatory and non-regulatory measures. Among non-regulatory measures, dissemination of information is the option viewed as the most effective. A number of respondents highlight that current regulations should also be amended, especially when it comes to punishing illegal abstractions of freshwater. Furthermore, some of the respondents that did not consider EU regulatory action as effective advocate a combination of non-regulatory EU measures and local legislation.

3.2.6. Pros and cons of the possible measures to promote water reuse

Respondents were asked to share their views on the pros and cons, as well as the costs and benefits of potential EU measures. The answers are summarised in Annex 1 and the key messages are presented in the paragraphs below.

No further EU action

Respondents viewing further EU action as effective or very effective believe that the current state of water reuse is not likely to address an increasing water scarcity in the EU and that, should the EU take no action, the current situation would be unlikely to improve. Some respondents stress that EU-wide barriers to water reuse would remain and others note that stringent national regulations would keep on preventing a wider uptake of water reuse. Furthermore, the long-term costs are deemed to be significant: costs associated with environmental, social and economic impacts of water scarcity and, in particular, costs associated with climate change adaptation measures. Respondents considering no new EU action as being effective highlight that it would ensure flexibility for Member States, as they would be free to choose their own approach and allow the development of water reuse according to the specific background of each project.

Improved implementation of existing legislation

Measures building on previous legislation (increased enforcement of the WFD & UWWTD and guidelines) may be, according to some respondents, enough to ensure an uptake of water reuse in Member States who are willing to promote it. More specifically, some respondents explain that controlling freshwater abstraction and water pricing more effectively could likely increase the demand for water reuse (as it may become more competitive than freshwater) and that mandatory reporting requirements on water reuse practices can easily be added in River Basin Management Plans (RBMPs) and Programmes of Measures (PoM). Moreover, it is highlighted that an increased enforcement of existing legislation may ensure faster action than developing new legislative provisions.

Non-binding measures

Respondents considering non-regulatory measures as effective stress the low cost of these actions, which can potentially deliver high benefits. The non-binding nature of these measures would ensure flexibility of implementation in Member States, which is an important aspect with regards to water reuse, as water scarcity only concerns some areas of the EU. Awareness raising measures are

pointed out as providing high benefits, because previous experiences (e.g. in California and in Singapore) showed that public acceptance is an important driver for the uptake of water reuse. The dissemination of good practices and the promotion of experience-sharing and capacity-building through EU guidelines are seen as a flexible and cheap measures. A significant number of respondents, however, consider that non-regulatory measures would have limited impacts, arguing that Member States rarely follow EU initiatives if not binding. It is also mentioned that non-binding measures would be implemented differently across Member States, which could raise problems in the future: for instance, the promotion of ISO/CEN standards could hinder the adoption of consistent and efficient regulatory standards. Other respondents argue that the lack of financial incentives (for companies and for public bodies) is a barrier to the actual implementation of such measures. For instance, some respondents point out that non-binding EU guidelines may not be effective if not connected to a system of financial incentives for Member States who follow these guidelines. Furthermore, some respondents highlight that non-regulatory measures would not lift the potential trade barriers, due to the fact that Member States would use different approaches.

Legally-binding measures

Among respondents viewing regulatory measures as effective or very effective, a significant number stress the fact that it would create a common playing field for water reuse actors (this is especially true of EU standards) with benefits ranging from reduced water scarcity and a better risk management, to innovation opportunities for water companies. Respondents considering the regulatory measure on potential water reuse targets as (very) effective underline the fact it would leave Member States the freedom to choose their own approach. Some also point out that the framework would increase recognition of planned water reuse as a valuable solution to meet the demand. Furthermore, respondents viewing binding standards as effective highlight that previous experiences in California and Florida indicate that this approach has been the most effective in promoting water reuse for practically all intended uses. One respondent also mentioned the experience of the EU Emissions Trading Scheme, which demonstrated that binding quantitative targets can accelerate the achievement of environmental objectives while unlocking private sector innovation to address environmental issues at lower cost. Other respondents, however, view the binding nature of proposed EU measures as problematic. They highlight that without a prior public acceptance of water reuse, regulatory measures would not be viewed favourably by stakeholders. Moreover, some respondents fear that binding standards or targets would not ensure that local specificities be taken into account and that small projects would be viable. A significant number of French and Italian respondents also highlight that, in their countries, too stringent standards have hindered the development of reuse projects. Finally, many respondents point out that regulatory measures would be costly to develop and to implement: extensive data collection may be needed, which could be costly and difficult in some Member States, especially in times of economic crisis.

3.3. Perceived effectiveness of potential EU measures to ensure environmental and health safety

Respondents were asked to share their opinions on the likely effectiveness of the following potential EU measures to ensure the environmental and health safety of water reuse practices, i.e.:

1. Maintaining status quo: No new EU measure.

2. Non regulatory measure: Promotion of forthcoming ISO/CEN water reuse standards as a common referential for the management of health and environmental risks to be used by the Member States.

3. Regulatory measure: Legally binding minimum standards on water reuse at the EU level addressing health and environmental risks.

3.3.1. Overall opinions

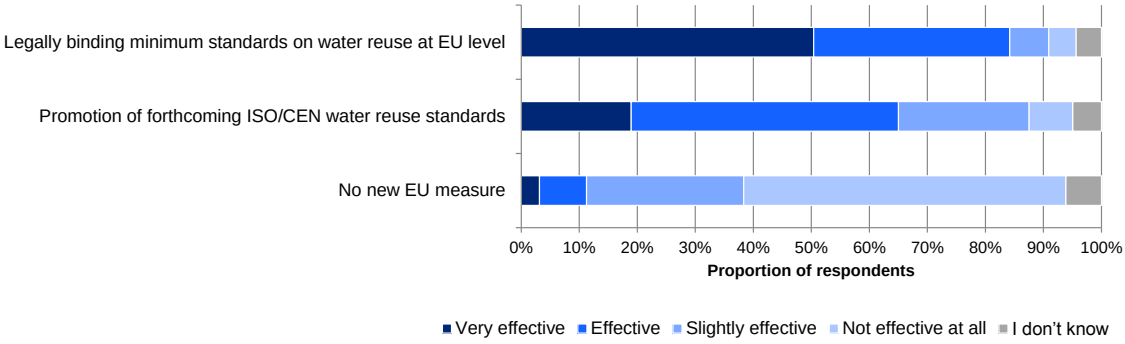
As shown in

Figure 29 Figure 29, a vast majority of respondents (88%) consider that maintaining the status quo would have no or little effectiveness with regard to ensuring the safety of reuse practices. However, as already mentioned, no evidence of actual health or environmental issues/damages due to water reuse practices is mentioned by the respondents.

The most effective action, according to the respondents, is to set legally-binding standards at EU level: more than 80% of respondents consider such standards as effective of very effective, with 50% of them viewing them as very effective.

About 65% of respondents consider the promotion of ISO/CEN standards as effective or very effective (only 19% finding them very effective).

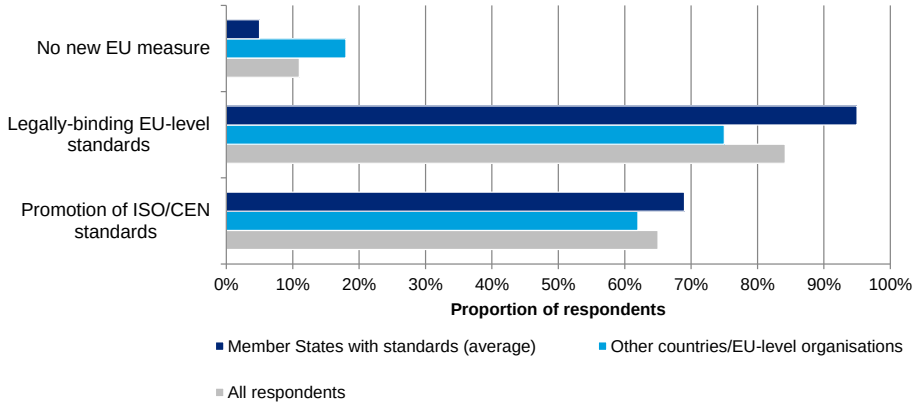
Figure 29: Views of respondents on the effectiveness of potential EU measures to ensure the environmental and health safety of water reuse practices



3.3.2. Differences of opinions among Member States

As in Section 3.2, it is interesting to study the differences in opinions between respondents from the six Member States with national water reuse standards (Cyprus, Greece, Spain, France, Italy and Portugal) and other respondents. These differences are shown in Figure 30.

Figure 30: Proportion of respondents considering each measure as effective or very effective for ensuring environmental and health safety of water reuse practices



Compared with respondents from other countries, respondents from Member States with national water reuse standards are much more likely to consider further EU action as effective, in particular to implement legally-binding EU standards (95% among the six Member States vs. 75% among the other respondents). This could be explained by the fact that, in some of these Member States – in particular, France, Italy and Greece – many stakeholders hope that future legally-binding EU standards would be better designed and easier to implement than their current national standards, and that they would be based on the latest scientific evidence, thus providing a higher level of safety.

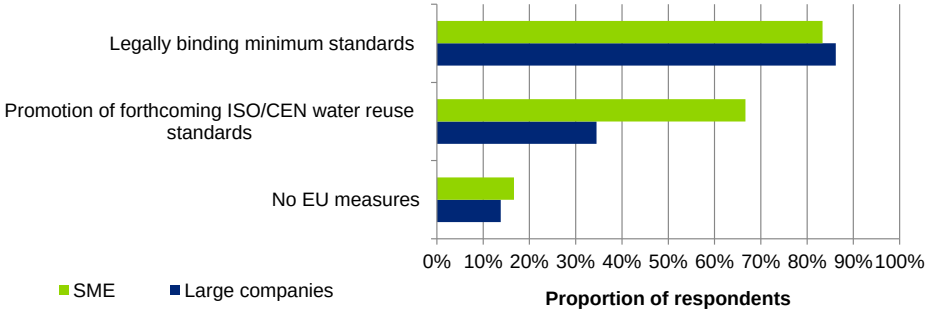
The proportion of respondents viewing the promotion of ISO/CEN standards as effective is relatively similar between the two types of respondents.

A comparison of opinions between respondents from each Member State could not be made, due to the low number of responses from many Member States (which are therefore not deemed representative).

3.3.1. Differences between large companies and SMEs

A comparison between opinions of large vs small/medium enterprises is provided in Figure 31 below. The main difference concerns the promotion of ISO standards: SMEs are more likely to consider this measure as effective than large companies.

Figure 31: Proportion of companies considering listed potential EU measures as effective or very effective to ensure safety

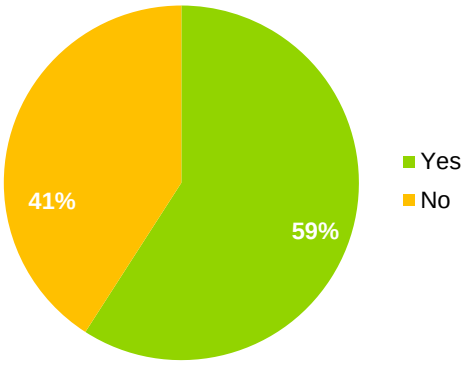


3.3.2. Additional measures and combination of measures

Some respondents propose additional measures. Many of them insist on the need to promote technological innovation in order to better manage risks: real-time analysis, R&D funding, promotion of safe irrigation techniques, etc. Others highlight that additional requirements in current regulations may be necessary. For instance, one respondent expresses the need for requirements for the transport and labelling of reused water and another thinks that tighter regulation of chemical substances being released in urban and industrial effluents would be effective.

Respondents were also asked if some measures should be combined. As shown in Figure 32, a majority of respondents think so (59%).

Figure 32: Answer to the question "Would a combination of different measures be necessary to ensure environmental and health safety of water reuse practices?" – Proportion of respondents



The respondents who answered "Yes" were prompted to specify which measures they think should be combined. Many respondents suggest that standards should be accompanied with awareness-raising actions and/or financial incentives.

This page is intentionally left blank

Annex 1.Pros, cons and cost/benefits of the potential EU measures, according to respondents

EU-level measure	Pros	Cons	Benefits/Costs
Maintaining status quo: no new EU measure	- No additional cost for the consumer - The WFD and its legal instruments offer appropriate tools - Member States are free to choose their own approach (flexibility is ensured) - Allows the development of water reuse according to the specific background of each project - No new stringent regulation hindering water reuse	- No development of water reuse practices - Increased scarcity in some Member States - The current situation in some Member States which have national regulation is not favourable to a wider uptake of water reuse. Maintaining status quo is not likely to improve the situation - No control of potential health risks - EU-wide barriers (such as trade barriers) will remain	Costs - Long-term costs associated with environmental, social and economic impacts of water scarcity – in particular, costs associated with climate change adaptation measures - For the water industry: loss of business opportunities as no EU measures may prevent the development of water reuse solutions in Europe, which will then hinder the international development of European companies (no references in internal markets) - Research costs if each Member State develops its own approach Benefits - No administrative expenditure - The relevant sectors will meet reuse needs at the best price

EU-level measure	Pros	Cons	Benefits/Costs
Optimising status quo: **Increase enforcement of WFD requirements concerning water pricing and freshwater abstraction control, integrated water management and better governance**	- Controlling freshwater abstraction and water pricing more effectively could likely increase the demand for water reuse (as it may become more competitive than freshwater) - Mandatory reporting requirements on water reuse practices can easily be added in River Basin Management Plans (RBMPs) and Programmes of Measures (PoM) - Increased enforcement of an existing legislative tool is more likely to lead to a consensus than having a new legislation - Using an existing tool may ensure faster action - Sends “the right signal” in terms of promotion of water reuse	- Water pricing is different across Member States; therefore, rationalising water prices may have unintended and/or adverse consequences - An EU-level pricing instrument could affect the competitiveness of manufacturers who use water as a natural resource - An EU-wide pricing policy would increase the cost of water in Member States where there is no water scarcity, leading to a lack of understanding of EU policy - Some barriers, especially the lack of awareness of stakeholders and the negative perception of the public, are left unaddressed	Costs - For public authorities, because of the need for more enforcement services to meet requirements - For the EU population, as the price of water will likely increase Benefits - Cheaper than the implementation of a new legal instrument - Better cost recovery makes reuse more viable - Helps overcome some barriers to water reuse, leading to a greater certainty for businesses
Non regulatory measure: Develop non-binding EU guidelines on how to foster water reuse	- Dissemination of good practices - Encouraging experience sharing and capacity building - Clarity to users and providers of reused water, in particular with regards to the limited risks of reusing water, if done properly - Flexibility: can be adapted to local conditions and needs - Fast to develop and share	- Only affects stakeholders with already a good awareness - Measures based on voluntary action have historically not proven to be an effective driver of change: the impact can be limited depending on the effective application of the best practices - If implemented differently across Europe, can cause market disparity - Does not address all barriers to water reuse (in particular, the lack of incentive)	Costs - Option with limited costs: costs are mostly limited to knowledge exchange measures, compilation, translation and dissemination Benefits - Very useful option for Member States who wish to undertake water reuse, limiting the costs for individual Member States to draw up their national guidelines

EU-level measure	Pros	Cons	Benefits/Costs
<u>Non regulatory measure</u>: **Promotion of forthcoming ISO/CEN water reuse standards as a common reference for the management of health and environmental risks to be used by the Member States**	- International standards are recognised by all. They allow faster and more extensive action. - Would ensure that health and safety risks would be actively managed – an important factor for public acceptance of reuse technology - Would ensure resolution of the current lack of clarity on water reuse-related requirements in the EU. - Could provide a basis against which an entity can be audited by an external third party to provide assurance of compliance from a health and safety perspective - Would leverage ongoing activity - Good process for gradual preparation and coordination of Member States - Would facilitate internal trade of food products irrigated with reclaimed water	- Could lead to fragmented and inconsistent adoption of reuse standards across Member States – and could, in fact, hinder the adoption of consistent and efficient regulatory standards. - Strict / not flexible standards could prevent reuse in new experimental areas of application. - Does not take into account local specificities - Not enough concrete guidance for countries	<u>Costs</u> - The costs of implementation and possible certification can be high, particularly for SMEs - There is a risk of higher costs of reuse (or even limitation of existing markets) if the standards are too strict - Bringing WWTPs up to standards would be costly <u>Benefits</u> - An international framework reduces costs related to specific studies - Non-binding options will be less burdensome administratively - Harmonised practices for projects mean better visibility and control on costs, and thus a potential decrease of capital and operation costs

EU-level measure	Pros	Cons	Benefits/Costs
Non regulatory measure: **Awareness raising and dissemination of information on the various benefits of water reuse, among all key stakeholders**	- A positive image of water reuse will encourage its uptake - International experience with water reuse adoption in Australia, Singapore, and California has shown that public outreach is crucial to obtaining public acceptance of recycled water - Information would enter the public domain in a controlled manner and convey a consistent message - The most successful projects have been promoted by users, under water scarcity conditions, so public participation is critical - If effective, can bring an increase of the number of interested users and create demand for reused water - Could foster political momentum at local level	- It may take many years to change perceptions on water reuse - Does little more than raising awareness - Rather suitable as complementary measure - No development of water reuse will happen if there are no clear regulatory measures - Risk of poor information, incomplete or ambiguous messages	Costs - Developing appropriately-tailored educational programmes need a significant investment in time and money Benefits - No regulatory cost burden
Non regulatory measure: Develop non-binding EU guidelines on implementation of the Water Framework Directive and Urban Waste Water Treatment Directive (e.g.: clarify provisions of the UWWTD on water reuse; give priority to water reuse among alternative water supply options; encourage water stressed Member States to set targets for water reuse)	- Developing guidelines can be a fast process - Voluntary targets would allow Member States to make affirmative strategic declarations favouring water reuse while retaining a measure of local control - Going beyond the WFD could foster innovative reuse solutions - Would be useful to local and regional governments who are willing to develop water reuse	- Non-binding guidelines may lead to an inconsistent approach to reuse (including quality standards) across the Member States. - May not be effective if not connected to a system of incentives for Member States who follow these guidelines	Costs - Administrative costs to develop and implement guidelines. Benefits - If combined with incentives, this could bring investment in reuse projects (leverage effect)

EU-level measure	Pros	Cons	Benefits/Costs
<u>Regulatory measure</u>: **Legally binding framework to require that, in water stressed river basins, MS assess the contribution of water reuse under different water stress scenarios and, when relevant, set targets for water reuse in accordance with a clear framework for managing health and environmental risks**	- The binding nature of the framework is likely to ensure that all MS would be considering reuse in a consistent manner and would give it better chance of implementation - It would give a clear direction and would create a level playing field - The framework would increase recognition of planned water reuse as a resource, all the more if a clear, binding, framework for managing health and environmental risks is set - Targets would be an incentive for the European water industry to develop technologies that can ensure a reliable and safe water supply based upon reclaimed water - Allows a better local identification of reuse benefits in water stressed river basins - Flexible approach (Member States set their own targets, if necessary)	- Agreeing on targets and formalising them would take time - The problem to be addressed - water scarcity - is of relevance for some Member States only; therefore, no EU-wide framework should be set - Difficulties in properly setting the targets' levels when establishing scenarios - Public awareness and positive perception must be ensured before setting a legally binding framework - Setting such a regulatory measure specifically for water re-use could affect the uptake / consideration of other water minimisation strategies that might, in some circumstances, be more beneficial for a particular project - Widely applicable standards might be necessary and this option does not cover this issue - Without incentives, this option would be difficult to implement - In times of economic crisis there might be a lack of resources to meet commitments - The prior assessment by Member States can be easily subject to manipulation, especially in the absence of any system of penalties	<u>Costs</u> - Could be significant: operational costs (if adequate infrastructure needs to be built), implementation costs, monitoring and measuring costs and penalties. - Extensive data collection may be needed, which will be quite costly and difficult in some Member States. - Enforcement will be cost prohibitive for some Member States. <u>Benefits</u> - They are expected to be long-term benefits - In the future, if this option allows for the development of water reuse, the European water industry could disseminate their technological advantages to a much greater global market. - Sufficiently ambitious regulatory framework with quantitative goals would accelerate technological and business model innovation in European water reuse and ultimately lower the costs of adoption

EU-level measure	Pros	Cons	Benefits/Costs
<u>Regulatory measure</u>: **Legally binding minimum standards on water reuse at EU level addressing health and environmental risks**	- Enables a similar application by all Member States - Would increase export possibilities for example for crops irrigated with reused water, and thus help lift trade barriers linked to water reuse - Member States would have a tool to incorporate in their legislation, empowering local decision makers - The experience gathered in states like California and Florida indicate that this approach has been the most effective in promoting extensive water reuse for practically all intended uses - Must be complemented by knowledge sharing methods and awareness raising measures	- Could be blocking in local situations, if local differences are not integrated - Agreeing on standards would take time and represent a significant investment for both the Commission and the Member States - 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 - Binding standards may make people feel that they have to accept low quality water - "Minimum" means Member States can implement more stringent standards, which could prevent the development of water reuse projects	<u>Costs</u> - Many standards create significant costs of compliance and monitoring costs, which are passed on to the water users - 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. - Prohibitive costs of developing reuse schemes because of too stringent standards (e.g. France) <u>Benefits</u> - Despite certain issues, the implementation of the EU-ETS demonstrated that binding quantitative targets can accelerate the achievement of environmental objectives while unlocking private sector innovation to address environmental issues at lower cost. - Binding commitments would drive innovation by communities and technology suppliers, reducing costs of compliance and dramatically improving the sustainability of water resource management.

Annex 2. Summary of position papers

Eight position papers were submitted through the IPM and by email. They were drafted by stakeholders from industry (individual companies or federations, from the water, irrigation, steel, golf and brewery sectors), from a consumer association and from a local authority. The European Committee for Standardization (CEN) also shared their standardisation priorities with regards to water reuse.

The large majority (88%) of stakeholders who submitted position papers are in favour of non-regulatory measures. They consider that water reuse is sufficiently regulated by existing legislation and that there is little point in implementing new measures if existing ones are not adequately enforced. They highlight that water is already reused where relevant, for instance in the case of droughts and/or where this is cost-effective.

Some of these stakeholders specify that guidance for reusing water would be welcome in order to enable the implementation of cost-effective and site-specific reuse projects. The stakeholders also mentioned the importance of public education for a better consumer acceptance of water reuse.

The large majority of stakeholders (88%) who submitted position papers are not favourable to regulatory measures, and especially to the implementation of legally-binding water reuse standards. They argue that bringing up industrial facilities to standards would be too costly, thus hindering the uptake of water reuse. Furthermore, they stress the fact that water reuse should be dealt with at local level and in an integrated way, which may not be taken into account in EU-wide standards. These views differ significantly from the overall results of the public consultation, as presented in Sections 3.2.1 and 3.3.1 (i.e. regulatory measures seen as the most effective ones).

One industrial stakeholder, however, notes that clear standards would ensure consumer acceptance and a consistent approach to reuse across the water industry. The CEN considers that standards would improve the credibility of water reuse projects, by addressing two main issues: the lack of standardised monitoring methods for contaminants of emerging concern in reclaimed water and the lack of reliable and easy-to-perform methods for characterisation of antibiotic resistance prevalence in reclaimed water. The CEN also highlights the fact that standards should consider the intended water reuse applications and should focus on managing risks to acceptable levels rather than applying rigid guideline values.

HOW TO OBTAIN EU PUBLICATIONS

Free publications:

- one copy:
  via EU Bookshop (http://bookshop.europa.eu);

- more than one copy or posters/maps:
  from the European Union's representations (http://ec.europa.eu/represent_en.htm);
  from the delegations in non-EU countries
  (http://eeas.europa.eu/delegations/index_en.htm);
  by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm)
  or calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

  (*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:

- via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions:

- via one of the sales agents of the Publications Office of the European Union
  (http://publications.europa.eu/others/agents/index_en.htm).

KH-01-15-209-EN-N

Publications Office

doi: 10.2779/393475